580	ANNEXURE A	364	0	Interconnection Voltage Level 132 kV, through Double circuit Double string transmission line from project site till S/S	As per Bidder understanding, Bidder need to interconnect through voltage level of132 KV Transmission line and terminate at same voltage level at Substation. Also there is no requirement of step up @220 KV Voltage level.	Technical	Bidder is required to transmit and interconnect the project at 132kV level.
581	Section-I Instructions to Bidders	Page 22	17.5d	**Bid Prices and Discounts** Installation Services shall be quoted separately (Schedule No. 4) and shall include rates or prices for local transportation to named place of final destination as specified in the BDS, insurance and other services incidental to delivery of the plant, all labor, contractor's equipment, temporary works, materials, consumables and all matters and things of whatsoever nature, including operations and maintenance services, the provision of operations and maintenance manuals, training, etc., where identified in the bidding document, as necessary for the proper execution of the installation and other services, **including all taxes, duties, levies and charges payable in the Employer's Country as of twenty-eight (28) days prior to the deadline for submission of Bids;**	Refer to the clause ITB 17.5 d for Schedule No.4 and understood that when price in for the installation Services ,we shall consider all taxes, duties, levies and charges is payable in the Employer's Country as of twenty-eight (28) days prior to the deadline for submission of Bids; Kindly Clarify is it applicable to the other Schedules as well as listed below Schedule No.1: Plant (including Mandatory Spare Parts) Supplied from Abroad. Schedule No. 2: Plant (including Mandatory Spare Parts) Supplied from within the Employer's Country. Schedule No. 3: Design Services Schedule No. 5: Operation & Maintenance.	Contractual	No. For Schedule No 4 also, all applicable taxes & duties are to be mentioned separately in the given columns of the SOR sheet No 4, as the evaluation will be done excluding of all taxes & duties. The bais price & all other relevant taxes and duties should be mentioned separately as per the Schedule of Rates sheets
582	Section-I Instructions to Bidders & Notice Inviting Tender (NIT) in ETS	Page 54	20.1 Earnest Money Deposit (EMD)	The amount and currency of the Bid Security shall be 7 Cr (Indian Rupees Seven Crores only) or USD 0.9 M (US Dollars Point Nine Million only).	As per the Notice Inviting Tender (NIT) in ETS System the Bid security or Earnest money Deposit(EMD) for Domestic Bidders is INR 70,000,000.00 and for International Bidders is USD 900,000.00. In the event if an International bidder form a JV with a domestic bidder to submit the Tender , What shall be the basis of the currency to prepare the Bid Security or Earnest money deposit (EMD) . Kindly Clarify .	Contractual	That will be decided by the status of the Lead member of the JV.
583	Section III - Evaluation and Qualification Criteria	Page 73-74	-	**3 Financial Situation** 3.1 Financial Capabilities 3.2 Average Annual Turnover 3.3 Financial Resources	Pleas Clarify , as a International Bidder/Member of a JV, what shall be the document evidence to be provided to comply to the Financial Qualification requirement.	Financial	Financial documents acceptable as per the governing law of the respective country
584	Annexure A, Employer's Requirements A.1 Scope of Works	Page 3	-	1.Project Particulars Site coordinates- Refer Annexure E: Project Location	Please provide the Annexure E which is missing from the RFB and also the coordinates, individual Site boundary and the AutoCAD drawing. The drawing provided in the DWF format is not clear.	Technical	Plant boundary and Contour Drawings are uploaded with Amendment 1.
585	Annexure A, Employer's Requirements A.1 Scope of Works	Page 3	-	Villages : Rangakathera, Dundera, Dhaba,Kokha, Amlidih, Girgaon, Margaon,Ghugkhwa, Odarbandh, Tolagaon	Kindly provide the planned estimated Solar plant capacity for each locations	Technical	Location wise capacity shall be decided by the Contractor as per design.

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586	Annexure A, Employer's Requirements A.1 Scope of Works	Page 3	-	Electrical Interconnection Details	Please illustrate the concept of the interconnection as the location are splatted in to 10 different places. Is all the 10 solar plants will be connected to the same interconnection locations ? Some of the villages like Ghuhkhwa is not in the layout provided and its far from the other locations ,Kindly clarify.	Technical	Plant design and engineering are in the scope of the Contractor. Power shall be suitably pooled before the take-off point at the Plant end. Power from the project shall be evacuated at 132 kV level to the Telkadih substation
587	Section X Contract Forms Appendix 8. Functional Guarantees	Page 340	E(ii)	**Liquidated Damages for Shortfall in Annual CUF for Solar PV Plant** If the Contractor fails to achieve guaranteed annual CUF, then the Contractor shall pay compensation to the Employer an amount equal to the difference in units (kWh) derived from guaranteed CUF and achieved CUF multiplied by Rs.4 per unit (kWh).	With reference to the compensation , Please consider to reduce the unit price INR 4 per unit (kwh) to calculate the compensation as we think it's very high compare to the recently awarded solar tariff in online bidding which is INR 2.36 per unit (kwh).	Technical	Terms and conditions of the tender document will prevail.
588	Section X Contract Forms Appendix 8. Functional Guarantees	Page 343	H	**Penalty for For breakdown of generation related infrastructure** the generation loss estimated based on the outage equipment's weightage (Wi) multiplied by estimated total energy output in the outage period beyond 48 hours, in the event of no breakdown (East) multiplied by Rs. 4/kWh will be levied.	With reference to the Penalty , Please consider to reduce the unit price INR 4 per unit (kwh) to calculate the compensation as we think it's very high compare to the recently awarded solar tariff in online bidding which is INR 2.36 per unit (kwh) .	Technical	Terms and conditions of the tender document will prevail.
589	Section X Contract Forms Appendix 8. Functional Guarantees	Page 343	I	Liquidated Damages for Shortfall in Equipment Availability If the annual equipment availability for BESS is less than 99% during any year then Contractor s Employer an amc $COM = \left(\frac{99 - EA}{EA}\right) \times C \times E$ following where, COM is Compensation payable to the Employer in rupees EA is Annual BESS Equipment Availability C is ₹8/kWh E is the intended energy output from BESS in kWh during the respective year in 99% availability condition after considering any degradation.	With reference to the compensation , Please consider to reduce the unit price INR 8 per unit (kwh) to calculate the compensation as we think it's very high compare to the recently awarded solar tariff in online bidding which is INR 2.36 per unit (kwh) .	Technical	Terms and conditions of the tender document will prevail.
590	ANNEXURE A: Employer's Requirements A.1. SCOPE OF WORKS	Page 3	-		Please provide the proposed Route and ROW of the 31.5km of transmission lines	Technical	SECI has not carried out any route survey for transmission line. However the length will be about 33km approx. Bidders are required to carefully access the length of transmission line from project site till 220/132kV CSPTCL's Thelkadih substation and quote accordingly as the complete scope deisgn, approval, ROW, construction of transmission line is in the scope of contractor/developer

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				Clarifications to Queries raised during Pre-Bid Meeting on 30.09.2020			
591	ANNEXURE A: Employer's Requirements A.1. SCOPE OF WORKS	Page 4		**1.Project Particulars**	Please provide us the details of the nearest source for the incoming water and power supply to the respective Solar Power Plants.	Technical	It is the responsibility of the bidder to assess the water and power source for the project.
592	ANNEXURE A: Employer's Requirements A.1. SCOPE OF WORKS	Page 4		Topography survey and Geotechnical survey report	We understand that the topography and Geotechnical survey is mentioned as contractor's scope in the RFB , But during the tender stage we need the Topography survey , Geotechnical survey ,Soil resistivity test reports, Ground water study , Hydrology and Flood study report for the detail design and accurate costing and its not practical to be done by the contractor during the Tender stage . So we suggest to take over the above listed scopes by SECI and provide us the reports during the Tender Stage .	Technical	Based on preliminary site survey carried out by SECI, Contour Survey drawings of the project sites/plots are being uploaded for information purposes only. The Contractor is advised to inspect the site and study the topography and other conditions to decide the extent of scope of area grading, ground compaction etc. to be provided before submission of the Bid. The Employer shall not be responsible for any variations, between information provided herein and detailed investigations to be carried out by the Contractor during contract execution. All surveys/studies shall be in scope of contractor.
593	Section-I Instructions to Bidders & Section IV- Bidding Forms	Page 43 Page 113 & Page 114	ITB 4.1	**ELI 1.1 -Bidder Information Sheet & ELI 1.2 - Party to JV Information Sheet,**	With reference to the ITB 4.1 , it was understood that in case of JV , the members of the JV are required to execute a JV agreement as per the "FORM OF UNDERTAKING BY THE JOINT VENTURE PARTNERS. FORM 2a" under bidding forms and Formation of JV company (JVC) is not mandatory . However , reference to the forms ELI 1.1 -Bidder Information Sheet & ELI 1.2 - Party to JV Information Sheet, The attachment for the form still requires the certificate of incorporation & Article of Association & Memorandum of Association (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.4. Pleas clarify if bidder as a JVcompany is it just required to complete the Form 2a will comply to the Tender requirement or still need to provide the certificate of incorporation as per the Bidder information sheet & JV formation Sheet .	Contractual	CoI & AoA & MoA is required in case of registered JV only.
594					We request your kind consideration to revise the last date to raise queries from 28/09/2020, 1700 hours to 16/10/2020, 1700 hours.	Contractual	The last date of Pre Bid queries submission will remain same.
595					We request your kind consideration to revise the bid submission date from 27/10/2020, 1400 hours to 30/11/2020, 1400 hours.	Contractual	The final date of bid submission has already been suitably extended

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596	Annexure A . Employer's Requirements A.1 Scope of Works	Page 8 of 15	4.1.26 4.1.27		Please clarify that as per the the scope of works in the RFB the construction of Bay at designated substation is under EPCC scope but during the site visit on 1st October 2020 , it was clarified as the SCOPE is under PGCIL. Kindly provide us the clear demarcation on this scope of works with the Single line diagram .	Technical	The construction of 02 Nos of 132kV feeder bay at 220kV Thelkadih Substation is not in the scope of bidder. SECI has applied for construction of 02nos of feeder bay to CSPTCL on deposit work basis for which CSPTCL has given the approval. SECI will bear the cost of construction of the 2 nos of bay. However design , approval & construction of necessary infrastructure at substation end for interconnection of the transmission line to these 02 nos of feeder bay and complying all the rules and regulation of the state/central utility is in the scope of bidder
597	Annexure A . Employer's Requirements A.1 Scope of Works	Page 8 of 15	5.1.25	5.1.25 Construction of transmission line including Design, route survey, foundation, erection stringing, commissioning as per TRANSCO/DISCOM procedure from take-off point at plant end substation to the delivery point at the evacuation substation as per Project Particulars provided above.	Please share us the feasibility carried out on the routing of transmission lines between the sites and also the 132kv transmission line routing from the final site to the Telkadih Substation . We suggest SECI to take over the scope of land acquisition , routing and approval ROW as during the tender it's not feasible to carryout all the survey and estimate the costs to be incurred to get the ROW of the Transmission lines.	Technical	The tentative length of the transmission line is about 33km approx. Bidders are required to carefully assess the length of transmission line from project site till 220/132kV CSPTCL's Thelkadih substation and quote accordingly as the complete scope design, approval, ROW, construction of transmission line is in the scope of contractor/developer
598	Annexure A . Employer's Requirements A.1 Scope of Works	Page 10 of 15	6.1		Obtaining statutory approvals/clearance/compliance from various government departments should be under SECI scope shall not be under EPCC contractor Scope of Works . Please Confirm .	Technical	Obtaining Statutory approval/ clearance/compliance from various government departments shall be under contractor's scope.
599	Annexure A . Employer's Requirements A.1 Scope of Works	Page 13 of 15	7.12		Please clarify is there any Specific requirement for OEM as mentioned in the RFB documents? If yes please provide us the copy to quote as accurate as possible.	Technical	There are no OEM specified in the tender document so contractor has to follow the OEM recommendations as per their selection of OEM's.
600	Section III - Evaluation and Qualification Criteria	Page no 73 Page no 73 Page no 77	3.2 3.3 4.2(a)	Average Annual Turnover Financial Resources Specific Experience	We understand from the Qualification requirement criteria that in JV partnership whoever comply to the Turnover and Financial resources will be the lead Member and meet the Specific experience will be the Lead member . What if in JV partnership Company A comply to the Financial requirement and Company B comply to the Specific requirement and Vice Versa , who shall be the lead member . Please clarify.	Contractual	Nobody will be lead member in this case. Lead member has to suffice both the Technical & Financial requirements as per the percentage requirement mentioned in the RfB.

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Clarifications to Queries raised during Pre-Bid Meeting on 30.09.2020

601	ANNEXURE A A.2. TECHNICAL SPECIFICATIONS	530 of 1149	3.2.2	Overall System Reactive Power Rating In accordance with the VAR-related control modes identified in this specification, if any, the BESS shall be capable of dispatching both leading and lagging reactive power at the PCC, up to the rated VAR capacity specified in Table-2, regardless of whether the battery is being simultaneously discharged or charged. This rating shall be referred to in all project documentation, including this specification, as the nameplate VAR rating. The BESS shall be capable of simultaneously producing real and reactive power as long as no nameplate rating is exceeded. That is, the combination of operation at full nameplate watt rating and full nameplate VAR rating shall not exceed the nameplate VA rating.	At Table-2 - Reactive Power Rating is mentioned as "NA" Employer to confirm the exact requirement of Reactive Power rating to be met by BESS during Peak Management as well as overall operation.	Technical	The BESS is not required to supply Reactive power.
602	ANNEXURE A EMPLOYER'S REQUIREMENT A.1. SCOPE OF WORKS	364 of 1149	1. Project Particulars	Proposed AC capacity (MW) of solar power plant - 100 MW Cumulative Inverter Capacity (Min.) = 175 MW Cumulative Inverter Transformer Capacity (Min.) = 175 MVA	For solar plant : Cumulative Inverter Capacity (Min.) shall be 100 MW and Cumulative Inverter Transformer Capacity (Min.) shall be 100 MVA. However, for BESS part : Bidder shall be allowed to design and optimize the Cumulative Inverter Capacity (Min.) and Cumulative Inverter Transformer Capacity (Min.) for BESS part to meet the specified requirement of Energy. Bidder may be allowed to decide on capacity of Inverter instead of 75 MW minimum capacity specified in the bid to Minimum 50 MW and above as required to meet energy requirement of Peak Management.	Technical	For Solar Part: Cumulative Inverter Capacity (Min.) shall be 140 MW and Cumulative Inverter Transformer Capacity (Min.) shall be 140 MVA in accordance with the revised Project capacity. Kindly refer S.No. 57 of amendment 1. For BESS Part: The (bidirectional) inverter Capacity shall be min. 40MW and BESS Transformer Capacity 40 MVA in accordance with the revised Project Capacity. The dispatchable Energy (Kindly refer S.No.57 of amendment 1 for revised BESS Energy Capacity) from BESS shall be measured at the PCC on the MV side (33 kV).
603	4. Procurement & Supply	368 of 1149	4.1.2	String monitoring unit	Bidder suggests Sting combiner box and monitoring at inverter input level (zonal monitoring)	Technical	Terms and conditions of the tender document will prevail.
604	2. String Monitoring Unit	389 of 1149	2.2.3	SMU with fuse on both positive and negative	Fuse on negative side need not be mandated. It can be made optional based on the inverter side grounding requirements.	Technical	Refer the S. no. 23 of ammendment-1.
605	12.3. Earthing of PV array field	423 of 1149	12.3.3	Earthing: Module to module earthing	Module-to module earthing need not be mandated. It can be as per module OEM recommendations	Technical	Terms and conditions of the tender document will prevail.
606	8.3. Chain link fencing	483 of 1149	8.3.1	Chain link fence - with toe wall	Chain link fence without a toe wall can be considered given the site location and soil condition.	Technical	Plant boundary shall be as per the chain link fence drawing provided as annexure to Amendment 1.
607	ANNEXURE A.3 SPECIAL TECHNICAL CONDITIONS	561 of 1149	12	Underground cables in masonry trench	Underground cable can be directly buried type with sand and brick lining	Technical	Kindly refer S.No. 20 of amendment 1.
608	B. Electrical System 1. Photovoltaic Modules	385 of 1149	1.2	Solar module: Mono or poly - but BIFACIAL	Option to use monofcaial module also to be considered	Technical	Only Bifacial PV modules are allowed. Kindly refer S. no. 24 of ammendment-1.
609	13. Module Mounting Structure (MMS)	493 of 1149	13.1 - 13.40	MMS : specification given for fixed tilt only	Bidder should be allowed to use other types of structures like seasonal tilt or Single axis tracking	Technical	Terms and conditions of the tender document will prevail.

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610	3. Technical Specification of Battery Energy Storage System	529 of 1149	Table 2: Supply-Specific Ratings and Requirements for each system	Battery charging period	Bidder request more clarity on the intended charging period of battery system during the day . Also, during the day time is there any condition for minimum energy export? Or is there any pre-defined power export profile to be met?	Technical	Power from the Solar PV generation plant shall be injected into the grid either directly from the solar field or from the BESS. BESS shall be charged fully from solar power generation that is over and above the evacuation capacity during daytime. The energy stored in the BESS shall be discharged completely at the BESS rated Power during non-solar hours so as to deliver the expected dispatchable energy at the PCC as specified elsewhere in the specifications .
611	3. Technical Specification of Battery Energy Storage System	529 of 1149	Table 2: Supply-Specific Ratings and Requirements for each system	Battery discharge period and time zone	Bidder request more clarity on the 3 hour period for which the battery will get discharged. Is this a pre-defined time period ?	Technical	Battery shall be discharged completely in the non solar hours.
612	ANNEXURE A A.2. TECHNICAL SPECIFICATIONS	530 of 1149	3.2.2	Overall System Reactive Power Rating In accordance with the VAR-related control modes identified in this specification, if any, the BESS shall be capable of dispatching both leading and lagging reactive power at the PCC, up to the rated VAR capacity specified in Table-2, regardless of whether the battery is being simultaneously discharged or charged. This rating shall be referred to in all project documentation, including this specification, as the nameplate VAR rating. The BESS shall be capable of simultaneously producing real and reactive power as long as no nameplate rating is exceeded. That is, the combination of operation at full nameplate watt rating and full nameplate VAR rating shall not exceed the nameplate VA rating.	At Table-2 - Reactive Power Rating is mentioned as "NA" Employer to confirm the exact requirement of Reactive Power rating to be met by BESS during Peak Management as well as overall operation.	Technical	The BESS is not required to supply Reactive power.
613	ANNEXURE A EMPLOYER'S REQUIREMENT A.1. SCOPE OF WORKS	364 of 1149	1. Project Particulars	Proposed AC capacity (MW) of solar power plant - 100 MW Cumulative Inverter Capacity (Min.) = 175 MW Cumulative Inverter Transformer Capacity (Min.) = 175 MVA	For solar plant : Cumulative Inverter Capacity (Min.) shall be 100 MW and Cumulative Inverter Transformer Capacity (Min.) shall be 100 MVA. However, for BESS part : Bidder shall be allowed to design and optimize the Cumulative Inverter Capacity (Min.) and Cumulative Inverter Transformer Capacity (Min.) for BESS part to meet the specified requirement of Energy. Bidder may be allowed to decide on capacity of Inverter instead of 75 MW minimum capacity specified in the bid to Minimum 50 MW and above as required to meet energy requirement of Peak Management.	Technical	For Solar Part: Cumulative Inverter Capacity (Min.) shall be 140 MW and Cumulative Inverter Transformer Capacity (Min.) shall be 140 MVA in accordance with the revised Project capacity. Kindly refer S.No. 57 of amendment 1. For BESS Part: The (bidirectional) inverter Capacity shall be min. 40MW and BESS Transformer Capacity 40 MVA in accordance with the revised Project Capacity. The dispatchable Energy (Kindly refer S.No.57 of amendment 1 for revised BESS Energy Capacity) from BESS shall be measured at the 132 kV ABT Meter at the Plant end Switchyard.
614	ANNEXURE A EMPLOYER'S REQUIREMENT A.1. SCOPE OF WORKS	364 of 1149	1. Project Particulars	Proposed AC capacity (MW) of solar power plant - 100 MW Cumulative Inverter Capacity (Min.) = 175 MW Cumulative Inverter Transformer Capacity (Min.) = 175 MVA	For solar plant : Minimum DC Capacity Specified is 200 MWp. Bidders requests to consider the optimum design of DC capacity to be under the scope of the most competitive bidder and may only limit to the plant guarantee requirements to achieve CUF 36.5% at 100 MWac.	Technical	The Bidder is free to optimize the Plant DC capacity subject to the the minimum DC Capacity of the Plant being 160 MW as per the revised Project capacity in order to achieve the CUF of 35.5 % at 100 MWac at the Plant End Switchyard. Please refer relevant clauses for amended of CUF and Plant Capacity.

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Clarifications to Queries raised during Pre-Bid Meeting on 30.09.2020

615	ANNEXURE A EMPLOYER'S REQUIREMENT A.1. SCOPE OF WORKS	364 of 1149	1. Project Particulars	Proposed AC capacity (MW) of solar power plant - 100 MW Cumulative Inverter Capacity (Min.) = 175 MW Cumulative Inverter Transformer Capacity (Min.) = 175 MVA	Request to consider Inverter sizing under the scope of the bidder to achieve the plant guarantee parameters.	Technical	Inverter sizing is in the scope of the bidder subject to the minimum sizes specified in the tender.
616	ANNEXURE A EMPLOYER'S REQUIREMENT A.1. SCOPE OF WORKS	364 of 1149	1. Project Particulars	Module/Cell Technology: Bifacial, Mono-crystalline PERC	We request SECI to kindly consider monofacial , SAT options as well	Technical	Terms and conditions of the tender document will prevail.
617	4. Procurement & Supply	368 of 1149	4.1.2	String monitoring unit	Bidder suggests Sting combiner box and monitoring at inverter input level (zonal monitoring)	Technical	Terms and conditions of the tender document will prevail.
618	2. String Monitoring Unit	389 of 1149	2.2.3	SMU with fuse on both positive and negative	Fuse on negative side need not be mandated. It can be made optional based on the inverter side grounding requirements.	Technical	Refer the S. no. 23 of ammendment-1.
619	12.3. Earthing of PV array field	423 of 1149	12.3.3	Earthing: Module to module earthing	Module-to module earthing need not be mandated. It can be as per module OEM recommendations	Technical	Terms and conditions of the tender document will prevail.
620	8.3. Chain link fencing	483 of 1149	8.3.1	Chain link fence - with toe wall	Chain link fence without a toe wall can be considered given the site location and soil condition.	Technical	Plant boundary shall be as per the chain link fence drawing provided as annexure to Amendment 1.
621	ANNEXURE A.3 SPECIAL TECHNICAL CONDITIONS	561 of 1149	12	Underground cables in masonry trench	Underground cable can be directly buried type with sand and brick lining	Technical	Kindly refer S.No. 20 of amendment 1.
622	B. Electrical System 1. Photovoltaic Modules	385 of 1149	1.2	Solar module: Mono or poly - but BIFACIAL	Option to use monofcaial module also to be considered	Technical	Only Bifacial PV modules are allowed. Kindly refer S. no. 24 of ammendment-1.
623	13. Module Mounting Structure (MMS)	493 of 1149	13.1 - 13.40	MMS : specification given for fixed tilt only	Bidder should be allowed to use other types of structures like seasonal tilt or Single axis tracking	Technical	PV module shall be installed with fixed tilt.
624	3. Technical Specification of Battery Energy Storage System	529 of 1149	Table 2: Supply-Specific Ratings and Requirements for each system	Battery charging period	Bidder request more clarity on the intended charging period of battery system during the day . Also, during the day time is there any condition for minimum energy export? Or is there any pre-defined power export profile to be met?	Technical	Power from the Solar PV generation plant shall be injected into the grid either directly from the solar field or from the BESS. BESS shall be charged fully from solar power generation that is over and above the evacuation capacity during daytime. The energy stored in the BESS shall be discharged completely at the BESS rated Power during non-solar hours so as to deliver the expected dispatchable energy at the PCC as specified elsewhere in the specifications .
625	3. Technical Specification of Battery Energy Storage System	529 of 1149	Table 2: Supply-Specific Ratings and Requirements for each system	Battery discharge period and time zone	Bidder request more clarity on the 3 hour period for which the battery will get discharged. Is this a pre-defined time period ?	Technical	Battery shall be discharged completely in the non solar hours.

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626	General				Kindly provide further clarity on the pattern of energy export expected during the day.	Technical	Power from the Solar PV generation plant shall be injected into the grid either directly from the solar field or from the BESS. BESS shall be charged fully from solar power generation that is over and above the evacuation capacity during daytime. The energy stored in the BESS shall be discharged completely at the BESS rated Power during non-solar hours so as to deliver the expected dispatchable energy at the PCC as specified elsewhere in the specifications .
627	2A Tech Specifications	152 of 182	3.1 Table 2	Rated No of Cycles (Minimum) : 4000 cycles at rated energy capacity at 80% Depth of Discharge (DoD) at 25oC and up to C/3 Rate of Discharge	Can we offer solutions with better cyclic life, say upto 6000 cycles. This would avoid the necessity of complete battery bank replacement and this save future costs to SECI. Would this be treated as a better solution by SECI and its marginally higher costs be spread over the project life?	Technical	Battery Parameters are not considered in bid evaluation. However, if the Bidder proposes a solution with higher no. of cycles (say 6000), the DoD (shall be minimum 80%) corresponding to 4000 cycles for such solution shall be acceptable for sizing purposes provided all other performance critria related to dispatchable energy, RtE, End of Life etc. as per tender specifications including OEM warranties remain the same. Please refer S. No.80 of Amendment.
628	2A Tech Specifications	152 of 182	3.1 Table 2	System ac-dc-ac efficiency*: >80%	Can we offer the Systems with higher ac-dc-ac efficiency : say >85%, thereby enabling SECI to take advantage of the energy efficient and environmentally sustainable BESS solutions with increased energy throughput over the design life? Would this be treated as a better solution by SECI and its marginally higher costs be spread over the project life?	Technical	Battery Parameters are not considered in bid evaluation. However, if the Bidder proposes a solution with higher RtE (say 85%), the same shall be acceptable for sizing purposes provided other criteria i.e. minimum DoD 80% and minimum 4000 cycles are also met and all other performance critria related to dispatchable energy, End of Life etc. as per tender specifications including OEM warranties remain the same. Please refer S. No.80 of Amendment.
629	2A Tech Specifications	152 of 182	3.1 Table 2	Watt-hour rating (dispatchable capacity) : 150 MWh ,dispatchable at the beginning of life (i.e. at the time of Commissioning) and minimum throughput capacity at the beginning of each year as per below table: …. values .... Dispatchable capacity shall not be less than 80% of Beginning of Life capacity at any point of time up to End of Battery Life.	In case of higher degradation than anticipated, would the Battery augmentation be allowed during this 10 years period (as mentioned ion clause 4.5.2, Page 156 of 182)?	Technical	In case of higher degradation, Contractor shall be required to replace/augment the battery to the extent of the minimum specified daily dispatchable energy for the year. Further, the Contractor shall be liable for Liquidated Damages for Shortfall in Equipment Availability as per Annexure 2 to Annexure - C (Page 680/1149)

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630	2A Tech Specifications	152 of 182	3.1 Table 2	Reactive Power Rating : NA	However, in Section 3.2.2 (Page 154 of 182), Overall Reactive Power rating, it is mentioned as follows: In accordance with the VAR-related control modes identified in this specification, if any, the BESS shall be capable of dispatching both leading and lagging reactive power at the PCC, up to the rated VAR capacity specified in Table-2, regardless of whether the battery is being simultaneously discharged or charged. This rating shall be referred to in all project documentation, including this specification, as the nameplate VAR rating. The BESS shall be capable of simultaneously producing real and reactive power as long as no nameplate rating is exceeded. That is, the combination of operation at full nameplate watt rating and full nameplate VAR rating shall not exceed the nameplate VA rating. We want to know which condition prevails and how much reactive power is needed in this 50MW BESS system	Technical	The BESS is not required to supply Reactive power.
631	2A Tech Specifications	153 of 182	3.1 Table 2	Grid Charging : NO	During higher ambient temperatures (especially summer months), the HVAC might be needed in Post Sunshine hours to maintain batteries at desired temperature. Can we consider auxiliary power for HVAC and Yard lighting / other small needs from the GRID?	Technical	BESS auxiliary load may be met through any source. However, the required energy dispatch as measured at the PCC shall be as per the specifications.
632	2A Tech Specifications	156 of 182	4.5.2	It shall be the responsibility of the Contractor to make periodic replacements/replenishments of unit batteries, if and when required, up to the End of Battery Life as described above. Outage time as a result of replacement will also be accounted as an “Accountable BESS Outage” for the purpose of computing BESS Availability.	Can the Bidder consider the threshold capacity of 150 MWh (dispatchable) at the time of commissioning, and plan for periodic augmentation of battery capacity over the 10 years, to match the "minimum throughput capacity at the beginning of year, as per Table 2, page 152 of 182) in case of higher degradation?	Technical	BESS dispatchable capacity at the time of capacity shall be 120 MWh as per the revised project capacity (Please refer relevant amendment in this regard). The minimum dispatchable capacities year-wise specified in the table 2 are the minimum expected throughput from battery per day during the year. The Contractor shall size the battery so as to ensure minimum daily throughput from the battery as provided in the table against the given year. Since the battery is expected to degrade during the operation in the year, the same shall be accounted for. The Contractor shall augment/replace batteries to achieve minimum expected throughput specified herein.
633	2A Tech Specifications	152 of 182	3.1 Table 2	Watt-hour rating (dispatchable capacity) : 150 MWh ,dispatchable at the beginning of life (i.e. at the time of Commissioning) and minimum throughput capacity at the beginning of each year as per below table: …. Values for Year 1: 147 MWh, year 2: 144 MWh	Requesting you kindly clarify the difference between these two values, namely BESS Capacity of 150 MWh at the time of commissioning V/s 147 MWh at the beginning of Year 1 (since BESS commissioning would happen along with plant commissioning, in the beginning of year 1 itself)	Technical	Year 1 refers to Year 1 from the date of Commissioning. BESS dispatchable capacity at the time of commissioning shall be 120 MWh as per the revised project capacity (Please refer relevant amendment in this regard). The minimum dispatchable capacities year-wise specified in the table 2 are the expected minimum throughput from battery every day during the year. The Contractor shall size the battery so as to ensure minimum daily throughput from the battery as provided in the table against the given year.

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634	2A Tech Specifications	157 of 182	4.6	Reliability, Availability, and Operability of the BESS: Availability Availability is the percentage of hours that the BESS is available during the year. The availability guarantee shall begin upon facility commissioning. Annual availability shall be calculated as follows ..... Formula	In order to improve the BESS availability, is it permitted to slightly increase the storage capacity, so as to ensure desired capacity being available at any point, even if a few battery modules are unavailable for any reason? Will that improve the availability Percentage?	Technical	Yes, as Expected Energy Output from Battery (Throughput) is defined in Clause 3.1.
635	2A Tech Specifications	157 of 182	4.6	Reliability, Availability, and Operability of the BESS: Availability Availability is the percentage of hours that the BESS is available during the year. The availability guarantee shall begin upon facility commissioning. Annual availability shall be calculated as follows ..... Formula	In case of any battery module malfunction during "non discharge hours" and it is rectified immediately (before the next discharge), will that be counted under unavailability? Especially when this does not impact the day's throughput ?	Technical	If the battery capacity (or any part of it) is not available to execute a functional requirement when it is called upon to do so, it shall be an accountable BESS outage.
636	2A Tech Specifications	174 of 182	12.2	Factory Acceptance Testing of BESS : Where full-scale testing of larger systems at the factory may be difficult or impossible due to the large system, the FAT shall be carried out at a subsystem or module level and shall consist of tests of 100% of the subsystems or modules that comprise the complete BESS, to the extent possible.	Since the different components of BESS come from different countries, it would be possible to conduct tests with identical "representative samples" maintaining full functionality. However the actual lot of batteries and inverters can be tested at site during acceptance testing. Wanted confirmation for the same	Technical	For meeting system level testing requirements as per UL 9540 and 9540A, shall be carried out on fully assembled system at site as part of SAT.

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Annexure 1

SECTION – VII, A. SCOPE OF WORKS

1. Project Particulars

Design and Engineering	
Plant AC capacity (MW)	**100**
Minimum DC Capacity (MWp)	**160**
Cell/Module Technology	**Bifacial** (Mono-crystalline/Polycrystalline)
Cumulative Inverter Capacity (Min.)	**120 MW**
Cumulative Inverter Transformer Capacity (Min.)	**120 MVA**
Power Transformer Capacity	**3*40 MVA**
Battery Energy Storage System (BESS)	**40 MW/ 120 MWh (Dispatchable)**
Origin of manufacturer	Open
O&M period	10 years
Design life of PV Power plant	25 years
Site Location and Land Details (Please refer SECTION – VII, C. Special Technical Conditions for details)	
Site coordinates	**Refer Annexure E:** Contour Drawings with Plant boundary Details Uploaded.
Villages	Rangakathera, Dundera, Dhaba, Kohka, Amlidih, Girgaon, Margaon, Odarbandh, Tolagaon
Tehsil	Dongargaon
District	Rajnandgaon
State	Chhattisgarh
Type of Land	Govt. Land
Owner of Project	Solar Energy Corporation of India Limited
Owner of Land	Chhattisgarh State Revenue Department
Electrical Interconnection Details	
Substation Details	220/132 kV Telkadih Substation

Interconnection Voltage Level	132 kV, through Double circuit Double Strung transmission line (75 MW each) from project site till **interconnection S/S as per the specifications of CSPTCL, including construction of Double Bus Scheme with associated protection and switching equipment at 132 kV Plant End Substation and a spare 33 kV feeder.** **The BESS capacity shall be divided into at least two systems and coupled with the Solar PV Array at the 33 kV bus (separate Bus sections).**
Metering	**Metering for the Plant CUF Guarantee shall be done on the ABT Meter on the 132 kV side of the Plant End Substation.** **Metering for the BESS Availability Guarantees shall be done at the 33 kV Side of the PCC.**
Distance to connecting substation (approx.)	**33 kms**.
Access	
Nearest Urban Area	Rajnandgaon (25 km)
Nearest Highway	Nagpur – Bhandara – Rajnandgaon – Raipur Highway (AH46 or NH-6)- Adjacent at the southern extreme
Nearest Railway Station	Dongargarh (15 km)
Nearest Domestic Airport	Swami Vivekananda Airport, Raipur (approx. 80 kms)
Performance Guarantee Parameters	
Performance Ratio (PR)	82%
Capacity Utilization Factor (CUF)	**28.7%**
BESS Availability	**98%**
Other Details	
Construction Water	It is the responsibility of the EPC

	contractor.
Construction Power	It is the responsibility of the EPC contractor.

2. Special Technical Specifications

Finishing Details of Guest House: Finishing works of the Guest House shall be as per following details:

Proposed List of Items for furnishing Guest House/Transit Accommodation			
S. No.	**Description**	**Quantity**	**Remark**
A	**Flooring**		
1	**Balcony, Toilet**		
	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS:15622, of approved make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick bed of cement mortar 1:4 (1 Cement : 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including pointing the joints with white cement and matching pigments etc., complete. Colour & Shade to be finalized by Engineer-in-charge.		Qty. to be calculated from provided architectural drawing/ layout
2	**Bedroom 1, Bedroom 2, Lounge, Recreational Area, Dining, Pantry, Store, Reception**		
	Providing and laying vitrified floor tiles of different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments		Qty. to be calculated from provided architectural drawing/ layout

	etc., complete. Size 600 X 600 mm Shade & Colour to be finalized by Engineer-in-charge.		
3	**Portico**		
	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.		Qty. to be calculated from provided architectural drawing/ layout
B	**Walls**		
1	**Interior walls of Balcony, Bedroom 1, Bedroom 2, Dining, Lounge, Recreational Area, Pantry, Store, Reception, Toilet etc.**		
	12 mm cement plaster of mix 1:6 (1 cement: 6 coarse sand)		Qty. to be calculated from provided architectural drawing/ layout
	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.		
	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work		

2	**Exterior walls of Balcony, Bedroom 1, Bedroom 2, Dining, Lounge, Recreational Area, Pantry, Store, Reception, Toilet, Parapet etc.**		
	15 mm cement plaster on rough side of single or half brick wall of mix: 1:6 (1 cement: 6 coarse sand)		Qty. to be calculated from provided architectural drawing/ layout
	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.		
	Finishing walls with textured exterior paint of required shade : New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm		
3	**Glass Partition**		
	Providing & fixing 12mm thick toughened glass (of reputed brands) frameless partitions, having machine polished edges. It shall have SS top, bottom and locking arrangement hardware of approved brand and design. Include door opening where necessary including SS handle of approved design and shape. The toughened glass shall have design/pattern on it Gap between two glass edge shall be filled with colorless silicon sealant. the job shall be completed including all hardwares and cleaning of glasses etc., and as per directions of Engineer In Charge		Qty. to be calculated from provided architectural drawing/ layout
	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & double action hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge.		
4	**Decorative Solid Partition**		

	Providing and fixing natural wood veneer decorative solid partition of approved shade and pattern as per directions of Engineer In Charge.		1
5	**Wall tiles in toilet and kitchen**		
	Providing and fixing ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete. Colour & Shade to be finalized by Engineer-in-charge.		Qty. to be calculated from provided architectural drawing/ layout
C	**Ceiling**		
1	6 mm cement plaster of mix : 1:3 (1 cement : 3 fine sand)		Qty. to be calculated from provided architectural drawing/ layout
2	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.		
3	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work		
D	**Doors & Window**		
1	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters: 30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws		Qty. to be calculated from provided architectural drawing/ layout

2	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete : 300x16 mm		do
3	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 250x10 mm		do
4	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 125 mm		do
5	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length. Second class teak wood.		do
6	Providing and fixing factory made laminated veneer lumber glazed shutter conforming to IS: 14616 and TADS 15:2001 (Part B), using 4 mm thick float glass panes for doors, windows and clerestory windows fixing with butt hinges of required size with necessary screws, all as per directions of Engineer-in-charge. 30 mm thick shutters		do
7	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete. Fixed to openings /wooden frames with rawl plugs screws etc. Providing and fixing fly proof galvanized M.S. wire gauge as wire meshing to windows and clerestory windows using wire gauge		do

8	Applying priming coat: With ready mixed pink or Grey primer of approved brand and manufacture on wood work (hard and soft wood)		do
9	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work		do
E	**Railing**		
1	Balcony & Roof Parapet wall		
	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge.		Qty. to be calculated from provided architectural drawing/ layout
F	**Kitchen & Other Slabs**		
1	Providing and fixing 18 mm thick gang saw cut, mirror polished, pre-moulded and pre-polished, machine cut for kitchen platforms, vanity counters, window sills, facies and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels. Granite of any colour and shade.		Qty. to be calculated from provided architectural drawing/ layout
G	**Sanitary & Plumbing Fixtures**		

1	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern with dual flush fitting, of flushing capacity 3 litre/ 6 litre (adjustable to 4 litre/ 8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.	3 Nos.	
2	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require: White Vitreous China Flat back wash basin size 550x 400 mm with single 15 mm C.P. brass pillar tap	5 Nos.	
3	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS:13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required : Kitchen sink without drain board 610x510 mm bowl depth 200 mm	1 No.	
4	Providing and fixing PTMT Bottle Trap for Wash basin and sink.	6 Nos.	
5	Providing and fixing mirror of superior glass and size and shade with 6 mm thick hard board backing : Rectangular shape 453x357 mm min.	3 Nos.	
6	Providing and fixing min. 600x120x5 mm glass shelf with edges round off, supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with screws, rawl plugs etc., complete.	3 Nos.	
7	Providing and fixing toilet paper holder : C.P. brass	3 Nos.	
8	Providing & Fixing of SS body 1.25 litre liquid soap dispenser with simple push lever fitted with liquid	4 Nos.	

	soap (one time) including cutting and making good the walls, wherever required.		
9	Providing & Fixing ABS/Plastic body paper towel dispenser complete with brackets fixed to wall with PVC rawl plug with CP brass screws complete in all respects, including cutting and making good the wall wherever required.	4 Nos.	
10	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet : 150 mm diameter	3 Nos.	
H	**Fire Extinguisher**		
	Supply, installation, testing and commissioning ISI marked (IS:15683) portable fire extinguisher, water (gas pressure) type capacity 9 kg with gun metal cap and nozzle and complete in all respects including initial fill and wall suspension brackets as required as per specifications.	1 No.	
I	**Light and Fan**		
1	Supply & installation of Surface Mounted 18W LED Batten tube light having housing made from CRCA steel sheet with driver etc. complete as required.	13 Nos.	Numbers are indicative and may increase/ decrease as per site requirement
2	Supply & installation of 150mm dia sweep metal body, 1400 RPM Exhaust fan with guard and mounting arrangement.	4 Nos.	
3	Supply & installation of 1200mm dia sweep ceiling fan copper wound, ISI marked and 5 star rated.	11 Nos.	Numbers are indicative and may increase/ decrease as