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 each unit	No. of hours No. of working per day	Total wattage
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 Watt hours

2. The power consumption per day = 7.9 KWh say 8 units
3. The power consumption in a month = 8 x 30 = 240 units
4. The Energy charges as per the Tariff order 2013-14 is as follows:

	Rs. / Kwh
0 - 50	2.65
51 - 100	3.25
101 - 150	4.88
151 - 200	5.63
201 - 250	6.38
251 - 300	6.88
301 - 400	7.38
401 - 500	7.88
Above 500	8.30

5. The Energy charges for 240 units = Rs.1074.70 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.392.60
9. Net Savings per month - Rs.682.10
10. Net savings per year - Rs.8,165.20 ps
11. Pay back period - 7.3 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.691.00
10. Net savings per month - Rs.2,626
11. Net savings per year - Rs.31,512
12. Payback period - 6.6 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.