COST ECONOMICS OF SOLAR ROOFTOP SYSTEMS WITH NET METERING IN DOMESTIC SECTOR

1 KW SOLAR ROOF TOP SYSTEM:

1. In domestic sector, the normal power consumption on usage of various electrical appliances is as follows:

S.No.	Appliance	Nos	Wattage of	No. of hour	rs Total wa	attage
			each unit	No. of work per day	king	
1	Tube Lights	4	40 W	6 hours	960	
2	Fans	4	60 W	8 hours	1920	
3	Refrigerator	1	180 W	16 hour	2880	
4	Electric Iron	1	750 W	1 hours	750	
5	Television	1	80 W	8 hours	640	
6	Geyser	1	1500 W	1 hour	1500	
	-				7,900 W	att hours
2. The	e power con	sumptio	n per day	= 7	.9 KWh say	8 units
3. The	e power con	sumptio	n in a month	= 8	x 30 =	240 units

4. The Energy charges as per the Tariff order 2013-14 is as follows:

F	Rs. / Kwh
0 - 50	2.60
51 - 100	3.25
01 - 150	4.88
51 - 200	5.63
201 - 250	6.38
251 - 300	6.88
301 - 400	7.38
401 - 500	7.88
Above 500	8.38

5.	The Energy charges for 240 units	=	Rs.1073.20 ps
6.	If 1 KW Solar Roof Top System is installed		
	a) Estimated cost of system	-	Rs.1,10,000
	b) MNRE subsidy	-	Rs. 30,000
	c) State Subsidy	-	Rs. 20,000
	d) Net cost of the system	-	Rs. 60,000
	e) Expected generation per day	-	4 units
	f) Expected generation per month	-	120 units
7.	The net energy consumed	-	120 units
			(240-120)
8.	The Energy charges payable	-	Rs.332.00
9.	Net Savings per month	-	Rs.741.20
10.	Net savings per year	-	Rs.8,894.40 ps
11.	Pay back period	-	6.74 years
12.	Life of equipment	-	25 years

3 KW SOLAR ROOF TOP SYSTEM:

1.Considering the consumer is also utilizes the Air conditioner of 2500 Watt load for 4 hours a day, the total energy consumption would be 17.9 units per day and the consumption for month would be 537 units.

2. Energy charges in normal course per month	-	Rs.3,317
3. Estimated cost of 3 KW Solar Roof Top Systems	-	Rs,3.00 lakhs
4. MNRE subsidy (upto 1 KW)	-	Rs.30,000
5. State subsidy (upto 3 KV)	-	Rs.60,000
6. Net system cost	-	Rs.2.10 lakhs
7. Expected energy per month	-	360 units
8. Net Energy	-	177 units
9. Energy charges for Net Energy	-	Rs.537.20
10. Net savings per month	-	Rs.2,779.86
11. Net savings per year	-	Rs.33,358.32
12. Payback period	-	6.3 years

Note:

- 1. The tariff may escalate over a period of time and the pay back period will come down further.
- 2. Savings towards electricity duty are not considered in the above calculation (6 paise per unit)
- 3. There is a proposal to enhance eligible criteria for domestic sector by MNRE upto 3 KW,
- which allows additional subsidy benefit upto Rs.60,000 for 3 KW system
- 4. The net metering benefits will be more in commercial / institutions / industries due to higher prevailing tariffs, reduction in consumption of diesel and availability of 80% accelerated benefit during the first year of operation.