

CORRIGENDUM I PRE - BID TIE UP FOR Site survey, Design, Engineering, Manufacturing, Testing, Supply, Erection, Commissioning followed by 10 years Operation & Maintenance of 40MW/ 120MWH BESS 100 MW (AC) Solar PV Project (160MWp DC capacity) OF M/s SECI at Rajnandgaon district, Chhattisgarh state, India.					
Sl. No.	BHEL Pre Bid Tie Up Tender Reference	SECI Amdt/ Clrf Ref		Specification Requirement	Amendment/ Clarification
		Amendment/ Clarification	Sl. No. ref		
1	SECTION –C/ Annexure III/ Page 57 of 182/ Cl. No. 15.9.2	Amendment	21	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.
2	SECTION –B PRE-QUALIFICATION REQUIREMENTS (PQR)/ Page 1 of 2/ Cl. 1	Amendment	28	The bidder 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.	bidder 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 cumulative capacity of 12 MWh or above in the last 5 (Five) years. Such cumulative 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 the date of bid submission date.
3	SECTION –B PRE-QUALIFICATION REQUIREMENTS (PQR)/ Page 1 of 2/ Cl. 1	Amendment	NA	The make of Battery & BMS, EMS and PCS offered for the project shall be same as at least one of the reference plant of minimum capacity 5 MWh running satisfactorily for at least 12 (Twelve) months from the date of commissioning in last 5 years	The make of Battery & BMS, EMS and PCS offered for the project shall be same as at least one of the reference plant of minimum capacity 4 MWh running satisfactorily for at least 6 (Six) months from the date of commissioning in last 5 years
4	SECTION –E/ Attachment 1	Amendment	NA	Amendment to Attachment 1	Atchment 1 (Rev 01) shall be applicable. Same is enclosed as annexure to corrigendum
5	SECTION –C/ Annexure III/ Page 162 of 182/ Cl. No. 4.9.4.3	Amendment	33	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.

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6	SECTION –C Annexure II/ Watt-hour rating (dispatchable capacity) Annexure III/ Table - 2/ Watt-hour rating (dispatchable capacity)	Amendment	35	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.
7	SECTION –C/ Annexure I	Amendment	41	Project Particulars	Please refer Section C/ Annexure I amended to Annexure I (Rev 01)
8	SECTION –C/ Annexure III/ F (1.2)/ Page 181 of 182	Amendment	44	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 IEC 61850 or DNP 3
9	SECTION –C/ Annexure 2/ Functional Guarantees (H)	Amendment	45	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.....	The clause stands void

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10	SECTION –C/ Annexure IV/ Functional Guarantees/ Cl. 3	Amendment	47	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.
11	General	Amendment	56	PRE-BID TIE UP FOR 50MW/150MWH BATTERY ENERGY STORAGE SYSTEM HAVING 10 YEARS OF PLANT O&M OF M/S SECI'S 100 MW (AC) SOLAR PV PROJECT (200MWp DC CAPACITY)	The project's Solar & BESS capacity has been revised as mentioned below. Accordingly, the Project will be now determined as : Pre Bid Tie up for 40MW/120 MWh Battery Energy Storage System having 10 years Plant O&M of 100 MW (AC) Solar PV Project (160MWp DC capacity) at District Rajnandgaon, Chhattisgarh, India This revised Solar & BESS capacity will supersede any other/ earlier Solar & BESS project capacity mentioned anywhere in the bidding document.
12	General	Amendment	57	-	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
13	CE: PR: 003- Rev 02/ SPECIAL COMMERCIAL CONDITIONS OF CONTRACT	Amendment	29 (b)	Balance 15% supply retention payment (excluding I&C and O&M) will be paid in 15 days from the date of submission of supplementary invoice against proof of completion of first year of O&M of plant...	Balance 15% supply retention payment (excluding I&C and O&M) will be paid in 45 days after operational acceptance of the Plant facilities, pursuant to submission of all requisite documentation including submission of all as-built drawings and documents.

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14	CE: PR: 003- Rev 02/ SPECIAL COMMERCIAL CONDITIONS OF CONTRACT	Amendment	29	Payments .. 15 days time of payment	15 days to be replaced with 45 days.
15	SECTION –C/ Cl 1.8/ I	Amendment	68	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.
16	SECTION –C/ Annexure IV/ Insurance/ 25.1 (e)	Amendment	71	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.
17	SECTION –C Annexure II/ Rated No of Cycles (Minimum) Annexure III/ Table - 2/ Rated No of Cycles (Minimum)	Amendment	80	4000 cycles at rated energy capacity at 80% Depth of Discharge (DoD) at 25oC and up to C/3 Rate of Discharge	4000 cycles at rated energy capacity at minimum 80% Depth of Discharge (DoD) at 25oC and up to C/3 Rate of Discharge
18	SECTION –C Annexure III/ 4.2.1	Amendment	83	The PV Modules 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 SECI Contract with purchaser)
19	-	Clarification	27	timing of the battery discharge	BESS shall be discharge completely during non solar hours and available for charging the next day.

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20	-	Clarification	33	Battery Spares	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.
21	-	Clarification	70	Connectivity to owner data monitoring center	Connectivity shall be provided to Owner's Data Monitoring Centre. Data collected by Plant SCADA shall be replicated in real-time, using industry standard interfaces such as Web Services, OPC-UA, data files, as required – with Owner's Central Monitoring System located at delhi
22	-	Clarification	199	Suitable Communication System for telemetry, EMS/SCADA with remote monitoring capabilities and internet facility.	Communication protocol shall be IEC 60870-5-101 or IEC 60870-5-104 protocol as per Chhattisgarh SLDC Guidelines for Planning of Telemetry & Voice Communication
23	-	Clarification	199	BESS	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 .
24	-	Clarification	267	The BESS shall include a (Data Acquisition System) DAS to provide continuous monitoring and display of key operational parameters, as well as permanent archival.	DAS as part of EMS shall be acceptable.
25	-	Clarification	456	Watt-hour ratings (dispatchable capacity)	specified year-on-year dispatchable energy from the BESS system is excluding the auxiliary energy consumption Auxiliary energy required during discharge / charge / standby can be drawn separately from utility or from Solar PV plant.
26	-	Clarification	457	Watt-hour ratings (dispatchable capacity)	BESS shall be designed for operating at Unity Power Factor. However, PCS should have facilities to provide reactive power support to grid as and when required.
27	-	Clarification	459	Common SCADA	Solar and BESS shall have common SCADA and HMI. Accordingly BESS Vendor shall consider necessary unified interface of BESS SCADA with Solar SCADA
28	-	Clarification	568	End of Battery Life	End of Battery Life for corresponding clause is equal to 10 years.

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29	-	Clarification	568	Battery discharge	EMS (Energy Management System) shall monitor Discharged energy from battery and it will cut-off the battery after required energy from battery has been discharged.
30	-	Clarification	610	Battery charging period	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 .
31	-	Clarification	611	Battery discharge period and time zone	Battery shall be discharged completely in the non solar hours.
32	-	Clarification	629	Watt-hour rating (dispatchable capacity) :	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
33	-	Clarification	633	Watt-hour rating (dispatchable capacity)	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.
34	-	Clarification	636	Factory Acceptance Testing of BESS	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.
35	Additional Clause	-	-	BESS Codes and Standards	Enclosed as annexure to corrigendum
36	Additional Clause	-	-	Civil Works for BESS Equipment	Civil works required for BESS system shall be considered including rooms, pedestals etc.,
37	Price Schedules	-	-	Price Schedules	Price Schedules (Rev 01) is enclosed as annexure to Corrigendum. It shall be noted that Reverse Auction is not applicable.

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38	Addendum I to Corrigendum I	113 Pages (SECI Amendments & Clarifications)		SECI Amendments & Clarifications	Bidders shall take note of the end customer (SECI) amendments and clarifications for the project while submission of the tender as applicable for the BESS system on turn key basis unless otherwise specified specifically in Corrigendum I herein. Commercial Terms & Conditions however shall be as per SPECIAL COMMERCIAL CONDITIONS OF CONTRACT/ CE: PR: 003- Rev 02 dt:27.11.2020 of BHEL tender reference number MGRM0000366/Pre-Bid Tie-up/BESS unless otherwise specified specifically in corrigendum I herein.