



Bihar State Power Generation Company Limited

Vidyut Bhawan, Bailey Road, Patna

PRE-TENDER CONFERENCE

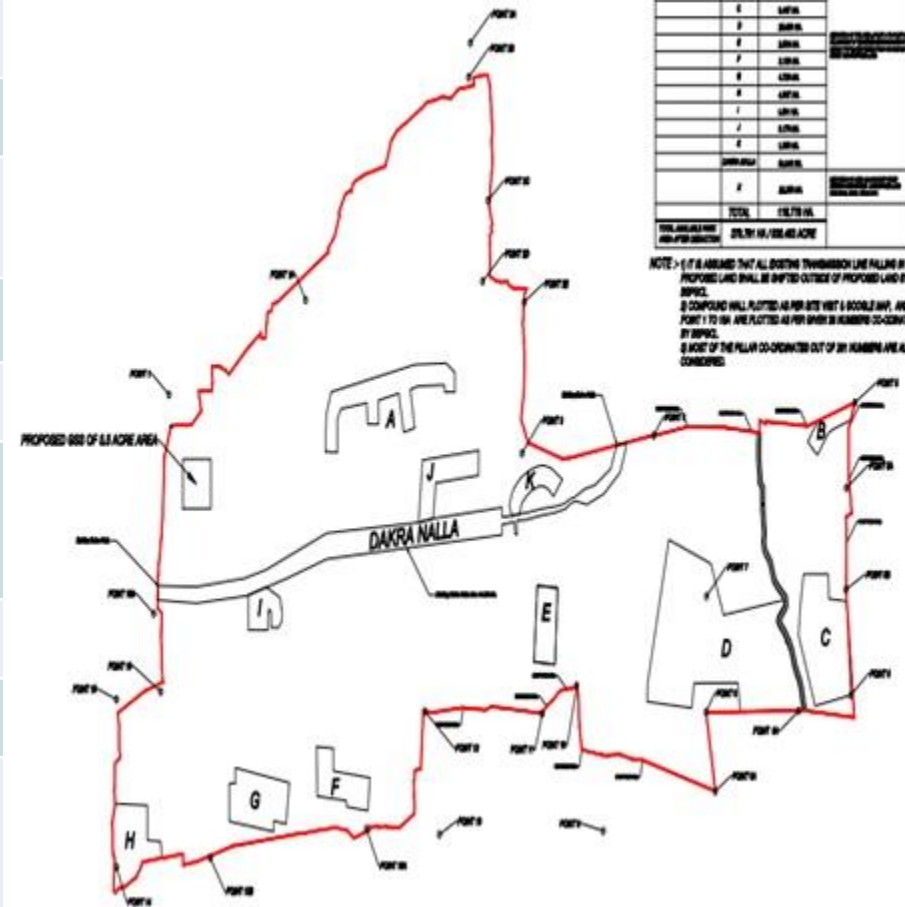
FOR THE PROJECT OF

“SURVEY, DESIGN, ENGINEERING, SUPPLY, PROCUREMENT, INSTALLATION, ERECTION, CONSTRUCTION, COMMISSIONING & OPERATION AND MAINTENANCE OF 185 MW (AC) SOLAR PV GRID CONNECTED POWER PLANT ALONG WITH 45.4 MW FOR 4 HOUR (MIN. 254 MWH) BATTERY ENERGY STORAGE SYSTEM ON EPC BASIS WITH 10 YEARS O&M AT KAJRA, DIST.: LAKHISARAI, BIHAR”

About the Project Site Location

Particulars	Description
Village	Kajra
District	Lakhisarai
State	Bihar
Transmission Line	132 KV Quad circuit
Latitude	25° 11' 33.5"
Longitude	86° 18' 10.7"
Estimated life of PV Power Plant	25 years
Land Available	1232 Acre (Approx.)
Usable Land Area	882 Acre(Approx.)
Details of land in Possession	Under possession of BSPGCL
Nearest Urban Area	Lakhisarai

Kajra Solar Plant Site





Brief about the Tender

- Tender is to be invited for EPC and O&M (for 10 years) from a single Contractor for 185 MW (AC) plant capacity along with 45.4 MW for 4 hours (Min. 254 MWh) BESS.
- The Contractor will confirm the Net Electrical Energy Generation Guarantee (NEEGG - 3870.31 MU in 10 years) which includes Guaranteed Energy Evacuation from SPV Plant (3227.18 MU) and BESS (643.13 MU) separately.
- The Tender will be technology agnostic except for some key components as mandated by MNRE/ SECI.



Power Evacuation & Metering Points

- 132 kV Lakhisarai- Haveli Kharagpur D/C Transmission Line (approx. 6 km from plant) will be utilised through LILO for power evacuation from Solar Plant pooling substation.
- Complete 132 KV Pooling Substation upto gantry at the plant end will be in the scope of EPC Contractor. (**Works related to LILO of 132 kV Lakhisarai- Haveli Kharagpur D/C Transmission Line shall **not** be in the scope of EPC Contractor.*)
- ABT metering at 132 KV level at plant end will be used for billing purpose with DISCOM.
- ABT Metering at 33 KV level individual for solar & BESS to meet the Guaranteed/Confirmed NEEGG by the Contractor.



Pre-qualification Requirement

TECHNICAL (A) - SOLAR

Who can Bid?	:	Individual Company or Companies in Consortium with maximum two members.
Cumulative Installed Capacity in last 10 Years with minimum Solar PV on megawatt scale (≥ 1 MW) For Ground Mounted Projects in India	:	250 MW (AC)
Out of which the bidder must have minimum plant size of	:	1 No. 150 MW or 2 Nos. 110 MW or 3 Nos. 75 MW

TECHNICAL (B) - BESS

Grid Connected Battery Energy Storage System (BESS) of at least 03 (Three) Grid Connected BESS Plants (Ongoing or Completed)	:	Individual capacity of 5 MW / MWh or above in India or out of India.
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FINANCIAL

Cumulative Turnover (Last 3 FY)	:	Rupees One Thousand Three Hundred Fifty Crore Only (Rs. 1350,00,00,000/-)
Net Worth (Last FY)	:	Positive



Pre-qualification Requirement

TECHNICAL (B)

Bidding Consortium (Specially for BESS)

Consortium shall not have more than 2 Members .

Lead member must have at least 51% equity/shareholding and other member (Specially for BESS) must have at least 26% equity/shareholding in the consortium.

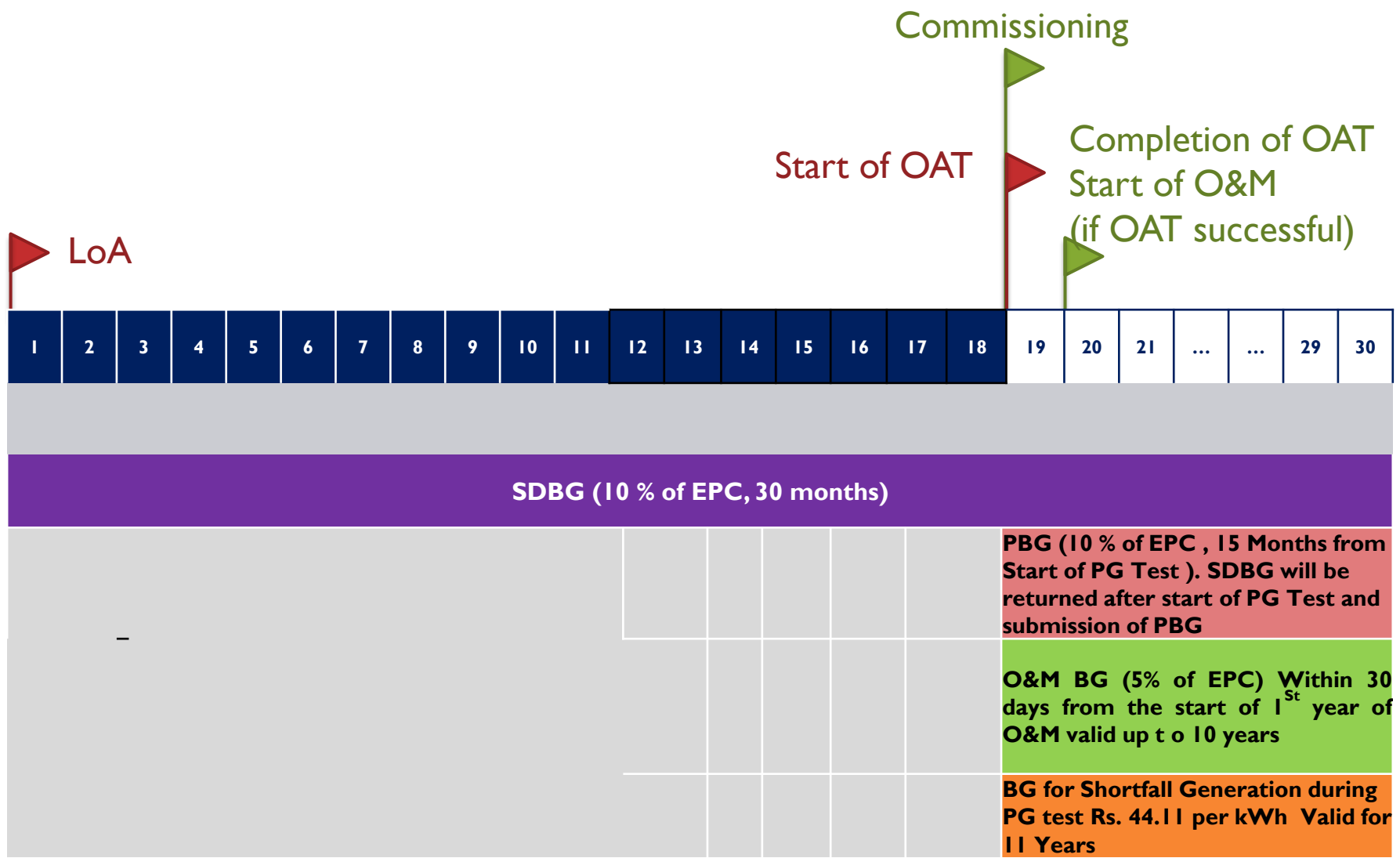
The lead partner shall be authorized to incur liabilities and receive instruction For and on behalf of consortium member of consortium and the entire execution of the contract including receipt of payment shall be done exclusively through the lead partner.

Bid Evaluation:

- The total 10 year Comprehensive O&M Charge shall not be less than 6% of Total EPC Cost.
- Quoted Price of EPC cost and O&M cost shall be considered for calculation of ENBV, subsequent to Reverse Auction.



Project Execution Timeframe





Salient Technical Features

- ▶ **PV module:** Crystalline-Si (Mono/ Single/ Bifacial)/ TOPCon/ HJT Solar technology of 440 Wp and above.
- ▶ **Battery:** Lithium-ion Type or any suitable/ superior/ latest battery chemistry.
- ▶ **Solar PV & BESS Interconnection/coupling:** at 33 kV Level.
- ▶ **PCU/Inverter for Solar:** String Inverter (≥ 150 kW) and/or Central Inverter (≥ 1000 kW)
- ▶ **Module Mounting Structure:** Fixed/ Fixed tilt/ Tracking System.



Important Amounts & BGs

Sr.	Particulars	Description
1	Estimated EPC Cost (SPV+BESS) + 10 Years O&M Cost	Rs. 1710.65 Crs + Rs. 115.32 Crs =Rs. 1825.97 Crs.
2	Tender Fees	: Rs. 29,500/- (Including GST)
3	EMD in form of BG	: Rs. 18.26 Crore
4	Validity of EMD	: One Hundred Eighty (180) days
5	Security Deposit:	: 10% (Ten percent) of the EPC Price valid Upto Thirty (30) months.
6	Performance Bank Guarantee (PBG)	10% (Ten percent) of the EPC Price valid Upto Fifteen (15) months.
7	O&M Bank Guarantee	: 5% (Five percent) of the EPC Price for 10 years of O&M duration.

Payment Milestones for Supply



Sr No	Mile Stone	Payment
1	Advance Payment (Interest Bearing at the rate of SBI PLR) against Bank Guarantee of 110% of advance amount.	10% of Supply contract price (Excluding Taxes and Duties).
2	Supply and receipt of Materials to site on MRC	55% of Supply contract price (item wise BBU value for received material only)
3	Completion of Erection of equipment/system	5% of Supply contract price (item wise BBU value for received material only)
4	Upon successful testing of equipment/system	5% of Supply contract price (item wise BBU value for received material only)
5	Upon successful commissioning of one complete block for equipment/system on prorated basis.*	5% of Supply contract price (item wise BBU value for received material only)
6	Upon successful commissioning of full capacity of the plant.	5% of Supply contract price (item wise BBU value for received material only)
7	Upon Completion of Successful Operational Acceptance Test	10% of Supply contract price (item wise BBU value for received material only)
8	Upon Completion of all the Facilities of the Project and final reconciliation	5% of Supply contract price (item wise BBU value for received material only)

Payment Terms for the Works

Sr No	Mile Stone	Payment
1	Mobilization Advance Payment (Interest Bearing at the rate of SBI PLR) against Bank Guarantee of 110% of advance amount	5% of works contract price. (Including Taxes and Duties)
2	Against monthly RA bills for the Works executed at site	65% of works contract price.
3	Upon successful commissioning of full capacity of the plant	15% of works contract price
4	Upon Completion of Successful Operational Acceptance Test	10% of works contract price.
5	Upon Completion of all the Facilities of the project and final reconciliation	5% of works contract price.

Payment Terms of O&M

Sr.	Milestone for O&M	Amount
1	On Successful Operation and Maintenance of the Solar PV Power Plant on monthly basis for each year till 10 years	Year 1: OM-1 Year 2: OM-2 Year 3: OM-3 Year 4: OM-4 Year 5: OM-5 Year 6: OM-6 Year 7: OM-7 Year 8: OM-8 Year 9: OM-9 Year 10: OM-10

Liquidated Damages, Delay and Underperformance (1/2)

I. **Delay in in Achieving milestones of Supply/Works***

- ▶ Erection of Module Mounting Structure for Full DC Capacity
- ▶ Supply of PV Modules for Full DC Capacity
- ▶ Supply of Battery Energy Storage System & Associated Equipment
- ▶ Supply of Inverter Duty Transformers, Power Transformers
- ▶ Supply, Erection, Testing of 132 KV Switchyard & 33 KV Equipments

- 0.05 % Per Week, Maximum up to 1 % of the EPC for above individual milestone

I. **Delay in Commissioning**

- ▶ Liquidated damage (LD) to be applicable after 18 months from the date of LOA.
- ▶ Delay up to 30 days: Amount of Rs. 15,000/MW*/Day
- ▶ Delay of more than 30 days and up to 60 days: Amount of Rs. 25,000 /MW*/day
- ▶ Delay of more than 60 days: Amount of Rs. 35,000 /MW*/day

Note:

- 1) Maximum applicable Liquidated Damages for delay in commissioning that applied with the upper ceiling for total liquidated damages for delay shall be maximum 10% of the EPC Contract Price.
- 2) * proportionate to the capacity not commissioned as COD with BSPGCL.
- 3) If 3rd attempt of OAT is also unsuccessful then Penalty will not be returned.

Liquidated Damages, Delay and Underperformance (2/2)

- I. **Failure in Operation Acceptance Test (OAT)/ Performance Ratio Test:**
 - ▶ Penalty for any shortfall in PR below 0.75 will attract imposition of Liquidated Damages after one (I) unsuccessful chance.
 - ▶ For the (II) unsuccessful chance a penalty of 1% of Solar EPC cost shall be levied
 - ▶ 3rd Attempt for OAT shall be allowed to the EPC Contractor. If 3rd Attempt is successful then the Penalty imposed on 2nd attempt will be returned.
 - ▶ Failure to demonstrate the BESS discharge capacity of 45.4 for 4 hours continuous for 7 days after commissioning, then a liquidity damage shall be imposed as 10% of BESS EPC Cost to contractor.

Note:

- 1) Maximum applicable Liquidated Damages for delay in commissioning that applied with the upper ceiling for total liquidated damages for delay shall be maximum 10% of the EPC Contract Price.
- 2) * proportionate to the capacity not commissioned as COD with BSPGCL.
- 3) If 3rd attempt of OAT is also unsuccessful then Penalty will not be returned.

Liquidated Damages (LD), Defect Liability & Incentives

1. **Underperformance at PG Test:**

- ▶ LD for not meeting guaranteed generation(NEEGG) is at Rs. 7.00 per kWh and for not meeting guaranteed delivery of Energy from Battery Storage is at Rs. 15.00 per kWh.
- ▶ A BG of Rs 44.11 / kWh to be submitted for 11 years which shall be encashed if the Contractor fails to achieve the NEEGG during the 10th year for the shortfall that has occurred till 10th year with a maximum amount limited to the Bank Guarantee value.

2. **Delayed rectification of defects in Plant:**

- ▶ Rs. 7.00 per kWh for generation loss occurred due to that failure. Duplication to be avoided during year-end NEEGG calculation.

3. **Loss of Generation during O&M:**

- ▶ For any Contract Year, if it is found that the “Actual Delivered Energy” is less than ‘Confirmed NEEGG’ for the particular year, then a Penalty at Rs. 7.00 per kWh of under-generation will be levied.
- ▶ In addition to above, a penalty at the rate INR 15.00 per kWh shall be charged for the shortfall of energy from BESS.
- ▶ The above penalties shall be Maximum 25% of contract value, excluding O&M Charges.

4. **Incentive During O&M Period:**

- ▶ An incentive of 25 % of the tariff rate per unit (Tariff rate as decided by BEREC) for over and above 5% of NEEGG may be given to the EPC Contractor subject to approval by DISCOMs/Procurer.

