Amendment - 1

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RfB No : SECI/C&P/RfB/2020/CG/100/40

Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (160MWp DC capacity) along with 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India

Sl. No.	Section	Page No.	Clause	Original Version	Amendment
1	Section X - Contract Forms	339	Appendix 8. Functional Guarantees	Annual CUF Guarantee: If the Contractor fails to achieve the annual guaranteed CUF at the end of 10th year, then the Contractor shall pay compensation to the Employer an amount equal to the Net Present Value (NPV) of the revenue loss for 10th to 25th year In the event the CUF is less than the Guaranteed CUF, the Contractor shall immediately, upon demand, indemnify the Employer, as liquidated damages and not as penalty, amounts equivalent to remuneration of the equivalent Energy, subject to a maximum of hundred (100%) percent of the Total Annual O&M Price.	Void.
2	Annexure A2 (Technical Specifications)	103 of 182	6.2	The Approach road connecting nearest public road and the Main gate shall be of 4.5m wide carriage way with 0.5m wide shoulders on either side. The access road connecting Main gate and MCR and internal access road(s) connecting MCR to various facilities/ buildings/ open Installations shall be of 3.75m wide carriage way with 0.5m wide shoulders on either side while the peripheral road shall be of 2.5m wide carriage way with 0.5m shoulders on either side. The top of road (TOR) elevation shall be minimum 150 mm above FGL to avoid flooding of roads during rains. The roads shall be provided with alongside drains as per design requirements of drainage system for effective disposal of storm water and to avoid cross flow of storm water over the road. The roads shall be designed as per IRC SP-72 corresponding to traffic category T3 and critical field CBR value of the subgrade. Shoulder shall be of min. 150mm thickness.	The Approach road connecting nearest public road and the Main gate shall be of 4.0 m wide carriage way with 0.5 m wide shoulders on either side. The access road connecting Main gate and MCR and internal access road(s) connecting MCR to various facilities/ buildings/ open Installations shall be of 3.0 m wide carriage way with 0.5m wide shoulders on either side. The top of road (TOR) elevation shall be minimum 200 mm above FGL to avoid flooding of roads during rains. The roads shall be provided with alongside drains as per design requirements of drainage system for effective disposal of storm water and to avoid cross flow of storm water over the road. The roads shall be designed as per IRC SP-72 corresponding to traffic category T1 and critical field CBR value of the subgrade. Shoulder shall be of min. 150mm thickness.
3	Annexure A2 (Technical Specifications)	105 of 182	6.9	Maintenance pathways of min. 1.0m width shall be provided between SPV arrays for easy movement of maintenance staff, tools, equipment and machinery, washing of modules etc. The pathway area shall be generally levelled and well compacted manually/ mechanically. Areas of depression, valley zones or wherever there is noticeable change in topography, shall be levelled by laying min. 100mm thick PCC M10 or precast concrete paver blocks (min. 60mm thick, Grade M60) matching the top finished surface with ground topography/ grade to avoid accumulation of water in the region and allowing its free flow to keep the area devoid of mud/ sludge.	Maintenance pathways of min. 1.0m width shall be provided between SPV arrays for easy movement of maintenance staff, tools, equipment and machinery, washing of modules etc. The pathway area shall be generally levelled and well compacted manually/ mechanically. Areas of depression, valley zones or wherever there is noticeable change in topography, shall be levelled using well compacted good earth matching the top finished surface with ground topography/ grade to avoid accumulation of water in the region and allowing its free flow to keep the area devoid of mud/ sludge.
4	Annexure A2 (Technical Specifications)	106 of 182	7.14	The contractor shall also explore for providing rain water harvesting system for water conservation by constructing suitable collection wells along the drains or through provision of detention ponds etc. The scheme for rain water harvesting along with design calculations shall be submitted for approval.	The contractor shall also explore for providing rain water harvesting system for water conservation by constructing suitable collection wells along the drains or through provision of detention ponds or percolation/recharge pit etc. The scheme for rain water harvesting along with design calculations shall be submitted for approval.
5	Annexure A3 (Special Technical Conditions)	4 of 4	22	New Clause	Part C: Civil, Mechanical and Plumbing Works, Clause 13: Module Mounting Structure (MMS): Minimum thickness of the purlin section excluding anti corrosive treatment (BMT) shall be 1.5 mm. Aluminum-zinc alloy metallic coated steel strip or sheet of grade YS350 and min. coating class AZ150 conforming to IS-15961:2012 may also be used for fabrication of purlin sections. In such a case, all the sections of the base metal exposed after cutting of members and punching of holes shall be provided with sprayed aluminum and zinc coating conforming to IS-5905.
6	Annexure A3 (Special Technical Conditions)	4 of 4	23	New Clause	Apart from the distribution of wind load suggested in Cl 10.10.2 of Annexure 2, Bidder may propose any other distribution of wind load based on wind tunnel studies subject to the approval of the employer.
7	Annexure A2 (Technical Specifications)	119 of 182	13.23	Fasteners and washers to be used for erection of mounting structures and those for fixing Module over MMS shall be of stainless steel grade SS 304 & SS 316 with property class A2-70 conforming to relevant ISO standard and must sustain the adverse climatic conditions to ensure the life of the structure for 25 years.	Fasteners and washers to be used for erection of mounting structures and those for fixing Module over MMS shall be of stainless steel grade SS 304 with property class A2-70 conforming to relevant ISO standard and must sustain the adverse climatic conditions to ensure the life of the structure for 25 years.
8	Annexure A2 (Technical Specifications)	120 of 182	13.33	The contractor shall submit the foundation and structural design basis for MMS along with the list of reference standards in his Bid duly certified by a Chartered Engineer having adequate successful experience in similar works which shall be finalized with the prospective bidder during pre-award. The MMS shall be designed to optimize tilt angle and elevation to minimize self-shading and maximize the capture of diffuse light by Bifacial Modules. The Bifacial Module frames shall be rail-edge mounted in landscape configuration to minimize losses.	The MMS shall be designed to optimize tilt angle and elevation to minimize self-shading and maximize the capture of diffuse light by Bifacial Modules. The Bifacial Module frames shall be rail-edge mounted in landscape configuration to minimize losses.
9	Annexure A2 (Technical Specifications)	142 of 182	38.3.4	The support structure shall be hot-dip galvanized. Min depth of foundations shall be 1200 mm below GL.	The support structure shall be hot-dip galvanized. Min depth of foundations shall be 1000 mm below GL.
10	Annexure A2 (Technical Specifications)	142 of 182	38.2.4	The support structure shall hot-dip galvanized and of adequate height to ensure min. ground clearance of 1.0 m to SMU unit.	The support structure shall be hot-dip galvanized and of adequate height to ensure min. ground clearance of 0.8 m to SMU unit.
11	Annexure A2 (Technical Specifications)	100 of 182	3.9.3	The nos. of piles to be tested under each category shall be finalized corresponding to geotechnical characteristics at site, plot area etc. However, minimum 5 nos. of piles shall be tested (min. 3 nos. in each block (block size < 25 acre) and min. 5 nos. in each block (block size ≥25 acres) if the plant site is divided in discrete blocks separated from each other) under each category of load.	The nos. of piles to be tested under each category shall be finalized corresponding to geotechnical characteristics at site, plot area etc. However, minimum 5 nos. of piles shall be tested (min. 3 nos. in each block (block size < 25 acre) and min. 5 nos. in each block (block size >25 acres) if the plant site is divided in discrete blocks separated from each other) under each category of load.
12	Annexure A3 (Special Technical Conditions)	3 of 4	18	Part C: Civil, Mechanical and Plumbing Works, Clause 6: Roads: Peripheral road along inside of the boundary fence/ wall of land patch is not required. However sufficient space may be left with cleared and flat surface.	Part C: Civil, Mechanical and Plumbing Works, Clause 6: Roads: There shall be no peripheral road. However, about 2.5m wide corridor shall be left along inside of the plant boundary suitably maintained clean of any vegetation and shall be provided with adequate street lighting for movement of security personnel. Any undulations shall be made good with locally available coarse grained material to have fairly level passage way.
13	Annexure A2 (Technical Specifications)	111 of 182	10.5	To calculate the design wind speed (Vz), the factors K1 (probability factor or risk coefficient), K2 (terrain roughness and height factor) and K3 (topography factor) shall be considered as per IS 875 (Part-3) (However, minimum values for K1, K2 and K3 shall be 1.0, 1.05 and 1.0 respectively).	To calculate the design wind speed (Vz), the factors K1 (probability factor or risk coefficient), K2 (terrain roughness and height factor) and K3 (topography factor) shall be considered as per IS 875 (Part-3) (However, minimum values for K1, K2 and K3 shall be 0.94, 1.0 and 1.0 respectively).
14	Annexure A3 (Special Technical Conditions)	4 of 4	24	New Clause	There shall be no peripheral drain along the boundary fence. However, the contractor during storm water drainage scheme shall provide suitable water channels for diverting the rain water from adjacent area entering the solar plant and channelizing the discharge from the plant area to avoid accumulation or ponding of water.
15	Annexure A2 (Technical Specifications)	121 of 182	15.1	Unless otherwise specified elsewhere, all structural steel work shall be designed as per provisions of IS: 800 with working stress method of design (WSD).	Unless otherwise specified elsewhere, all structural steel work shall be designed as per provisions of IS: 800 with working stress method of design (WSD) or limit state method of design (LSM).
16	Annexure A2 (Technical Specifications)	111 of 182	10.7	In case of plant site within 60 km of sea coast, the importance factor for cyclonic region, 'k4' shall be taken as 1.15. Provisions of IS: 15498 shall also be followed to ensure general safety of the structure.	In case of plant site within 60 km of sea coast, the importance factor for cyclonic region, 'k4' shall be taken as 1.15.
17	Annexure A3	3 of 4	11	SCADA Room shall be pre-engineered structures and shall conform to the provisions as specified in Technical Specifications.	SCADA Room shall be provided as a part of the MCR building.
18	Annexure A3 (Special Technical Conditions)	3 of 4	20	Security cabins shall be provided in every patch as per specifications provided in ANNEXURE A.2.	One Security room near the main gate and security cabins as necessary shall be provided in every patch as per specifications provided in ANNEXURE A.2.
19	Annexure A2 (Technical Specifications)	120 of 182	13.31	The Bidder should design the structure height considering highest flood level at the site and the finished grade level. The minimum clearance between the lower edge of the module and the finished grade shall be the higher of (i) Highest flood level + 100mm and (ii) 500 mm, as applicable	The Bidder should design the structure height considering highest flood level at the site and the finished grade level. The minimum clearance between the lower edge of the module and the finished grade shall be the higher of (i) Highest flood level + 100mm and (ii) 1000 mm, as applicable.
20	Annexure A3 (Special Technical Conditions)	3 of 4	12	All UG cables shall be laid in brick masonry trench (max. depth 450mm) to be covered with precast concrete covers.	UG cables may be laid above ground on horizontal GI cable trays of required width to be supported on concrete foundations. Min. clear height of the cable tray shall be 350mm above FGL. Suitable cross over structure of GI shall be provided for easy movement of erection and maintenance personnel. However, at all road, nalla or drain crossings and at places for vehicular movement during maintenance as required, cables shall be laid through Pre-Cast concrete pipes as specified in Annexure A2..
21	ANNEXURE A A.2. TECHNICAL SPECIFICATIONS	88 of 182	21.4.1 . (v)	(v) Connectivity and Data transmission: .RS485 MODBUS interface for data collection and storage on SCADA . Web interface with provision for user login to enable viewing and downloading of weather data in XLS/ CSV format .Communication protocol should support fast data transmission rates, enable operation in different Frequency bands and have an encryption-based data security layer for secure data transmission	v) Connectivity and Data transmission: .RS485 MODBUS interface for data collection and storage on SCADA .Communication protocol should support fast data transmission rates, enable operation in different Frequency bands and have an encryption-based data security layer for secure data transmission
22	ANNEXURE A A.2. TECHNICAL SPECIFICATIONS	57 of 182	15.9.2	Operating System - Operating System and Database shall be of enterprise scale (RedHat Linux or equivalent Linux OS, Oracle/MySQL or equivalent DB), with required AMC for 5 years.	Operating System - Operating System and Database shall be of enterprise scale (RedHat Linux or equivalent Linux OS, Oracle/MySQL or **Windows** or equivalent DB), with required AMC for 5 years.
23	Annexure A.2 Technical Specifications	13 of 182	2.2.3	Every SMU input shall be provided with fuses on both positive and negative side. The rating of the fuses shall be selected such that it protects the modules from reverse current overload. The fuses shall be 'gPV' type conforming to IEC 60269-6.	Every SMU input shall be provided with fuses on both positive and negative side. In case of negative grounded system, fuse at positive side only is acceptable. The rating of the fuses shall be selected such that it protects the modules from reverse current overload. The fuses shall be 'gPV' type conforming to IEC 60269-6.
24	Annexure A.2 Technical Specifications	10 of 182	1.2	Cell type: Mono-crystalline or Multi-crystalline, Bifacial	Cell/Module Technology : Mono-crystalline and Bifacial

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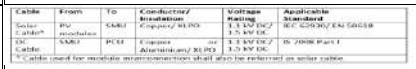
Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (160MWp DC capacity) along with 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India

Sl. No.	Section	Page No.	Clause	Original Version	Amendment
25	Annexure A.2 Technical Specifications	37 of 182	7.5 (ii)	Maximum voltage drop in LT cable (from PCU to Transformer) shall be limited to 0.5% of the rated voltage. For HT cables, maximum voltage drop shall be limited to 0.5 % of the rated voltage. The Contactor shall provide voltage drop calculations in excel sheet.	Maximum voltage drop in LT cable (from PCU to inverter transformer) shall be limited to 0.5% of the rated voltage. For HT cables (from inverter transformer to **plant take off point**), maximum voltage drop shall be limited to 0.5 % of the rated voltage. The Contactor shall provide voltage drop calculations in excel sheet.
26	Annexure A.2 Technical Specifications	14 of 182	3.1		
27	Annexure A.2 Technical Specifications	15 of 182	3.3	DC cables shall be single core, armored, Flame Retardant Low smoke (FRLS), PVC outer sheath conforming to IS 7098-I. DC cable with positive polarity should have marking of red line on black outer sheath.	DC cables shall be single core, armored, Flame Retardant Low smoke (FRLS), PVC outer sheath conforming to IS 7098-I/IS 7098-II. DC cable with positive polarity should have marking of red line on black outer sheath.
28	Section III - Evaluation and Qualification Criteria	86	2. Qualification	**Note: BESS Supplier/sub-Contractor:** .....The BESS Supplier/sub-Contractor must have the experience of having successfully completed Design, Engineering, Procurement, Construction, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of at least 03 (Three) Grid connected BESS Plants, each having an individual capacity of 5 MWh (Five Mega Watt Hour) or above in last Five years. Also, such BESS Plant capacity must have been in satisfactory operation for at least 12 (Twelve) months from the date of commissioning.	**Note: BESS Supplier/sub-Contractor:** .....The BESS Supplier/sub-Contractor must have the experience of having successfully completed Design, Engineering, Procurement, Construction, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of cummulative capacity of 12 MWh or above in the last 5 (Five) years. Such cummulative capacity must include at least 02 (Two) Grid connected BESS Plants, having minimum capacity of 4 MWh (Four Mega Watt Hour) each. The BESS Project must have been in satisfactory operation for at least 6 (Six) months from its date of commissioning (as on 3 months from the effective date of the Contract).
29	Annexure A.2 Technical Specifications	14 of 182	2.2.5	Type-II surge protective device (SPD) conforming to IEC 61643-11 shall be connected between positive/negative bus and earth.	Type-II surge protective device (SPD) conforming to IEC 61643-11/IEC 61643-31/ EN 50539-11 shall be connected between positive/negative bus and earth.
30	Annexure A.2 Technical Specifications	45 of 182	11.5.1	DCDB shall be a separate panel but shall form an integral part of a battery charger panel board.	DCDB shall be an integral part of battery charger panel board.
31	Annexure A.2 Technical Specifications	18 of 182	4.4.3	Type-II surge protective device (SPD) conforming to IEC 61643-11 shall be connected between positive/ negative bus and earth.	Type-II surge protective device (SPD) conforming to IEC 61643-11/IEC 61643-31/ EN 50539-11 shall be connected between positive/negative bus and earth.
32	Annexure A.2 Technical Specifications	Page 10 of 182	1.3.1	The PV Modules Supplier should have supplied minimum 5 GW capacity globally or 1 GW in India in the past 5 years	The PV Modules Supplier should have supplied minimum 5 GW capacity globally or **500 MW** in India in the past 5 years **(as on last date of Bid submission).**
33	Annexure A.2 Technical Specification	Page 162 of 182	4.9.4.3	The PCS transformer may be used to aid in harmonic cancellation and may include tertiary windings to supply BESS auxiliary power requirements. The transformer must be dry type…	The PCS transformer may be used to aid in harmonic cancellation and may include tertiary windings to supply BESS auxiliary power requirements. The transformer **may be dry type or oil type**. The PCS shall include provisions for disconnect on both its AC and DC terminals for maintenance work. Conductor separation must be clearly visible. The detailed maintenance procedure shall be addressed in the O&M manual.
34	Annexure A.3 Special Technical Specification	Page 2 of 4	6	The Power Transformer shall be designed for suitable duty cycle considering at least 4 hours of operation at 110% of full (rated) load.	Void.
35	Annexure A.2 Technical Specifications	Page 152 of 182	3.1	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: Year 1 147 MWh Year 2 144 MWh Year 3 141 MWh Year 4 138 MWh Year 5 135 MWh Year 6 132 MWh Year 7 129 MWh Year 8 126 MWh Year 9 123 MWh Year 10 120 MWh Dispatchable capacity shall not be less than 80% of Beginning of Life capacity at any point of time up to End of Battery Life.	Watt-Hour Rating (Dispatchable Capacity) 120 MWh ,dispatchable at the beginning of life (i.e. at the time of Commissioning) and minimum throughput capacity at the **end** of each year as per below table: Year 1 120 MWh Year 2 116.4 MWh Year 3 115.2 MWh Year 4 112.8 MWh Year 5 110.4 MWh Year 6 108 MWh Year 7 105.6 MWh Year 8 103.2 MWh Year 9 100.8 MWh Year 10 98.4 MWh Dispatchable capacity shall not be less than 80% of Beginning of Life capacity at any point of time up to End of Battery Life.
36	Annexure A.2 Technical Specifications	419 of 1149	10.3.2	UPS: SCADA communications : RS-232 & RS-485 Interface Port	UPS: SCADA communications : RS-232 **or** RS-485 Interface Port
37	Annexure A.1 Scope of Work	10 of 15	5.1.28	New Clause.	Laying of PLCC line between Plant 132 kV Switchyard and CSPTCL Telkadih Substation.
38	Annexure A.1 Scope of Work	8 of 15	4.1.26	Design & construction of Transmission line/ cable at required voltage level from plant take off point to the designated substation including right of way (ROW) and construction of bay at designated substation as per TRANSCO requirements/ procedures.	Design & construction of Transmission line/ cable at required voltage level from plant take off point to the designated substation including right of way (ROW) . Reverse Power Flow and Overload Relay shall be provided on the feeder panel at CSPTCL Telkadih Substation. **Construction of bay at designated substation is in the Scope of the Owner.**
39	Annexure A.1 Scope of Work	9 of 15	5.1.6	Installation, Testing and Commissioning of ABT meters with all necessary metering rated CTs and PTs as per CEA Metering Regulation 2006 as amended time to time and state metering code.	Installation, Testing and Commissioning of **ABT meters with AMR facility** and all necessary metering rated CTs and PTs as per CEA Metering Regulation 2006 as amended time to time and state metering code.
40	Annexure A.3 Special Technical Specification	3 of 4	16	For Plant internal lighting along internal roads, Solar LED type Garden/Landscape stake lights (Color Temperature 5700 K) shall be installed along with Solar Panels and rechargeable and replaceable battery units with minimum 8 hours of discharge.	LED Luminaire for Outdoor Applications. Please refer Annexure 1 to Amendment 1.
41	Annexure A.1 Scope of Work	3 of 15	1	Project Particulars	Please refer Annexure 1 to Amendment 1.
42	Annexure A.3 Special Technical Specification	4 of 4	25	New Clause	Finishing Details of Guest House. Please refer Annexure 1 to Amendment 1.
43	Annexure A.3 Special Technical Specification			Drawing for Chain link and Main gate.	Updated Drawing uploaded .
44	Annexure A.2 Technical Specifications	555 of 1149	F - 2.1	The Communication protocol may be IEC 61850 or MODBUS over a serial or Ethernet connection (Modbus RTU or MODBUS TCP).	The Communication protocol shall be be IEC 61850 or DNP 3
45	Section X Contracts Form	347 of 1149	H	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. East for the period shall be calculated from the guaranteed CUF (i.e. Guaranteed CUF* outage period beyond 48 hours). Cumulative value of such penalty shall be limited to 50% of yearly O&M cost.....	**Void. This clause stands void from all other places also mentioned in the RfB.**
46	Section X, Appendix 8	344 of 1149	G.	Penalty during O&M period against breakdown of other Infrastructure of Plant Facilities that don 't affect the generation of power directly, such as but not limited to, civil infrastructure, water supply system/network, other…..	Penalty during O&M period against breakdown of other Infrastructure of Plant Facilities that don 't affect the generation of power directly, such as but not limited to, civil infrastructure, water supply system/network, other….. ..... In addition to the PM activities above: 

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Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (160MWp DC capacity) along with 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India

Sl. No.	Section	Page No.	Clause	Original Version	Amendment
47	Section X, Appendix 8	342 of 1149	3	Functional Guarantees Subject to compliance with the foregoing preconditions, the Contractor guarantees as follows: • Performance Ratio (PR) for Operational Acceptance : 82% • Capacity Utilization Factor (CUF) 36.5% • BESS Availability 99 %	3. Functional Guarantees Subject to compliance with the foregoing preconditions, the Contractor guarantees as follows: • Performance Ratio (PR) for Operational Acceptance : 82% • Capacity Utilization Factor (CUF) **28.7%** • BESS Availability **98 %** *** All references to CUF and BESS Availability in the tender shall be revised as per this Clause.**
48	Annexure-A	466 of 1149	23.4	Minimum two numbers of fire extinguishers (CO2 and Foam type each, of capacity 10 kg having BIS certification marking as per IS: 2171) shall be provided at every building/ encloser, transformer yard and switchyard.	Minimum two numbers of fire extinguishers (CO2 and Foam type each, of capacity **9** kg having BIS certification marking as per IS: 2171) shall be provided at every building/ enclose, transformer yard and switchyard.
49	Annexure A.3 Special Technical Specification	4 of 4	26	New Clause	**Part C: Civil, Mechanical and Plumbing Works, Clause 3:** For field investigation, min. depth of BHs shall be 5 m (At least, 30% of the BHs shall have a depth of 7 m). BHs near locations of MCR, ICR, other buildings & open installations shall be of 7 m depth. BH drilling and boring shall be done using rotary drilling rig or DTH as applicable.
50	Annexure A.2 Technical Specifications	390 of 1149	2.3	The SMU unit shall be warranted against all material/manufacturing defects and workmanship for minimum of 5 (five) years from the date of supply.	The SMU unit shall be warranted against all material/manufacturing defects and workmanship for minimum of **2 (Two)** years from the date of supply.
51	Annexure A.2 Technical Specifications	410 of 1149	6.11	The HT panel unit shall be warranted for minimum of 5 (five) years against all material/ manufacturing defects and workmanship.	The HT panel unit shall be warranted for minimum of **2 (Two)** years against all material/ manufacturing defects and workmanship.
52	Annexure A.2 Technical Specifications	452 of 1149	18.13	The control and relay panel unit shall be warranted for minimum of 5 (five) years against all material/ manufacturing defects and workmanship.	The control and relay panel unit shall be warranted for minimum of 2 (Two) years against all material/ manufacturing defects and workmanship.
53	Annexure A.2 Technical Specifications	459 of 1149	19.6	All switchyard equipment shall be warranted for minimum of 5 (five) years against all material/ manufacturing defects and workmanship.	All switchyard equipment shall be warranted for minimum of 2 (Two) years against all material/ manufacturing defects and workmanship.
54	Annexure D	628 of 1149	-	Mandatory Spares	Kindly refer the annexure-1 to amendment 1.
55	Annexure-A	389/1149	1.8.3	The stacked modules, in any case, shall be stacked as per the manufacturer's recommendation only and shall be covered with tarpaulin sheet.	Modules shall be dispatched in line with the Construction schedule. If Modules are dispatched ahead of schedule, following measures shall be undertaken: (i) Modules shall be covered with tarpaulin sheet. Alternatively, the Modules, properly stacked as per OEM recommendations, shall be stores under a temporary shed. Further, the temporary platform for keeping the modules shall be treated with anti-termite treatment
56	General	-	-	Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (200MWp DC capacity) along with 50MW/150 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India with RfB No : RfB No: SECI/C&P/RfB/2020/CG/100/150	The project's Solar & BESS capacity has been revised as mentioned below. Accordingly, the Project will be now determined as : Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (160MWp DC capacity) along with 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India with RfB No : SECI/C&P/RfB/2020/CG/100/120 This revised Solar & BESS capacity will supersede any other/earlier Solar & BESS project capacity mentioned anywhere in the bidding document.
57	General	-	-	-	Total Revised cumulative capacity = Plant AC Capacity: 100 MW (AC) Solar DC Capacity: 160MWp BESS Capacity: 40MW / 120MWH Bidders are required to consider the revised Solar & BESS capacity only while bidding. This revised cumulative Solar Capacity of 160MWp & revised BESS Capacity of 40MW / 120MWh will supersede any other/earlier project capacity mentioned anywhere in the bidding document.
58	Section III - Evaluation and Qualification Criteria	81 of 1149	4.2 (a) Specific Experince	Bidders can participate through any one of the below mentioned qualifying routes. The Bidder shall be considered meeting Technical Eligibility criteria either from Route I or Route II.....: **Joint Venture (existing or intended)** : All members combined : **Must meet requirement** , Each Member : **N/A**, At least one member : **Must meet 100 % (Hundred percent) of the requirement (Such Member will be called as Lead Member/partner)**	Bidders can participate through any one of the below mentioned qualifying routes. The Bidder shall be considered meeting Technical Eligibility criteria either from Route I or Route II.....: **Joint Venture (existing or intended)** : All members combined : **N/A** , Each Member : **N/A**, At least one member : **Must meet 100 % (Hundred percent) of the requirement (Such Member will be called as Lead Member/partner)**
59	Section IX- Particular conditions of Contract (PCC)	315 of 1149	PCC 26 Completion Time Guarantee	Applicable rate for liquidated damages: 0.5% per Week There shall not be any intermediate LDs for the delays in completing the individual plant (Solar and BESS). The LD for delay is applicable only if the entire plant facility is not completed by the Schedule Date of Completion/Contract Period as mentioned in the bidding document. The above rate applies to full contract value (excluding O&M). Maximum deduction for liquidated damages: 5% PCC 26.3 No bonus will be given for earlier Completion of the Facilities or part thereof.	Applicable rate for liquidated damages: 0.5% per Week There shall not be any intermediate LDs for the delays in completing the individual plant (Solar and BESS). The LD for delay is applicable only if the entire plant facility is not completed by the Schedule Date of Completion/Contract Period as mentioned in the bidding document. The above rate applies to full contract value (excluding O&M). Maximum deduction for liquidated damages: 5% PCC 26.3 No bonus will be given for earlier Completion of the Facilities or part thereof. Bidders are not required to propose the BESS Supplier/sub-Contractor along with the Bid. After the Contract is signed with winning Bidder, the winning Bidder will be required to finalize a BESS Supplier/sub-Contractor meeting following requirements and establish subcontracting agreement/work order with the BESS Supplier/sub-Contractor within 180 days from the effective date of the Contract Agreement. Further, any delay beyond 180 (One Hundred and Eighty) days in signing of the subcontracting agreement as mentioned above, shall attract @ 1.25% as liquidated damages per month on the total price of the BESS Plant (Supply) as mentioned under Schedule No 1/Schedule No 2, calculated on pro-rata basis accordingly.
60	Annexure A.2 Technical Specifications	529 of 1149	Technical Specification of Battery Energy Storage System, 3.1.1	The BESS Supplier/sub-Contractor must have experience of having successfully completed Design, Engineering, Procurement, Construction, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of at least 03 (Three) Grid connected BESS Plants, each having an individual capacity of 5 MWh (Five Mega Watt Hour) or above in last Five years. However, such BESS Plant capacity must have been in satisfactory operation for at least 12 (Twelve) months from the date of commissioning	The BESS Supplier/sub-Contractor must have the experience of having successfully completed Design, Engineering, Procurement, Construction, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of cummulative capacity of 12 MWh or above in the last 5 (Five) years. Such cummulative capacity must include at least 02 (Two) Grid connected BESS Plants, having minimum capacity of 4 MWh (Four Mega Watt Hour) each. The BESS Project must have been in satisfactory operation for at least 6 (Six) months from its date of commissioning (as on 3 months from the effective date of the Contract).
61	Section II - Bid Data Sheet	58 of 1149	ITB 19.1	The Bid shall be valid until: 27.04.2021	The Bid shall be valid until: 27.06.2021
62	Section III - Evaluation and Qualification Criteria	77 of 1149	3.2 Average Annual Turnover	Minimum average annual turnover of INR 345 Crores (Indian Rupees Three hundred & forty-five Crores only) or USD 46 M (US Dollars Forty-Six Million only), calculated as total certified payments received for contracts in progress or completed within the last 03 (Three) years For Indian companies, other income (as per the Companies Act, 2013 including amendment/clarifications), shall not be considered	Minimum average annual turnover of INR 263 Crores (Indian Rupees Two hundred & Sixty Three Crores only) or USD 35 M (US Dollars Thirty-Five Million only), calculated as total certified payments received for contracts in progress or completed within the last 03 (Three) years For Indian companies, other income (as per the Companies Act, 2013 including amendment/clarifications), shall not be considered
63	Section III - Evaluation and Qualification Criteria	78 of 1149	3.3 Financial Resources	The Bidder must demonstrate access to, or availability of, financial resources such as liquid assets & lines of credit, other than any contractual advance payments to meet: (i) the following cash-flow requirement: INR 144 Crores (Indian Rupees One hundred & forty-four Crores only) or USD 19 M (US Dollars Nineteen Million only)	The Bidder must demonstrate access to, or availability of, financial resources such as liquid assets & lines of credit, other than any contractual advance payments to meet: (i) the following cash-flow requirement: INR 110 Crores (Indian Rupees One hundred & Ten Crores only) or USD 15 M (US Dollars Fifteen Million only)

Amendment - 1

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RfB No : SECI/C&P/RfB/2020/CG/100/40

Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (160MWp DC capacity) along with 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India

Sl. No.	Section	Page No.	Clause	Original Version	Amendment
64	Section III - Evaluation and Qualification Criteria	81-84 of 1149	4.2(a) Specific Experience	Bidders can participate through any one of the below mentioned qualifying routes. The Bidder shall be considered meeting Technical Eligibility criteria either from Route I or Route II Route I: Participation as contractor, joint venture member, management contractor, or subcontractor: (A) Must have experience in EPC execution of Ground mounted Solar Projects on Turnkey basis including Design, Supply (Supply of Modules & Inverters can be inclusive or exclusive in the bidder's scope in the past experience), Installation and Commissioning of Grid connected Solar PV Power Plant(s) of total cumulative Capacity not less than 50 (Fifty) MW in last five years as on last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission. B) The bidder must have experience in EPC execution of Ground mounted Solar Projects on Turnkey basis including Design, supply (Supply of Modules & Inverters can be inclusive or exclusive in the bidder's scope in the past experience), installation & commissioning of at least 02 (Two) Grid connected Solar PV Power Plant Projects having an individual capacity of 10 (Ten) MW or above in last five years from last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission OR Route II: Participation as developer, including as a joint venture member of developer: (A) Must have experience in execution of Ground mounted Solar Projects as a Developer of Grid-connected Solar PV Power Plant(s) of cumulative Capacity not less than 50 (Fifty) MW in last five years as on last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission. (B) The bidder must have experience in execution of Ground mounted Solar Projects as a Developer of at least 02 (Two) Grid connected Solar PV Power Plant Projects having an individual capacity of 10 (Ten) MW or above in last Five years from last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission	Bidders can participate through any one of the below mentioned qualifying routes. The Bidder shall be considered meeting Technical Eligibility criteria either from Route I or Route II Route I: Participation as contractor, joint venture member, management contractor, or subcontractor: (A) Must have experience in EPC execution of Ground mounted Solar Projects on Turnkey basis including Design, Supply (Supply of Modules & Inverters can be inclusive or exclusive in the bidder's scope in the past experience), Installation and Commissioning of Grid connected Solar PV Power Plant(s) of total cumulative Capacity not less than 50 (Fifty) MW (AC) in last five years as on last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission. And B) The bidder must have experience in EPC execution of Ground mounted Solar Projects on Turnkey basis including Design, supply (Supply of Modules & Inverters can be inclusive or exclusive in the bidder's scope in the past experience), installation & commissioning of at least 02 (Two) Grid connected Solar PV Power Plant Projects having an individual capacity of 10 (Ten) MW (AC) or above in last five years from last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission OR Route II: Participation as developer, including as a joint venture member of developer: (A) Must have experience in execution of Ground mounted Solar Projects as a Developer of Grid-connected Solar PV Power Plant(s) of cumulative Capacity not less than 50 (Fifty) MW (AC) in last five years as on last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission. And (B) The bidder must have experience in execution of Ground mounted Solar Projects as a Developer of at least 02 (Two) Grid connected Solar PV Power Plant Projects having an individual capacity of 10 (Ten) MW (AC) or above in last Five years from last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission
65	Section VI	163 of 1149	-	Section –I - Fraud and Corruption	Section VI - Fraud and Corruption
66	Appendix I	330 of 1149	Schedule 1	TERMS OF PAYMENT : Schedule No. 1. Plant and Equipment Supplied from Abroad : Last Milestone Payment : Ten percent (10 %) of the total or pro rata amount (of Schedule No. 1) within forty-five (45) days of receipt of invoice after final acceptance of the Plant facilities or completion First year of O&M of Plant, whichever is later, pursuant to submission of all requisite documentation including submission of all as-built drawings and documents.	TERMS OF PAYMENT : Schedule No. 1. Plant and Equipment Supplied from Abroad : Last Milestone Payment is hereby amended to : Ten percent (10 %) of the total or pro rata amount (of Schedule No. 1) within forty-five (45) days of receipt of invoice after final acceptance of the Plant facilities, pursuant to submission of all requisite documentation including submission of all as-built drawings and documents. Rest all of the other Terms of payment/Milestone payments will stand as it is.
67	Appendix I	331 of 1149	Schedule 2	TERMS OF PAYMENT : Schedule No. 2. Plant and Equipment Supplied from within the Employer's Country : Last Milestone Payment : Ten percent (10 %) of the total or pro rata amount (of Schedule No. 2) within forty-five (45) days of receipt of invoice after final acceptance of the Plant facilities or completion of First year of O&M of Plant, whichever is later, pursuant to submission of all requisite documentation including submission of all as-built drawings and documents.	TERMS OF PAYMENT : Schedule No. 2. Plant and Equipment Supplied from within the Employer's Country : Last Milestone Payment is hereby amended to : Ten percent (10 %) of the total or pro rata amount (of Schedule No. 2) within forty-five (45) days of receipt of invoice after final acceptance of the Plant facilities, pursuant to submission of all requisite documentation including submission of all as-built drawings and documents. Rest all of the other Terms of payment/Milestone payments will stand as it is.
68	Section X, Appendix 8	680/1149	I	Liquidated Damages for Shortfall in Equipment Availability	Liquidated Damages for Shortfall in Equipment Availability If the annual equipment availability for BESS is less than **98%** during any year ; ..... **C is ₹6/kWh** ..... Recovery of Compensation The above compensations shall be deducted from CPS submitted by the **Contractor**.
69	ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK	1128 of 1149	0	The total land area identified at this stage is 377.423 ha.	The total land available is 188 hectare, details of land is attached as annexure.
70	ANNEXURE A - A.2. TECHNICAL SPECIFICATIONS	Page 369 of 1149	4.1.27	4.1.27 Any re-arrangement/ replacement of substation equipment/ materials, including bay construction, if required, at the evacuating substation necessary for evacuation of power from the Plant.	The construction of 02 Nos of 132kV feeder bay at 220kV Thelkadih Substation is not in the scope of bidder. SECI has obtained the approval for construction of 02nos of feeder bay at Thelkadih s/s from CSPTCL on deposit work basisl. SECI will bear the cost of construction of the 2 nos of feeder bay only . However design , approval & construction of necessary infrastructure required 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.
71	ANNEXURE C	Page 665 of 1149	25.1.e	All other insurance like – transit insurance (Marine/ Cargo/ others as applicable), Construction All Risk, Erection All Risk, workmen compensation, fire, third party liability, insurance against Insurance against theft, fire, act of God, Contractor's Equipments, machinery breakdown policy, business interruption insurance, Property damage Insurance & Environmental risk insurance as required during the O&M period of the Plant shall be in the contractor's scope & shall borne by the Contractor.	All other insurance like – transit insurance (Marine/ Cargo/ others as applicable), Construction All Risk, Erection All Risk, workmen compensation, fire, third party liability, insurance against theft, fire, act of God, Equipments, terrorism, machinery breakdown policy, business interruption insurance, Property damage Insurance , Environmental risk insurance and any other insurance as required during the O&M period of the complete plant shall be in the contractor's scope & shall borne by the Contractor.
72	Environmental and Social Due Diligence Report	739 of 1149	Table 4-4		The Forest clearance (if any) required for the identified land parcels of 188 hectare for setting up of the project will be obtained by CSPDCL/SECI . Any kind of tree cutting required during construction phase-in the said land parcels is in the scope of the contractor. All other permissions/approvals for tree cutting/felling ,ROW, compensations etc for the project and transmission line is in the scope of contractor . Bidder has to clearly identify all the approvals required for the said project. However SECI will assist in obtaining approvals(if required).
73	Environmental and Social Due Diligence Report	815 of 1149	TABLE 0-1: IMPLEMENTATION SCHEDULE AND ASSOCIATED RESPONSIBILITIES sr. no. 2		VOID. As there is no STP envisaged for the project.
74	Section X - Contract Forms	307	**PCC 9. Contractor's Responsibilities**	Contractor shall be required to mobilize its team within 20 (Twenty) days from the date of Notice to Proceed (NTP) for the immediate construction of the fencing of the Project boundary so as to safeguard the land parcels related to the project, in line with the fencing specifications provided in Annexure A "Employers requirement"	Contractor shall be required to finalize the sub-contractor within 20 days, mobilize its team within 20 (Twenty) days and complete the fencing activity within 90 days from the date of Notice to Proceed (NTP) for the immediate construction of the fencing of the Project boundary so as to safeguard the land parcels related to the project, in line with the fencing specifications provided in Annexure A "Employers requirement"
75	ANNEXURE 2 Functional Guarantees	681 of 1149	**Scheduling and Forecasting:**	The Contractor shall be responsible for appointing a Qualified Coordinating Agency if required by concerned authorities at the Pooling Substation Level for scheduling and forecasting activity. Also, the contractor shall be responsible for carrying out the forecasting and scheduling of the energy generation from the plant facility (In accordance with the Deviation Settlement Mechanism Regulations of the Chhattisgarh Electricity Regulatory Commission). Scheduling given by the Contractors is such that no penalty is levied on the Employer due to any deviation of actual generation from scheduling beyond the allowed limit. If any penalty is imposed on the Employer due to such deviations beyond allowed limit the same shall be recovered from the CPS given by the contractor.	The Contractor shall be responsible for appointing a Qualified Coordinating Agency if required by concerned authorities at the Pooling Substation Level for scheduling and forecasting activity. Also, the contractor shall be responsible for carrying out the forecasting and scheduling of the energy generation from the plant facility (In accordance with the Deviation Settlement Mechanism Regulations of the Chhattisgarh Electricity Regulatory Commission). Scheduling given by the Contractors is such that no penalty is levied on the Employer due to any deviation of actual generation from scheduling beyond the allowed limit. If any penalty arises due to DSM after adjusting the payable and receivable imposed on the Employer due to such deviations beyond allowed limit the same has to be paid by the contractor separately. If the contractor fails to pay such penalty then it shall be recovered from the contractor's payment to be done by SECI.
76	ANNEXURE 2 Functional Guarantees	681 of 1149	Recovery of Compensation	The above compensations shall be deducted from CPS submitted by the developer.	The above compensations shall be deducted from CPS submitted by the contractor.

Amendment - 1

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RfB No : SECI/C&P/RfB/2020/CG/100/40

Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (160MWp DC capacity) along with 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India

Sl. No.	Section	Page No.	Clause	Original Version	Amendment
77	Particular Conditions of Contract (PCC)	307 of 1149	PCC 8.1	PCC 8.1 The Contractor shall commence work on the Facilities within 20 (Twenty) Days from the Effective Date of the contract agreement for determining Time for Completion as specified in the Contract Agreement. However, Works shall not commence on any portion of the site until Contractor's ESMP is approved and relevant pre-construction measures have been implemented to the satisfaction of the Employer.	PCC 8.1 The Contractor shall commence work on the Facilities within 20 (Twenty) Days from the Effective Date of the contract agreement for determining Time for Completion as specified in the Contract Agreement. However, Works shall not commence on any portion of the site **except fencing ,security guard and other services required to keep the plant boundary safe** until Contractor's ESMP is approved and relevant pre-construction measures have been implemented to the satisfaction of the Employer.
78	Annexure-A	390/1149	2.2.8	UV resistant printed cable ferrules for solar cables & communication cables and punched/ embossed aluminum tags for DC cables shall be provided at cable termination points for identification.	Printed cable ferrules for solar cables & communication cables and punched/ embossed aluminum tags for DC cables shall be provided at cable termination points for identification.
79	Annexure-A	427/1149	15.1.3	The interface shall allow integration with Surveillance System(s), Module Cleaning System and various other O&M support systems to provide a Data Analysis and Decision Support System for smooth and efficient Plant Operations.	The interface shall allow integration with Module Cleaning System and various other O&M support systems to provide a Data Analysis and Decision Support System for smooth and efficient Plant Operations.
80	Annexure A.2 Technical 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	Rated No of Cycles (Minimum) : 4000 cycles at rated energy capacity at **minimum** 80% Depth of Discharge (DoD) at 25oC and up to C/3 Rate of Discharge
81	Annexure-A	468/ of 1149	24.4	Digital Multimeter: Display - Backlit LCD or LED display; Minimum resolution: 5 ½ places for DC, 4 ½ places for AC	Digital Multimeter: Display - Backlit LCD or LED display Minimum resolution: **4.5 digits for DC, 3.5 digits for AC**
82	Section III - Evaluation and Qualification Criteria, Particular Conditions of Contract & Price Schedule No 1	67 and 357 of 1149	Evaluated Bid value, Important Notes and statement under Schedule No 1 and PCC 14 (Taxes and Duties)	BCD+SWS & SGD/ADD being of reimbursement nature duties, Employer will reimburse the amount for BCD+SWS & SGD/ADD at actuals against the submission of documentary evidence only, with a MAXIMUM CEILING of BCD+SWS & SGD/ADD charges as mentioned by the Bidder in the Price Schedules No 1 at the time of bidding. Bidders are required to quote the applicable BCD+SWS & SGD/ADD with due diligence & appropriate financial prudence, as afterwards bidders will not be able to change or claim such taxes & duties already quoted during the bid. No BCD+SWS & SGD/ADD will be reimbursed to the contractor in the absence of documentary proofs. As BCD+SWS & SGD/ADD will be reimbursed by the employer, the GST will be applicable on the actual CIP price only. The payment of GST by the Employer shall only be at the CEILING of GST as mentioned by the Bidder in the Schedule No 1 at the time of bidding. Bidders are required to quote the applicable GST with due diligence & appropriate financial prudence, as afterwards bidders will not be able to change or claim the GST charges already quoted during the bid.	BCD+SWS & SGD/ADD being of reimbursement nature duties, Employer will reimburse the amount for BCD+SWS & SGD/ADD at actuals against the submission of documentary evidence only, with a MAXIMUM CEILING of BCD+SWS & SGD/ADD charges as mentioned by the Bidder in the Price Schedules No 1 at the time of bidding. Bidders are required to quote the applicable BCD+SWS & SGD/ADD with due diligence & appropriate financial prudence, as afterwards bidders will not be able to change or claim such taxes & duties already quoted during the bid. The ceiling amount of BCD+SWS & SGD/ADD is applicable only for the purpose of Award, however, any change in such taxes and duties or introduction of new law during the entire course of the contract, will be treated in line with the "Change in Law & Regulations" GCC clause 36 of the RfB.. No BCD+SWS & SGD/ADD will be reimbursed to the contractor in the absence of documentary proofs. As BCD+SWS & SGD/ADD will be reimbursed by the employer, the GST will be applicable on the actual CIP price only. In case, the bidder has mentioned the GST value/percentage on the total value of CIP Price+BCD+SWS+SGD/ADD, then the same shall not be considered for the purpose of award. The GST value as applicable and calculated on the CIP prices only will be used for the purpose of award. The payment of GST by the Employer shall only be at the CEILING of GST as mentioned by the Bidder in the Schedule No 1 at the time of bidding. Bidders are required to quote the applicable GST with due diligence & appropriate financial prudence, as afterwards bidders will not be able to change or claim the GST charges already quoted during the bid. **Abbreviations used :** **BCD : Basic Custom Duty , SWS : Social Welfare Surcharge , SGD : Sagegaurd Duty , ADD : Anti Dumping Duty, GST : Goods & Service Tax**
83	Annexure A.2 Technical Specifications	393/1149	4.2.1	The Inverter Supplier should have supplied minimum 5 GW capacity globally or 1 GW in India in the past 5 years	The Inverter Supplier should have supplied minimum 5 GW capacity globally or 1 GW in India in the past 5 years **(as on 3 months from the effective date of the Contract)**

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RfB No : SECI/C&P/RfB/2020/CG/100/120

Request for Bids for Design, Engineering, Supply, Construction, Erection, Testing & Commissioning of 100 MW (AC) Solar PV Project (160MWp DC capacity) along with 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M at District Rajnandgaon, Chhattisgarh, India

Sl. No.	Section	Page No.	Clause	Description as per Bidding Document	Queries	Category	Clarifications
1	0	371	Clause 5.1.26	Construction of RCC Type Guest House	Please provide Front Elevation to asses no of floors	Technical	Guest House shall be single storey.
2	0	473 to 476	Clause 3.0	Geo technical Investigation Report	Please provide if any Geo Technical Investigation report for reference	Technical	Detailed Geotechnical Investigation is in the scope of the bidder.
3	0	479- 480	Clause 6 Roads : 6.0, 6.1,6.2	Construction of internal roads and peripheral roads with WBM base.	For Internal Roads from MCR Building to all Inverter Stations we propose WBM road without Bitumen coat.	Technical	The terms and conditions of Bidding Document will prevail
4	0	481-482	Clause 7 :Surface/ Area drainage	5.1.15 Construction of Storm water drainage to its nearest outfall point & sewage network including rain water harvesting mechanism	For Periphery Drain can we Propose Earthen Drain without aligning.	Technical	The terms and conditions of Bidding Document will prevail
5	0	386	Clause 1.2	Cell type Mono-crystalline or Multi-crystalline, Bifacial	Can we use monoperc module technology with either halfcut or Fullcell or Bifacial with monoperc technology	Technical	Kindly refer S.No. 24 of amendment 1.
6	0	389	Clause 2.2.3	Every SMU input shall be provided with fuses on both positive and negative side. The rating of the fuses shall be selected such that it protects the modules from reverse current overload. The fuses shall be 'gPV' type conforming to IEC 60269-6.	The inverter manufacturers recommends negative string fuse is not required so string cable shall preferably be terminated with field connector with SCB. Please accept	Technical	Kindly refer S.No. 23 of amendment 1.
7	0	412	Clause 7	AC Cables	Bidder understands for AC cables both Copper or Aluminum can be used	Technical	Both Copper and Aluminum are allowed for AC Cables. Terms and conditions of the tender document will prevail.
8	0	603	2.4 CAPACITY UTILIZATION FACTOR (CUF)	DF is module degradation factor, 0.55% per year	Please accept degradation factor as 0.68%	Technical	Terms and Conditions of the tender document will prevail.
9	Section III	65	0	Evaluation & Qualification criteria 1.1 Technical Evaluation: Capacity Utilization Factor (CUF) 36.5	Kindly provide an example on how the 36.5% can be reached for example in case of where storage is part of the proposed solution.	Technical	The CUF measured at the Plant End ABT Meter at the 132 kV Switchyard shall be 28.7%. Please refer the Formula for Calculation of CUF at Page No. 603/1149. The Plant Rated Capacity for the calculation of CUF is 100 MW. Kindly refer S.No. 47 of amendment 1.
10	Annexure A.1	0	Scope of works 4.1.7	0	It is understood that energy rating of the ESS installed means the dispatch able capacity of ESS at PCC including auxiliary consumption of ESS. Please confirm. Or we can consider the auxiliary power from Solar generation	Technical	Energy rating of the ESS installed means the total dispatchable capacity of ESS as measured at PCC. EPC Contractor may source Auxiliary Power requirement of the BESS from the Solar generation keeping in consideration the Annual CUF requirement.

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11	Section III	79	4.2(a) Specific Experience	Route-I (B) The bidder must have experience in EPC execution of Ground mounted Solar Projects onTurnkey basis including Design, supply (Supply of Modules & Inverters can be inclusive or exclusive in the bidder's scope in the past experience), installation & commissioning of at least 02 (Two) Grid connected Solar PV Power Plant Projects having an individual capacity of 10 (Ten) MW or above in last five years from last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission	Route-I (B) The bidder must have experience in EPC execution of Ground mounted Solar Projects onTurnkey basis including Design, supply (Supply of Modules & Inverters can be inclusive or exclusive in the bidder's scope in the past experience), installation & commissioning of at least 01 (One) Grid connected Solar PV Power Plant Projects having an individual capacity of 20 (Twenty) MW or above in last five years from last date of bid submission. However, such Grid connected Solar PV Power Plant capacity must have been in satisfactory operation for at least six (06) months prior to the last date of bid submission	Contractual	The terms and conditions of Bidding Document will prevail.
12	Section III	77	4.2(a) Specific Experience	Must meet 100 % (Hundred percent) of the requirement (Such Member will be called as Lead Member/partner)	Must meet 50 % (Hundred percent) of the requirement (Such Member will be called as Lead Member/partner)	Contractual	The terms and conditions of Bidding Document will prevail.
13	III	82	2.4	The BESS Supplier/sub-Contractor must have the experience of having successfully completed Design, Engineering, Procurement, Construction, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of at least 03 (Three) Grid connected BESS Plants, each having an individual capacity of 5 MWh (Five Mega Watt Hour) or above in last Five years. Also, such BESS Plant capacity must have been in satisfactory operation for at least 12 (Twelve) months from the date of commissioning.	Since BESS is a relatively new technology in India, it is difficult to have Indian subcontractor with 5MWh*3Plants with 1 year of commissioning experience	Technical	Please refer S. No. 28 of Amendment 1.
14	Annexure A.2 Technical Specification	Page 10 of 182	B.1.2	Cell type Mono-crystalline or Multi-crystalline, Bifacial	Please clarify if any cell type other than bifacial can be used	Technical	Kindly refer the S.no. 24 of ammendment-1.
15	Annexure A.2 Technical Specification	Page 10 of 182	B.1.3.1	The PV Modules Supplier should have supplied minimum 5 GW capacity globally or 1 GW in India in the past 5 years	The same should be relaxed to include more numbers of Indian manufacturers	Technical	Please refer S. No. 32 of Amendment 1.
16	Annexure A.2 Technical Specification	Page 11 of 182	B.1.5.1	Module Warranty Performance warranty up to 30 Years	Many manufacturer give up to 25 years	Technical	Terms and Conditions of the tender document will prevail.
17	Annexure A.2 Technical Specification	Page 17 of 182	B.4.1	Inverters used in the grid connected solar power projects shall be registered with BIS and bear the Standard Mark as notified by the Bureau of Indian Standards	There is no guideline for 1500V inverter BIS certification. MNRE guideline only covers 1000V inverter	Technical	Extant Regulations of GoI as per the Quality Control Order at the time of Supply shall apply.
18	Annexure A.2 Technical Specification	Page 103 of 182	C.6.2	Approach road connecting nearest public road and the main gate shall be 4.5 m wide with 0.5m shoulders on either side. The access road connecting main gate, MCR & Internal access road connecting MCR to various facilities shall be 3.75m wide with 0.5m shoulders.	Bidder Suggested width Main gate to Public road - 4.0 Mtr. With 0.5 Mtr. Shoulder on either side Main gate to MCR/ICR - 3.5 Mtr. With 0.5 Mtr. Shoulder on either side	Technical	Kindly refer S.No.2 of amendment 1.

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19	Annexure A.2 Technical Specification	Page 105 of 182	C.6.9	Maintenance pathway of minimum 1 meter width shall be provided between SPV array for easy movement maintenance staff, tools, equipment's & machinery, washing of modules etc. The path area generally levelled and well compacted. Area of depression, valley, zones or where there is noticeable change in topography shall be levelled by laying 100mm the PCC of M10 or precast paver blocks.	Bidder Suggests: Area of depression, valley, zones or where there is noticeable change in topography shall be filled with good earth, compacted and levelled properly.	Technical	Kindly refer S.No. 3 of amendment 1.
20	Annexure A.2 Technical Specification	Page 106 of 182	C.7.12	The drain outfall shall be connected to nearest existing drain/ Water body outside the plant premises.	Bidder requests to confirm distance of existing drain/water body from plant boundary & availability of land to carry a connecting drain from plant to main drain	Technical	As per the preliminary site survey, drains and water body to be used for discharging water are located in the close vicinity of the land patches.
21	Annexure A.2 Technical Specification	Page 106 of 182	C.7.14	The contractor shall also explore rain water harvesting system for water conservation suitable collection wells along with the drain or through provision of detention pond.	Bidder requests to allow with percolation/recharge pit	Technical	Kindly refer S.No. 4 of amendment 1.
22	Annexure A.2 Technical Specification	Page 106 of 182	C.8	Plant Boundary & wall fence	Bidder request to allow precast boundary wall	Technical	Plant boundary shall be as per the chain link fence drawing provided as annexure to Amendment 1.
23	Annexure A.2 Technical Specification	Page 118 of 182	C.13.7	MMS Shall be of following thickness Sub/Column - 3.12 Rafter - 2.5 Purlin & other member 2.0	Bidder suggests: MMS thickness Sub/Column - 2.0 mm for piling /3.0 mm for ramming Rafter, Bracing & other member - 1.2 mm Purlin - 0.9 mm	Technical	For members other than purlin, terms and conditions of tender document shall prevail. For purlin members, kindly refer S.No. 5 of amendment 1.
24	Annexure A.2 Technical Specification	Page 148 of 182	E.1.1	Perform factory acceptance testing of the BESS.	Bidder assumes component wise (e.g. battery, PCS etc) will be tested separately with individual manufacturer	Technical	It shall be the responsibility of the BESS Supplier/Integrator to ensure BESS Components - Cell, Module Pack, Racks and Complete Assembly meet the testing and certification requirement as per the specifications. Based on the requirement of the standard, testing may be carried out on the Complete Assembly at manufacturer's facility or at site (eg. Requirements as per UL 9540 A).
25	Annexure A.2 Technical Specification	Page 150 of 182	E.2.1	Electrical infrastructure: AC system interconnection requirement at Point of Connection (PCC) 33 kV/415, 50 Hz, 3 phase The BESS will be coupled with the PV System at the AC Bus on the LV (415 V) or the MV (33 kV) side of the Inverter Transformers. The BESS shall be designed for maximum flexibility with regard to site-specific voltages, frequency, phase imbalance, and protection requirements.	For AC Bus at LV, please clarify if any other system voltage (i.e. PCS output voltage) can be allowed to connect in parallel to PCU	Technical	Yes PCS Voltage Output (other 415V) as per design shall be acceptable.
26	Annexure A.2 Technical Specification	Page 152 of 182	E.3.1	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	Please clarify if DoD can be taken >80% (As per manufacturer recommendation) for sizing the battery	Technical	DoD during operation may be higher than 80% at the time of operation as per the recommendation of the OEM in order to comply to warranty conditions and tender specifications. Please refer S. No. 80 of Amendment 1.
27	Annexure A.2 Technical Specification	Page 153 of 182	E.3.1	Peak Management In the Peak Management Use Case scenario, power generated during the early and midday periods shall be stored in the BESS and discharged during peak demand, for 3 hours, after solar generation hours	Please specify the timing of the battery discharge	Technical	BESS shall be discharge completely during non solar hours and available for charging the next day.

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				Clarifications to Queries raised during Pre-Bid Meeting on 30.09.2020			
28	Annexure A.2 Technical Specification	Page 152 of 182	E.3.1	Watt-hour rating (dispatchable capacity)	Bidder requests to allow degradation as per manufacturer specification.	Technical	First Year degradation up to 3 % shall be allowed. Kindly refer S.No 35 of amendment 1.
29	Annexure A.2 Technical Specification	Page 162 of 182	E.4.9.4.3	The PCS transformer may be used to aid in harmonic cancellation and may include tertiary windings to supply BESS auxiliary power requirements. The transformer must be dry type…	Bidder request to allow oil filled type of transformer if required to be put outside PCS	Technical	Oil filled Transformer for BESS shall be acceptable. Kindly refer S.No.33 of amendment 1.
30	Annexure A.3 Special Technical Specification	Page 2 of 4	2	Topographical survey for the project site has been conducted by the employer and contour map prepared on its basis has been attached with this Annexure.	Please provide the same	Technical	Topographical Survey Report has been provided for reference. However, detailed topographical survey is in the scope of contractor.
31	0	Page 2 of 4	6	The Power Transformer shall be designed for suitable duty cycle considering at least 4 hours of operation at 110% of full (rated) load.	Does this mean bidder can allow up to 110MVA through power transformer, when PV is high? Or it has to be limit at 100MVA	Technical	Kindly refer S.No.34 of amendment 1.
32	Annexure C	Page 4 of 11	2.1.2	The PR test shall be carried out for a period of 30 consecutive days at site by the Contractor	Bidder understand the following from the RFQ that the performance acceptance test will be carried out for 30days.and PR calculation for guarantee of 82% will be calculated on yearly basis	Technical	Guaranteed PR of 82% shall be demonstrated for 30 days for the purpose of Operational Acceptance of the plant. Terms and conditions of the tender document will prevail.
33	Annexure D	Page 2 of 2	8	Battery 2% of total supply along with all Cell/ Battery Auxiliary Systems, interconnectors, monitoring devices as spares	Please clarify if 3MWh of only cells or the complete rack/module also needs to be kept as spare	Technical	2% capacity of minimum field replacable Battery Module (cells, Electronics, connectors etc.) shall be kept as hot standby either in each container or in separate container.
34	Section VIII – General Conditions of Contract	255	36	Change in Law	The same should include any change in BCD or SGD or any other duty	Contractual	Clause No 36 of the GCC amply clarifies about the Change in law provisions. Kindly refer the same
35	Section III - Evaluation and Qualification Criteria	63	1	As BCD+SWS & SGD/ADD will be reimbursed by the employer, the GST will be applicable on the actual CIP price only.	How the GST on SGD shall be paid by employer	Financial	Bidders are requested to consider the impact of GST incidental on SGD, under Schedule No 1 under SGD/ADD column only.
36	Section X, Appendix 8	342	2	Annual CUF Guarantee	Since bidder is guaranteeing annual CUF, clause H may not be required as it leads to double penalty	Technical	Kindly refer S.No.45 of amendment 1.
37	Section X, Appendix 8	342	2	Annual CUF Guarantee	In case Annual CUF is less than Guaranteed CUF, Penalty clause B and E (i) both are applicable	Technical	Clause B shall be operated as per Clause E(i)
38	Annexure-A.1. Scope of Work	Page 6 of 15	3.4	Estimation of the plant generation based on Solar Radiation and other climatic conditions prevailing at site.	Bidder Request to provide the solar radiation data (if available). Else, please specify estimation need to be carried out with Solar GIS/Metronome data	Technical	It shall be the responsibility of the bidder to estimate the plant generation based on available solar radiation database. For the purpose of calculation of annual CUF, reference radiation has been given in Clause 2.4 of Annexure-C (PG Test Procedure). Terms and conditions of the tender document will prevail.
39	Annexure-A.1. Scope of Work	Page 7 of 15	4.1.2	Array Junction boxes, distribution boxes and Fuse boxes with string monitoring capabilities	Bidder proposes string combiner box, without monitoring	Technical	Terms and Conditions of the tender document will prevail.
40	Annexure-A.1. Scope of Work	Page 7 of 15	4.1.13	ABT meters (Main, Check and standby) with all necessary metering rated CT's and PT's at the plant take off point as well as at the substation as per CEA Metering Regulation 2006 as amended time to time and state metering code	Please clarify the metering location. Bidder assumes it to be at the plant boundary	Technical	ABT meters shall be provided both at the plant end as well as at the interconnecting substation end. Terms and conditions of the tender document will prevail.

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41	Annexure-A.1. Scope of Work	Page 8 of 15	4.1.26	Design & construction of Transmission line/ cable at required voltage level from plant take off point to the designated substation including right of way (ROW)	ROW & land for transmission line is requested to be in Developer's scope	Technical	CSPTCL vide letter dated 19th March 2020, has accorded permission for 132kV grid connectivity for the project from 220kV substation, Telkadih (RJN)at Thelkadih Substation to SECI(Copy attached). It is the responsibility of the contractor/developer to design, obtaining approval, ROW, construction, land compensation, O&M of 132kV Double Circuit Double string transmission line from plant end to the substation . The contractor/developer has to strictly follow the terms & conditions stipulated under permission granted by GoCG under section 68 of EA-2003 for construction of 132kV DCDS line, CSERC grid code 2011 , Grid code and has to abide by all the other regulations/conditions /scope as specified in the CSPTCL approval letter to SECI.
42	Annexure-A.1. Scope of Work	Page 8 of 15	4.1.26	...and construction of bay at designated substation as per TRANSCO requirements/procedures.	Bidder assumes space for developing the Bay at substation end would be provided by developer	Technical	Kindly refer the S.no. 70 of ammendment-1.
43	General	0	0	132 kV Transmission Line	Please provide the route survey map	Technical	Route survey map is not available with SECI. It is in the scope of bidder to carry out the detailed route survey and obtain necessary approvals for construction of transmission line.
44	General	0	0	132 kV Transmission Line	33 km of 132 kv Transmission line is very difficult to construction in 18 months. LD should be waived of in case of any delay in construction of transmission line owing to the reasons beyond the control of bidder.	Technical	Any LD due to delay in obtaining approvals will not be waived. Design, obtaining approval, ROW, construction, land compensation, O&M of transmission line and all other activities related to the transmission line is in the scope of contractor/developer. However SECI will assist in obtaining necessary approval in this regards.
45	General	0	0	Layout	Please share the solar layout with demarcation of the plots Contour map &Geo Tech Survey	Technical	Conducting the Topo-survey and Geotech survey on the land plots shall be in the scope of contractor. However 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.

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