

# Nagpur Metro Rail Corporation Limited

Tender No. N1EG-04/2016


**Name of Work:** Design, Engineering, Manufacture, Supply, Storage Civil work, Erection, Testing & Commissioning of the Rooftop Solar PV project including Operation and Comprehensive Maintenance (O&M) of the project in RESCO Model for a period of 25 years after commissioning of projects in METRO BHAWAN of NMRCL (Corporate Office Building of NMRCL)

## Corrigendum-I

Date: 04.07.2016

Tender No (As uploaded in the e-tender portal- 50

Event Pre-bid- 20.06.2016	Reply to pre-bid queries is placed at annexure-1. (Placed opposite)
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General Manager  
(Procurement)  
NMRCL, Nagpur

**Reply to queries of tender No Tender No. N1EG-04/2016**

**Name of Work:** Design, Engineering, Manufacture, Supply, Storage Civil work, Erection, Testing & Commissioning of the Rooftop Solar PV project including Operation and Comprehensive Maintenance (O&M) of the project in RESCO Model for a period of 25 years after commissioning of projects in METRO BHAVAN of NMRCCL (Corporate Office Building of NMRCCL

**Pre-Bid Date** 20.06.2016

**Annexure-1**

Sr.No	Clause No.	Clause	Query	Clarification/amendment
1	2.7	Satisfactory performance certificate issued by customer of the installed plant which is in operation for a minimum period of 1 year	Being a RESCO developer, the commissioning certificate issued by the tendering authority eg SECI should suffice the said purpose. Request you to kindly accept the same.	The change asked for is not acceded to.
2	2.8	FINANCIAL ELIGIBILITY CRITERIA 2.8.1 The Bidder should have an Annual Turnover and Net worth as indicated below:- Annual Turnover: Bidder should be a profit making company for last 3 financial years namely 2013-14, 14-15, 15-16 with a minimum annual turnover of Rs 5 Cr for any year. Net Worth: Net Worth of tenderer during last audited financial year should be > ₹ 5.00 Crores	This clause should not be made mandatory and the financial criteria should depend only on the net worth and the annual turnover. The same has been in incorporated in bids by SECI, DMRC etc.	2.8 FINANCIAL ELIGIBILITY CRITERIA 2.8.1 The Bidder should have an average Annual Turnover and Net worth as indicated below:- Average annual Turnover of bidder in last three financial years should be atleast INR 3 crores (namely in FY 2013-14, 2014-15 and 2015-16). Further the bidder company should be a profit making in at least any 2 years out of the last 3 aforementioned years. Net Worth: Net Worth of tenderer during last audited financial year i.e. on 31.03.2016 should be > ₹ 0.5 Crores and should also be certified by CA

  
 20.06.2016

3	3.8	Minimum CUF of 15% should be maintained for the whole 25 years	The CUF of 15% can be achieved on a RCC roof with south facing installation. This may vary w.r.t type of roof, tilt angle and azimuth. Hence the minimum CUF should be reduced to 12%.	With recent advance in Solar PV technology, maintaining minimum 15% CUF is considered practical. The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the O&M period. PR should be shown minimum of 75% at the time of inspection for initial commissioning acceptance and rest of the O&M period. The PR shall be measured at inverter output level during peak radiation conditions. Minimum units generated should be 3,30,000 per annum or part thereof during the whole lifetime of 25 years. For the purpose of reading unit generation, the annum shall be reckoned from 1st of April (or COD) to 31st of March
4	3.9	Penalty = 2 X (committed generation as per Schedule-IV of PPA – Actual generation during the same period) X (Average cost of electricity from grid per unit at the end of that year applicable to power purchaser – applicable solar power tariff payable to power producer for that year).	The minimum CUF for imposition of penalty should be reduced to 12%. & penalty should be calculated as per (committed generation as per Schedule-IV of PPA – Actual generation during the same period) X (Average cost of electricity from grid per unit at the end of that year applicable to power purchaser – applicable solar power	The change asked for is not acceded to.
5	4.8	All applicable subsidy shall be claimed by Successful Bidder directly from the concerning Government Departments.	The provision of subsidy should be in NMRCL's scope.	All applicable subsidy shall be claimed by Successful Bidder directly from the concerning Government Departments. However, NMRCL may endorse/facilitate the successful bidder for availing the same.

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6	5.16	Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying.	Aluminium Cables should also be allowed for AC side while maintaining the losses in said limit as per RFP, Attached annexures also shows use of Aluminium cables	Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. However, Aluminium cables can be used provided voltage drop (power loss) are maintained within limit as per RFP.
7	5.6	JUNCTION BOXES (JBs), Please refer typical AJB datasheet attached as Annexure-6. Offer may be made Trinity touch or equivalent make.	AJB should not be mandatory as inverters would have necessary protections at input side thus extra protection shall not be required	Inverters have specific number of DC input. Use or otherwise of AJB depends on matching total strings with total no. of DC inputs in the inverter. Therefore it is under purview of design.
8	5.9	The combined wattage of all inverters should not be less than rated capacity of power plant under STC (Standard test conditions).	The design aspect should be in the scope of the bidder and the bidder should be allowed to overload as per the technical specifications of the inverter manufacturer. Typically AC capacity is 80% of DC Capacity. and DC overloading is standard practice used for better performance in low irradiance hours, thus DC overloading should be allowed as per manufacturer's specified limit	The design is indeed under the scope of bidder. The design provided in the RFP is for indicating the requirement of interface with electrical network of Metro Bhawan. Accordingly rating selection of equipment is also to be done by bidder. The combined wattage of all inverters can be lesser than rated capacity of power plant under STC (Standard Test Conditions) i.e. Max. upto 90% of the total DC capacity of the modules. Overloading of inverters to the maximum extent of 10% is permissible.
9	2.21.1	The Bid Security shall be denominated in Indian Rupees and shall be in any one of the following forms:	The bidder should have an option of submitting the bid security in the form of Bank Guarantee.	The change asked for is not acceded to.
10	2.22.7	The Performance Security initially shall be valid for a minimum period of 24 months from the date of issue of Allocation letter(s). Thereafter PBG shall be extended every year for next one year up to tenure of PPA.	Being a RESCO tender, we as developer have the obligation to perform, as the only source of revenue being the sale of energy we generate. Hence request you to reduce the tenure of PBG to 24 months from the date of allocation only.	The full arrangement of RESCO envisages a 25 year time span. In any case the amount of PBG goes on reducing at the time of successive renewals as per the % indicated in Schedule-III of PPA. Therefore the change asked for is not acceded to.

11	3.17.1	The Successful bidder shall not transfer, assign or sublet the work under this contract or any substantial part thereof to any other party without the prior consent of NMRCL in writing.	The Successful bidder shall not transfer, assign or sublet the work under this contract or any substantial part thereof to any other party with written intimation to NMRCL.	The change asked for is not acceded to.
12	4.12.1	The modules should be manufactured in India only for availing subsidy as per clause 14.1.1	Foreign made modules should be allowed if bidder is not willing to avail subsidy	The bidder can choose any module manufacturer. As the bidder has to avail any subsidy as per clause 4.8 (Sr. No. 5 above), the bidder may select the make of the module and quote the tariff including subsidy to be availed if any.
13	4.14.1	The Bidder shall complete the As per design provided, supply, storage, civil work, erection, testing & commissioning of each project within 9 months from the date of issue of sanction letter.	The term sanction letter has not been defined in the RFS. Request you to please define the same.	The Bidder shall complete the as per design provided, supply, storage, civil work, erection, testing & commissioning of project within 9 months from the date of issue of the letter of Acceptance (LOA). The associated PPA shall be signed within a reasonable period after issue of LOA and deposit of Performance Guarantee.
14	4.7.3	The Bidder shall be required to start the work within 10 (ten) days from the date of issue of Letter of Award or handing over of the sixth floor roof whichever is later	As prior to the construction activities as per the clause 4.7.9, the bidder has to submit the complete design & drawing to NMRCL, request you to kindly amend this clause.	The Bidder shall respond within 7 days of receiving the letter of award. If Bidder is not responding, it will be assumed that Bidder has accepted the letter of award. The Bidder shall be required to start the work within 12 weeks from the date of issue of Letter of Award or handing over of the sixth floor roof whichever is later and shall therefore report to the Project Manager/Site-in-Charge accordingly.
15	4.7.9	The bidder shall submit the complete design & drawing to NMRCL within 4 Weeks from the date of issue of LOA.	Request you to kindly increase the time line for submission of complete design & drawing to 8 weeks from date of issue of LOA.	After the award of the work to the successful bidder by NMRCL, The bidder shall submit the complete design & drawing to NMRCL within 6 Weeks from the date of issue of LOA. The Bidder shall complete the project as per approved design by NMRCL (The detail design shall be submitted by Successful Bidder)

16	5.12 DATA ACQUISITION SYSTEM / PLANT MONITORING	All instantaneous data shall be shown on the computer screen one PC with latest configuration for this purpose shall be provided at location in the same premises specified by NMRCL.	Data Shall be Shown on existing computer in the NMRCL Premises, Developer will not require to provide separate computer for monitoring	Separate computer shall not be required. However the equipment selected should be SCADA ready on any open protocol.
17	Array structure	Pyramid Structure	Modules shall be installed on elevated Pyramid structure provided by NMRCL, Developing Pyramid structure will not be in bidder's scope.	Yes Accepted. NMRCL shall provide the structure for mounting. However mounting rails, frames etc must be provided by the developer
18	Array structure	General	Please clarify whether structure of the building roof shall be covered with metal sheet/RCC slab before Solar Module installation. Solar modules shall be installed directly on to the purlins/Structure available	Some kind of sheeting material like Galvanium etc would be provided.
19	ARRAY STRUCTURE Re: Annexure-V-D.	PDF file is attached	AutoCAD file would be required	AutoCAD file of the rooftop shall be provided later on
20	DC SLD	DC SLD Shows 630A ACB	MCCB of required size shall be used	ACBs are used mostly above 630A. Moreover one ACB at interface of Solar PV and Building Electrical network is good for reliability and therefore the requirement.
21	Format B	Project Cost excluding O&M for the scope of works as per Bid document	As the scope of work includes O&M for 25 years why the bidder has to quote the cost excluding O&M. Please clarify.	The change asked for is not acceded to. The Project is provision of Solar PV panel along with associated electrics, on the roof of Metro Bhawan. Therefore only this part of cost is to be considered.
22	SCADA	The pyranometer for measuring incident global solar radiation. The specification is as follow.	As proposed system has four different orientations, pyranometer shall be installed on only one orientation	Accepted. Atleast one pyranometer shall be provided as per specifications given

23	Schedule 3	The Depreciation rate is taken as 6.50 % Per Year	The buyback price during the 15th year is only 2.5% of the original project cost. If the original cost of the Project was INR 8 Cr./MW the buyback price will come out to be INR 20 Lakhs/MW during the 15th year. The project at the end of the 15th year can still earn 10 years' worth of additional revenue on the tunes of INR 9 Crore per MW.	2.5% of Project cost at the end of 15 year is not the cost for 'buy back'. It is notional residual value. The table just reflects accelerated depreciation in initial years. The change asked for is not acceded to.
24	SECTION-V TECHNICAL SPECIFICATIONS	5.1 Technical Configuration of Solar PV Power Plant (252kwp) The Roof Top PV system (252 kwp) is designed with 800 Nos. of 315Wp modules. The configuration of system is as follow: 180 modules forming 9 Nos of strings on East facing roof connected to 1 number of 60KW grid tie inverter. 180 modules forming 9 Nos of strings on West facing roof connected to 1 number of 60KW grid tie inverter. 220 modules forming 10 Nos of strings on South facing roof connected to 3 number of 25KW grid tie inverter. 220 modules forming 10 Nos of strings on North facing roof connected to 3 number of 25KW grid tie inverter.	Developer should be allowed to use Different configuration of string and inverters. String size of 22 is not acceptable as system is designed for 1000V. DC SLD shows String size of 20. Developer should be allowed to use other makes/sizes of inverter having multiple MPPTs instead of two 60 kwp inverters four 25 kwp inverters shall be used	5.1 Technical Configuration of Solar PV Power Plant (252kwp) The Roof Top PV system (252 kwp) is designed with 800 Nos. of 315Wp modules. The configuration of system is as follow: 180 modules forming 9 Nos of strings on East facing roof connected to 1 number of 60KW grid tie inverter. 180 modules forming 9 Nos of strings on West facing roof connected to 1 number of 60KW grid tie inverter. 220 modules forming 10 Nos of strings on South facing roof connected to 3 number of 25KW grid tie inverter. 220 modules forming 10 Nos of strings on North facing roof connected to 3 number of 25KW grid tie inverter. However, different sizes of string and invertes are allowed subject to 1) Minimum DC capacity of the system should be 252 kwp. 2) Minimum units generated should be 3,30,000 per annum 3) The string and inverters used should follow relevent IEC/IS/MNRE specified standards..

25	The bidder shall have designed, supplied, installed and commissioned at least 100 KWp (single location) and at least 1 MWp cumulative Roof Top SPV power plants till date. Satisfactory performance certificate issued by customer of the installed plant which is in operation for a minimum period of 1 year	We have till date completed Solar off-grid installations of around 4 Mw at various sites on pan-India basis. Also, as the net metering concept is relatively new, we cannot provide certificate for 1 year, but we have installed Roof Top SPV plants on multiple sites in the state and one of our Plants of 250 Kw (on a single location) has been installed and commissioned recently.	The bidder shall have designed, supplied, installed and commissioned at least 100 KWp (single location) any amount and at least 1 MWp cumulative SPV power plants till date. Satisfactory performance certificate issued by customer of the installed plant which is in operation for a minimum period of 1 year
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### Addendum

Sr.No	Clause No.	Clause existing	Clause to be read as
1	2.1.2	Maximum allowable Levelised tariff for this part is Rs.6.0 Per kWh and the bids with Levelised tariff in excess of Rs.6.0 Per kWh will be rejected.	Maximum allowable Levelised tariff for this part is Rs.6.25 Per kWh and the bids with Levelised tariff in excess of Rs.6.25 Per kWh will be rejected.
2	5.13, a	The bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy in GDB.	The bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy in MDB. The primary metering connection of the purchaser should be changed to Net-metering type in the main metering point of supply of utility. All liasoining work with MSEDCL or licensee shall be undertaken by the bidder at the behest of purchaser.

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04.07.2016

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