**FILE NO.: VIS(2022-23)-PL545-Q113-441-756 Dated: 29/12/2022**

**COST ASSESSMENT AND REQUIREMENT ANALYSIS REPORT**

**OF**

**250 kW ROOFTOP MOUNTED SOLAR POWER PROJECT**

**PROPOSED TO BE SET UP AT**

**MAA VANKAL EXPORT LOCATED AT**

**BHANDU KALA LUNI, JODHPUR, RAJASTHAN**

**COMPANY/PROMOTER**

**MAA VANKAL EXPORT**

**REPORT PREPARED FOR**

**YES BANK HOUSE, MUMBAI**

***\*\*Important - In case of any query/ issue or escalation you may please contact Incident Manager***

***at le@rkassociates.org. We will appreciate your feedback in order to improve our services.***

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| **PART A** | **REPORT SUMMARY** |

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| **S.NO.** | **PARTICULARS** | **DESCRIPTION** |
|  | Name of the Project | Setting up of 250 kW Rooftop Solar Project |
|  | Project Location | Maa Vankal Export located At Bhandu Kala Luni, Jodhpur, Rajasthan |
|  | Name of the Company | M/s. Maa Vankal Export |
|  | Prepared for Bank | Yes Bank, Mumbai |
|  | LIE Consultant Firm | M/s. R.K. Associates Valuers & Techno Engineering Consultants (P) Ltd. |
|  | Work Order Details | Via mail dated 29-12-2022 |
|  | Date of Survey | Only Desktop Report |
|  | Date of Report | 29th December 2022 |
|  | Purpose of the Report | To review Estimated Project cost and eligibility criteria check of the proposed project. |
|  | Scope of the work provided by the Lender | Only to comment on the following below points based on the documents provided to us:   * Estimated Project cost * Requirement analysis of 250 KW rooftop solar Plant.   *NOTE: This report doesn’t contains any other kind of recommendation or suggestions other than the above 2 points.* |
|  | Documents perused for Proposal: | 1. Techno Commercial Proposal from Solar Nation 2. Copies of Electricity Bill (Sep, Nov., Dec.) |
|  | Annexure with the report: | 1. Copies of Electricity Bill |

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| **PART B** | **PEOJECT DESPCRIPTION** |

1. **NAME OF THE PROJECT:** Installation and Commissioning of 450 kW of Roof Mounted Solar Power Project.
2. **PROJECT OVERVIEW:** As per information shared by the bank, company is proposing to set-up a Rood Top Solar Power Project of 250kW. As per information shared by company official, the company is in the business of Guar Gum Agro Commodity. Company has installed 3 machine plants naming grinder, pulverizer and roaster.

The company wants to reduce its electricity expenditure by installing 250kW Rooftop Solar Power Plant. The company has approx. shed area of 280x80 ft for installing solar panel.



**280x80 ft shed**

**GPS Coordinates:** 26°07'13.8"N 72°53'56.7"E

In this respect Bank has approached us to comment specifically on the cost reasonability shown by the supplier in its Techno Commercial Offer and the requirement of 250KW based on the copies of the electricity bills provided to us.

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| **PART C** | **POWER REQUIREMENT ANALYSIS** |

1. **POWER CONSUMPTION:** As per the copy of electricity bills for the month August, October & November 2022 shared, company has a contract load of 250 kVA from Jodhpur Vidyut Vitran Nigam Limited. Important details extracted from the bills for the power requirement analysis are tabulated below:-

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| --- | --- | --- | --- | --- |
| **Bill Month** | **Net Consumption (in KWH)** | **Peak Load** | **Average Power Factor** | **Average Load Factor** |
| August-2022 | 28,101 | 130.92 | 0.993 | 15.11% |
| October-2022 | 28,731 | 58.86 | 0.994 | 14.97% |
| November-2022 | 27,843 | 65.58 | 0.994 | 15.76% |

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| --- | --- | --- | --- |
| **Bill Month** | **Power Factor (PF)** | **Contracted Demand**  **(In kVA)** | **Energy Consumed**  **(In kW=PF x kVA)** |
| August-2022 | 0.993 | 250 | 248 |
| October-2022 | 0.994 | 250 | 249 |
| November-2022 | 0.994 | 250 | 249 |

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| --- | --- | --- |
| **Particulars** | **Unit** | **Remark** |
| Total Connection Load (kW) | 250 | As per Electricity Bill |
| Total Peak Power Load (kVA) | 130.92 | As per Electricity Bill (max. taken as per Sep.22 bill) |
| Total Power Generation (Kwh in a day) | 1050 | As per Techno Commercial Proposal |
| **Average Power Generation (Kwh in month)** | **31,500** | **As per Techno Commercial Proposal** |
| **Average consumption (Kwh in month)** | **28,225** | **As per Electricity Bill (average of Sep., Nov., Dec. Bills)** |

**Conclusion:** Based on the above analysis as shown in table above, it appears that as per current usage as reflected from the copy of electricity bills and power generation claimed by Solar Nation Techno Commercial Offer provided to us that this Plant has the requirement of 250 KW rood top solar power plant.

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| **PART D** | **COST ASSESSMENT** |

1. **PROJECT COST:** As perTechno Commercial Proposal for the said project installation, quoted by M/s Solar Nation is Rs. 1,06,25,000/- (Including GST). Break-up of the same is tabulated below:-

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| **S. No.** | **Description** | **Cost (In Rs.)** |
| 1 | Turnkey EPC prices for Design, Supply, Erection, Testing & Commissioning of 250 KW Solar Power Generating System | 94,35,000 |
| 2 | GST (12%) | 11,90,000 |
| **Total** | | **1,06,25,000** |

1. **COST ASSESSMENT:** As persecondary market research conducted by team of RKA, the benchmark cost for setting up a rooftop photovoltaic system varies from Rs. 39,080/- to Rs. 51,100/- per kW. However, this cost may vary depending upon the location, size of the project, type of installation etc. the project as per Benchmark Cost defined by Ministry of New & Renewable Energy, Government of India is tabulated below:-

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| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Particulars** | **Benchmark Cost**  **(In Rs./kW)** | **Project Capacity**  **(In kW)** | **Total Project Cost**  **(Excluding GST)**  **(In Rs.)** | **Total Project Cost**  **(Including 12% GST)**  **(In Rs.)** |
| 1 | As per Ministry of New & Renewable Energy | 39,080 | 250 | Rs.97,70,000/- | Rs.1,09,42,400/- |
| 2 | As per MNRE Rooftop Solar Calculator | 35,886 | 250 | Rs.89,71,500/- | Rs.1,00,48,080/- |
| 3 | As per market standards for 250kW | From Rs. 1,12,50,000/- to Rs. 1,21,75,000/- | | | |

**Note:**

1. Project cost is analyzed based on lumsum cost only and not item wise.
2. Project cost is assessed for the current date only and due to price fluctuations it may vary at the time of actual purchase or installation.

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| **PART F** | **DISCLAIMER** |

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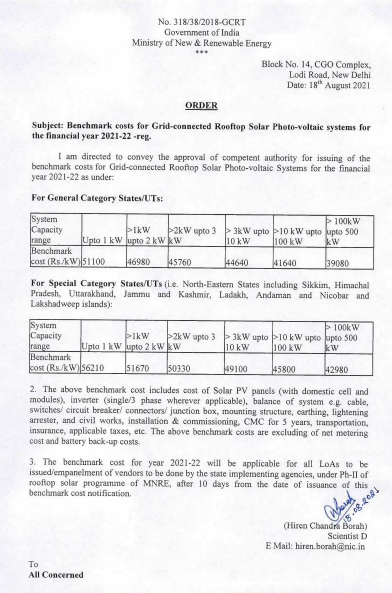
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| **PREPARED BY** | **REVIEWED BY** |
|  |  |
| **Abhinav Chaturvedi**  **(Valuation Engineer)** | **Mohit Agarwal**  **(Sr. Vice President – Projects)** |
| **Date: 29th December 2022** | **Date: 29th December 2022** |

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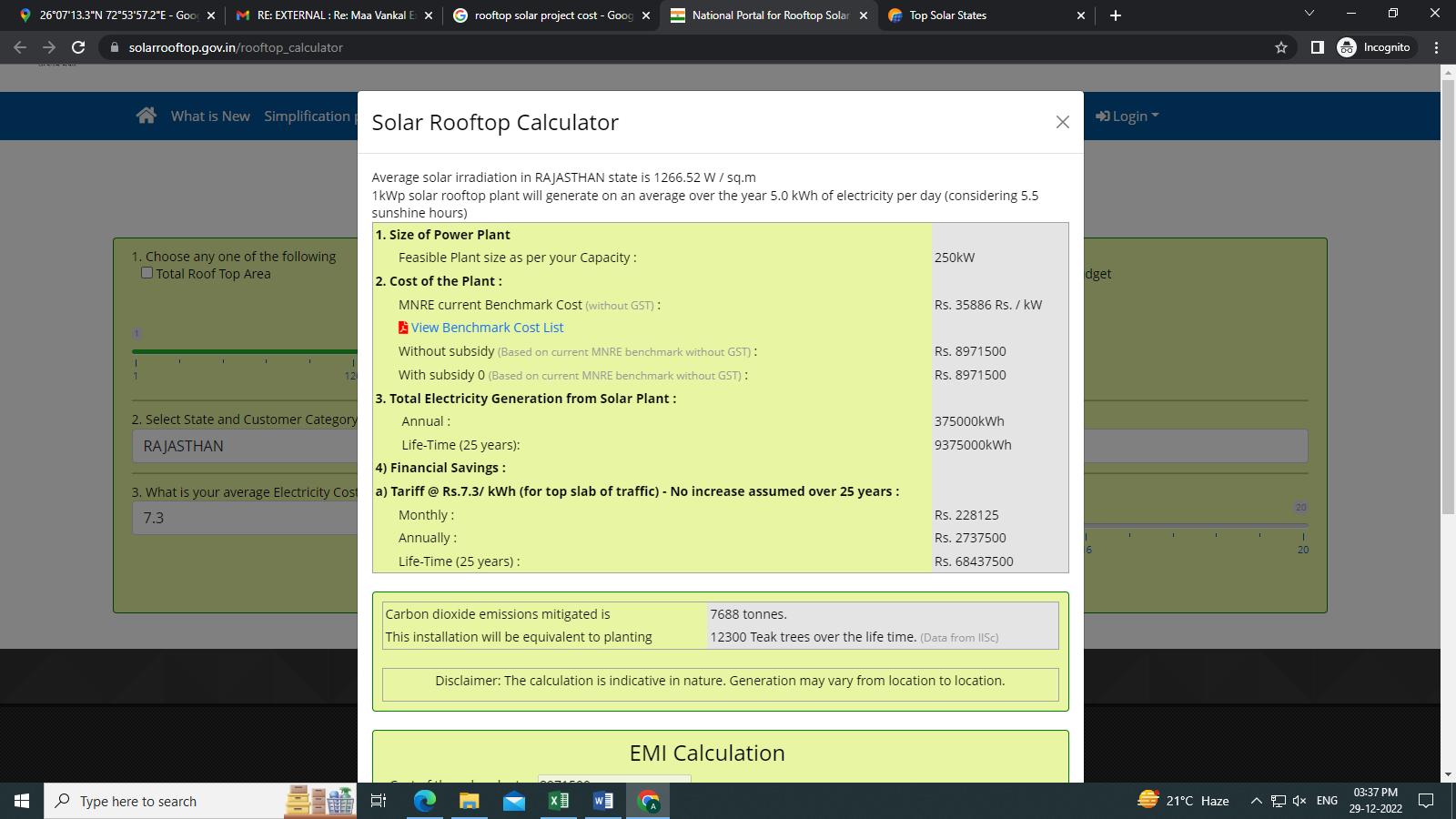
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| **PART E** | **ANNEXURES** |

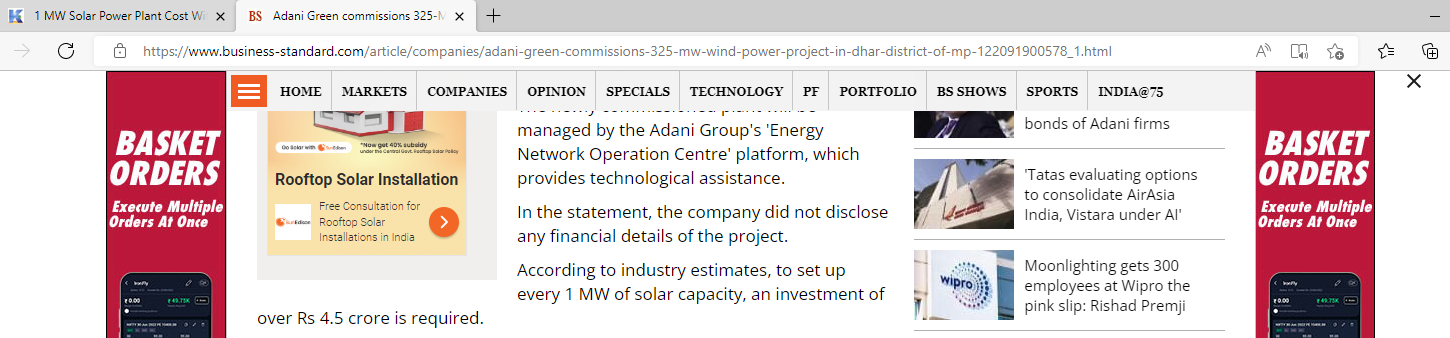
**Benchmark Cost as per MNRE**

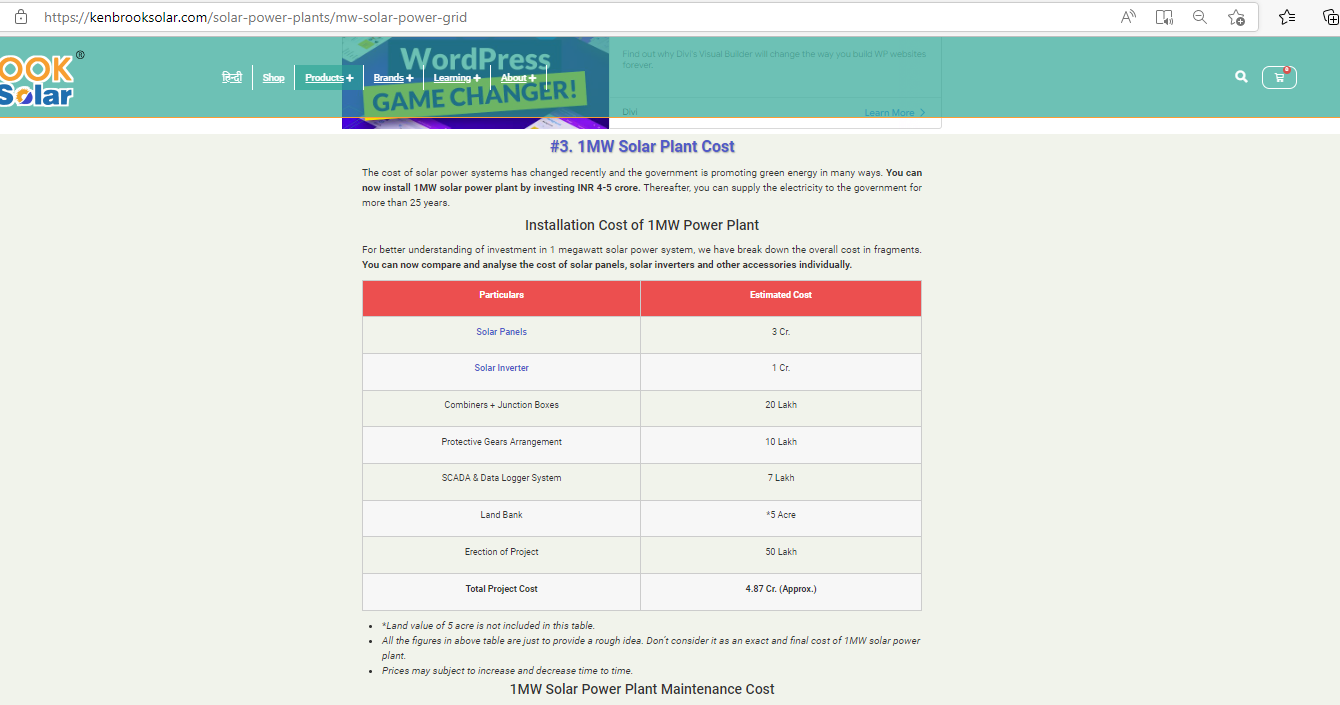


**Benchmark Cost as per MNRE Calculator (without GST)**



**1 MW Solar Power Plant Setup by Adani Solar Energy Group’s In Dhar, M.P.**





**Electricity Bills**

