Project Report For

Solar Power Fencing

Prepared for

ROMOTOR
Xxxxxxxxxxxxxxxxxxxxxxxx

Project Location
xxxxxxxxxxxxxxxxxxxxxxx

Prepared by:
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Project For:
Solar Power Fencing

C O N T E N T

Project For:
Solar Power Fencing

I. PROJECT AT A GLANCE

1. Name of Promoter : xxxxxxxxxxxxxxxxxxx

   Addres:xxxxxxxxxxxxx

2. Project Cost : Rs. 20.00 Lakhs

3. Mean of Finance

A) T. L. facility from Bank : Rs 7.50 Lakhs

B) Cash Credit Loan from Bank : Rs 7.50 Lakhs

C) Own contribution : Rs 5.00 Lakhs

D) Subsidy : Rs 8.80 Lakhs

4. Rate of Interest : 11.00% Per Annum

5. Repayment : 60 monthly instalments @ Rs. 0.16 Lakhs EMI

6. Nature of Project : Solar Power Fencing

7. Employment Potential : 3 Nos.

8. Nature of the Firm : Proprietary Firm

9. Average Debt Coverage ratios : **2.93**

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II. PROJECT DESCRIPTION

Introduction

India is both densely populated and has high solar insolation, providing an ideal combination forSolar Power in India**.** Power is the lifeline of any development of the nation. At present the power requirement is being met by three main sources viz., Thermal, Hydel and Nuclear. While Hydel and Nuclear have their inherent limitations, Thermal Power is often confronted by the challenge associated with the availability of fuel. Currently Thermal Power stations which meet the major part of the power demand use coal as fuel. Conventional fuels such as oil, gas and coal cannot meet the increasing demand forever. In addition to the requirement of huge funds, the implementation of more such projects using conventional means of power generation will also involve issues of growing environmental concern, with depletion of fossil fuels.

Fortunately, India lies in sunny regions of the world. Most parts of India receive 4.7 kWh of solar radiation per square meter per day with 300-325 sunny days in a year. India has abundant solar resources, as it receives about 3000 hours of sunshine every year, equivalent to over 5,000 trillion kWh. India can easily utilize the solar energy. Today The Government is encouraging generation of electricity from various renewable energy sources such as wind, solar, small hydro, biomass by giving various fiscal & financial incentives. This apart, the state governments are procuring electricity from renewable energy projects at preferential tariff. So far 29,536 MW of renewable power capacity have been installed in the country, which includes 19,933 MW from wind, 2079 MW from solar, 3746 MW from small hydro and 3776 MW from bio energy. The Ministry of New and Renewable Energy is providing various renewable energy systems for decentralized generation of electricity. So far, 10,752 villages have been electrified using various renewable energy systems. About 2.55 lakh solar street lights, 9.93 lakh solar home lightening systems, 9.39 lakh solar lanterns and 138 MW of decentralized solar power plants have been installed.

In India, the total solar power generation capacity increased from 461 MW in 2011 to 6,763 MW in 2016. Over the last few years, the solar power generation capacity in the country has increased tremendously owing to favourable government initiatives coupled with development in manufacturing technology of solar panels.Indian Solar Power Industry is anticipated to have double digit growth during next few years, due to the government's policy to increase the share of solar power in the country's energy mix and falling equipment (PV Module) costs globally. Moreover, solar power tariff in India has witnessed a drastic fall over the last few years. The solar power tariffs in India have fallen in nominal terms from INR 15 /Kwh in 2009 to INR 2.44/ Kwh in 2017, due to decline in module prices and improvements in capacity utilization factor. This recent fall came in during the online bidding for a 750 MW solar power park being set up at Bhadla near Jodhpur with viability gap funding (VGF) from Solar energy corporation of India Limited.However, the ever-declining solar power tariffs has encouraged good investments into the sector but have raised concerns over the long -term sustainability of the projects.

The Solar Power Fencing Technology:

The fence is like barbed wire fencing with multiple strands of plain wires and metal/cement/ wooden posts to hold the strands in position. The wires carry high voltage current. The Solar

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Power Fence gives a sharp, short but a non-lethal shock to the intruder and creates psychological fear, against any tampering. The alarm incorporated in the system gets activated and alert the inmates of the protected area. These are tailor made fences and can be designed according to customer needs and site condition.

Working of solar power fencing system

A solar panel is made up of a number of photovoltaic cells connected in series. Electricity is generated by these cells. Combined into a solar panel, these cells can produce enough voltage to charge a regular 12 volt battery. The solar panel ensures that the battery remains charged at all times. The battery stores the energy generated by the panel, and powers the energizer 24 hours a day. The energizer is the device which transform the low voltage current from battery to high voltage (upto 10,000 volts) current and send it to the electric fence. This way the fence is electrified and animals touching the fence receive the shock. Due to high voltage shock to the animals touching the fence, animals keep away from the fence and field is protected.

Installation:

A good solar power fence installation involves:
a. Proper grouting of end and corner posts to get required strength,
b. Clearing of vegetation along the fence to prevent any energy drain as also crossing of fence by monkeys by jumping from one tree to another across the fence.
c. Aesthetic layout of fence,
d. Tight joints,
e. Proper electrical connections,
f. Testing of fence,

While installation of base unit is in progress, the vegetation clearance and post installation are initiated. The corner posts are installed first. A wire is temporarily drawn between the end posts to align the intermediate posts. Insulators are installed close to the posts so that wide gaps are not left for animals to get into the fence easily. Voltage is checked to see if it is between 5 and 10 kV. If voltage is less than 5kV, the fence line is checked for shorts or improper connections.

Market potential & Strategy

In India, the total solar power generation capacity increased from 461 MW in 2011 to 6,763 MW in 2016. Over the last few years, the solar power generation capacity in the country has increased tremendously owing to favourable government initiatives coupled with development in manufacturing technology of solar panels.Indian Solar Power Industry is anticipated to have double digit growth during next few years, due to the government's policy to increase the share of solar power in the country's energy mix and falling equipment (PV Module) costs globally. Moreover, solar power tariff in India has witnessed a drastic fall over the last few years. The solar power tariffs in India have fallen in nominal terms from INR 15 /Kwh in 2009 to INR 2.44/ Kwh in 2017, due to decline in module prices and improvements in capacity utilization factor. This recent fall came in during the online bidding for a 750 MW solar power park being set up at Bhadla near Jodhpur with viability gap funding (VGF) from Solar energy corporation of India Limited.However, the ever-declining solar power tariffs has encouraged good investments into the sector but have raised concerns over the long -term sustainability of the projects.

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II. ECONOMICS OF THE PROJECT

A. COST OF PROJECT

(Rs. Lacs)

S.No.	Particulars	Total	Spent	Bal. To be spent
1	Shop (Already Existing)	-	-	-
2	Machinery & Equipments	9.00	-	9.00
3	Furniture & Electrical Installation	1.00	-	1.00
4	Working Capital	10.00	-	10.00
		20.00	-	20.00

Means of Finance :

a) Own Contribution (25%)	5.00
b) T L facility from Bank (75%)	7.50
c) Cash Credit facility from Bank (75%)	7.50
	20.00
d) Subsidy entitlement from NABARD @ 44% of Total Financial Outlay Agri Clinics & Agribusiness Centers by MANAGE	8.80

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B. PROFITABILITY STATEMENT

(Rs. Lacs)

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Sales	30.00	33.00	35.90	39.49	43.44	47.78
	Add : Increase in Cl.Stock	4.23	0.38	0.38	0.50	0.55	0.61
	Total Turnover	34.23	33.38	36.28	39.99	43.99	48.39
2	Material Purchase	16.92	18.46	20.00	22.00	24.20	26.62
3	Overheads						
	a) Direct	4.02	4.42	4.76	5.05	5.46	5.73
	b) Indirect	1.60	1.76	1.94	2.03	2.13	2.24
4	Balance	11.69	8.74	9.58	10.91	12.19	13.79
5	Interest on TL & CC	1.67	1.53	1.37	1.20	1.01	0.90
6	Depreciation	1.05	0.94	0.84	0.75	0.67	0.60
7	Preliminery expenses W/off	-	-	-	-	-	-
8	Profit after Interest & Dep.	8.97	6.28	7.37	8.96	10.51	12.30
9	Income Tax	0.99	0.46	0.67	0.99	1.35	1.89
10	**Profit after Tax**	7.98	5.82	6.70	7.96	9.16	10.41
11	Add: Depreciation & Pre Exp.	1.05	0.94	0.84	0.75	0.67	0.60
12	Add : Interest on TL & CC	1.67	1.53	1.37	1.20	1.01	0.90
13	Cash Accruals	10.69	8.29	8.91	9.92	10.84	11.91
14	Instalments of TL & Interest	2.86	2.86	2.86	2.86	2.86	-
15	DSCR	3.24	2.40	2.62	2.97	3.29	-
16	Average DSCR	2.91					
17	N.P. to Total receipts	26.59	17.64	18.66	20.17	21.09	21.78

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C. CASH FLOW STATEMENT

(Rs. Lacs)

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
A	**CASH INFLOW :**						
1	Collection from Debtors	28.75	31.63	34.40	37.84	41.63	45.79
2	T.L. from Bank	7.50					
3	CC from bank	7.50					
4	Capital	5.00	-	-	-	-	-
5	Subsidy	8.80	-	-	-	-	-
	TOTAL (A)	57.55	31.63	34.40	37.84	41.63	45.79
B	**CASH OUTFLOW :**						
1	Fixed Assets	10.00	-	-	-	-	-
2	Payment to creditors	14.14	18.21	19.75	21.67	23.84	26.22
3	Direct overheads	4.02	4.42	4.76	5.05	5.46	5.73
4	Indirect Overheads	1.60	1.76	1.94	2.03	2.13	2.24
5	Interest on Bank Loan	1.67	1.53	1.37	1.20	1.01	0.90
6	Income Tax	0.99	0.46	0.67	0.99	1.35	1.89
7	Term Loan Repayment	1.19	1.33	1.48	1.65	1.85	-
8	Drawings	1.00	1.00	1.00	1.00	1.00	1.00
	TOTAL (B)	34.61	28.70	30.98	33.60	36.64	37.98
	SUMMERY:						
	Op. Cash & Bank Balance.	-	22.94	25.86	29.29	33.53	38.51
	Add : Surplus / (Deficit)	22.94	2.92	3.43	4.24	4.99	7.81
	Cl. Cash & Bank Balance.	22.94	25.86	29.29	33.53	38.51	46.32

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D. BALANCE SHEET

(Rs. Lacs)

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
A	**ASSETS :**						
1	Fixed Assets	8.95	8.01	7.18	6.43	5.76	5.16
2	Investments	-	-	-	-	-	-
3	Current Assets	28.42	33.10	38.41	44.79	52.14	62.54
4	Loans & Advances	-	-	-	-	-	-
	TOTAL (A)	37.37	41.11	45.58	51.22	57.90	67.70
B	**LIABILITIES:**						
1	Capital	20.78	25.60	31.30	38.26	46.42	55.83
2	Secured loans Term Loan	6.31	4.98	3.50	1.85	(0.00)	-
3	Sundry Creditors	2.78	3.03	3.29	3.62	3.98	4.38
4	Current Liabilities Cash Credit	7.50	7.50	7.50	7.50	7.50	7.50
	TOTAL (B)	37.37	41.11	45.58	51.22	57.90	67.70

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(Rs. Lacs)

E. CAPITAL ACCOUNT

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Op. Balance	-	20.78	25.60	31.30	38.26	46.42
2	Additions	13.80	-	-	-	-	-
3	Net Profit for the year.	7.98	5.82	6.70	7.96	9.16	10.41
	Sub Total	21.78	26.60	32.30	39.26	47.42	56.83
4	Less : Drawings	1.00	1.00	1.00	1.00	1.00	1.00
5	Cl. Balance	20.78	25.60	31.30	38.26	46.42	55.83

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(Rs. Lacs)

F. SALES

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Solar fence Sales per annum	22.00	24.00	26.00	28.60	31.46	34.61
2	Solar Installation Charges	8.00	9.00	9.90	10.89	11.98	13.18
3	Total Sale	30.00	33.00	35.90	39.49	43.44	47.78
4	Sundry Debtors (Credit period allowed 15 days)	1.25	1.38	1.50	1.65	1.81	1.99
5	Collection from Debtors	28.75	31.63	34.40	37.84	41.63	45.79

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(Rs. Lacs)

G. MATERIAL CONSUMPTION AND INVENTORY

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Sale of material	22.00	24.00	26.00	28.60	31.46	34.61
2	Purchases of Material	16.92	18.46	20.00	22.00	24.20	26.62
3	Sundry Creditors (Assume 60 day Cedit Period allowed)	2.78	3.03	3.29	3.62	3.98	4.38
4	Payment to creditors	14.14	18.21	19.75	21.67	23.84	26.22
5	Stock of Material	4.23	4.62	5.00	5.50	6.05	6.66

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(Rs. Lacs)

H. DIRECT OVERHEADS

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Staff Salary (Monthly salary- Rs. 7,000/- per staff) (No. of staff- 3)	2.52	2.77	2.95	3.14	3.46	3.63
2	Other Overheads	1.50	1.65	1.82	1.91	2.00	2.10
	Total	4.02	4.42	4.76	5.05	5.46	5.73

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(Rs. Lacs)

I. INDIRECT OVERHEADS

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Travelling & Conveyance	0.50	0.55	0.61	0.64	0.67	0.70
2	Repairs & Maint.	0.25	0.28	0.30	0.32	0.33	0.35
3	Electricity Expenses (Off.)	0.36	0.40	0.44	0.46	0.48	0.50
4	Telephone Expenses	0.24	0.26	0.29	0.30	0.32	0.34
5	Misc. Expenses	0.25	0.28	0.30	0.32	0.33	0.35
		1.60	1.76	1.94	2.03	2.13	2.24

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J. TERM LOAN REPAYMENT AND INTEREST THEREON

(Rs. Lacs)

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	TL / Op. Bal.	7.50	6.31	4.98	3.50	1.85	-
2	Repayment during the year	1.19	1.33	1.48	1.65	1.85	-
3	Cl. Balance	6.31	4.98	3.50	1.85	(0.00)	-
4	Interest at 11 per cent p.a.	0.77	0.63	0.47	0.30	0.11	-
5	Total repayment with Interest	2.86	2.86	2.86	2.86	2.86	-
6	Interest on CC (at 12 per cent p.a.)	0.90	0.90	0.90	0.90	0.90	0.90
	Total Interest	1.67	1.53	1.37	1.20	1.01	0.90

Term Loan Repayment Schedule

MONTHS	EMI	INTEREST	PRINCIPAL REPAYMENT	OST PRINCIPAL
0				7.5
1	0.16	0.07	0.09	7.41
2	0.16	0.07	0.10	7.31
3	0.16	0.07	0.10	7.21
4	0.16	0.07	0.10	7.12
5	0.16	0.07	0.10	7.02
6	0.16	0.06	0.10	6.92
7	0.16	0.06	0.10	6.82
8	0.16	0.06	0.10	6.72
9	0.16	0.06	0.10	6.62
10	0.16	0.06	0.10	6.52
11	0.16	0.06	0.10	6.41
12	0.16	0.06	0.10	6.31
First Year	**1.96**	**0.77**	**1.19**	
13	0.16	0.06	0.11	6.20
14	0.16	0.06	0.11	6.10
15	0.16	0.06	0.11	5.99
16	0.16	0.05	0.11	5.88
17	0.16	0.05	0.11	5.77

18	0.16	0.05	0.11	5.66
19	0.16	0.05	0.11	5.55
20	0.16	0.05	0.11	5.44
21	0.16	0.05	0.11	5.33
22	0.16	0.05	0.11	5.21
23	0.16	0.05	0.12	5.10
24	0.16	0.05	0.12	4.98
Second Year	**1.96**	**0.63**	**1.33**	
25	0.16	0.05	0.12	4.86
26	0.16	0.04	0.12	4.75
27	0.16	0.04	0.12	4.63
28	0.16	0.04	0.12	4.50
29	0.16	0.04	0.12	4.38
30	0.16	0.04	0.12	4.26
31	0.16	0.04	0.12	4.14
32	0.16	0.04	0.13	4.01
33	0.16	0.04	0.13	3.88
34	0.16	0.04	0.13	3.76
35	0.16	0.03	0.13	3.63
36	0.16	0.03	0.13	3.50
Third Year	**1.96**	**0.47**	**1.48**	
37	0.16	0.03	0.13	3.37
38	0.16	0.03	0.13	3.24
39	0.16	0.03	0.13	3.10
40	0.16	0.03	0.13	2.97
41	0.16	0.03	0.14	2.83
42	0.16	0.03	0.14	2.69
43	0.16	0.02	0.14	2.56
44	0.16	0.02	0.14	2.42
45	0.16	0.02	0.14	2.28
46	0.16	0.02	0.14	2.13
47	0.16	0.02	0.14	1.99
48	0.16	0.02	0.14	1.85
Fourth Year	**1.96**	**0.30**	**1.65**	
49	0.16	0.02	0.15	1.70
50	0.16	0.02	0.15	1.55
51	0.16	0.01	0.15	1.40
52	0.16	0.01	0.15	1.25
53	0.16	0.01	0.15	1.10
54	0.16	0.01	0.15	0.95
55	0.16	0.01	0.15	0.79
56	0.16	0.01	0.16	0.64
57	0.16	0.01	0.16	0.48
58	0.16	0.00	0.16	0.32
59	0.16	0.00	0.16	0.16
60	0.16	0.00	0.16	(0.00)
Fifth Year	**1.96**	**0.11**	**1.85**	

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K. CURRENT ASSETS

(Rs. Lacs)

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Cl. Stock of Materials	4.23	4.62	5.00	5.50	6.05	6.66
	Total Inventory	4.23	4.62	5.00	5.50	6.05	6.66
2	Cash and bank Balance	22.94	25.86	29.29	33.53	38.51	46.32
3	Sundry Debtors	1.25	2.63	4.12	5.77	7.58	9.57
	Total	28.42	33.10	38.41	44.79	52.14	62.54

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L. FIXED ASSETS AND DEPRECIATION

(Rs. Lacs)

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Machinery & Equipments						
	Op. Balance	-	8.10	7.29	6.56	5.90	5.31
	Additions	9.00	-				
	Total	9.00	8.10	7.29	6.56	5.90	5.31
	Less : Depreciation	0.90	0.81	0.73	0.66	0.59	0.53
	Cl. WDV	8.10	7.29	6.56	5.90	5.31	4.78
2	Furniture & Electrical Installation						
	Op. Balance	-	0.85	0.72	0.61	0.52	0.44
	Additions	1.00	-		-		
	Total	1.00	0.85	0.72	0.61	0.52	0.44
	Less : Depreciation	0.15	0.13	0.11	0.09	0.08	0.07
	Cl. WDV	0.85	0.72	0.61	0.52	0.44	0.38
	Total Depreciation	1.05	0.94	0.84	0.75	0.67	0.60
	Cl. WDV	8.95	8.01	7.18	6.43	5.76	5.16

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M. WORKING CAPITAL

(Rs. Lacs)

S.No.	Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Total Current Assets	28.42	33.10	38.41	44.79	52.14	62.54
2	Total Current Liabilities	2.78	3.03	3.29	3.62	3.98	4.38
3	Working Capital	25.64	30.07	35.12	41.18	48.16	58.17