

Case study / Success Stories / Awards received details

SUCCESS STORY FOR WIND-SOLAR HYBRID SYSTEM OF CAPACITY 5.5 KW AT INDAPUR TALUKA SHIKSHAN PRASARAK MANDAL'S, ARTS, SCIENCE AND COMMERCE COLLEGE, INDAPUR, TAL - INDAPUR, DIST. PUNE.

1. Village Profile:-

Indapur is 150 k.m. away from Pune. The average wind speed is in the range between 4.3 to 4.5 m/s.

2. Status of energy supply

- (i) Electrified / un-electrified :- Electrified (However severe power cuts due to load shading).
- (ii) LPG Supply

3. Technical details of Renewable Energy Project. :- Wind-Solar Hybrid System

4. Date of project commissioning :-15/12/2014

5. Total cost of the project :- Rs.11,00,000/-

6. Project Financing

- (i) MNES grant :- Rs.5,00,000/-
- (ii) State grant :- Rs. Nil
- (iii) Grant from any other sources :- Nil
- (iv) User contribution :- Rs. 6,00,000/-

7. Details of Energy Services from Renewable Energy

- (i) Lighting :- Fans- 70 W - 8 nos.
CFL- 15W- 27 nos.
Computers – 3 no.
Total 3 kW load is connected for 5 to 6 hrs .
- (ii) Drinking Water :- Nil
- (iii) Cooking :- Nil
- (iv) Fan :- 8 nos.

8. System Operation Mechanism:-

Wind Aerogenerator starts generating power at cut in speed of 3 m/s. The Aerogenerator generates three phase A.C. power which is converted into D.C. through Charge Controller; Solar Photovoltaic Panels generates D.C. power, which connected to Charge Controller. The generated D.C. power is then stored in the battery Bank. The stored power in batteries is connected to utility through pure sine wave, high efficiency inverter which converts D.C. power into A.C. power. Various instruments are incorporated in the system for control, safety & indication. The energy meter displays power consumed by various gadgets. Necessary precaution is taken to protect Aero-generator from damage due to excessive Wind-speed.

9. System Repair & Maintenance: -

The operation & maintenance of the system will be done by the manufacturer for 5 years after installation. During O & M manufacturer has trained user's electrician for maintenance and operation of hybrid system. After guarantee period (2 year) manufacturer will make AMC with Beneficiary. The AMC amount will be 3% to 4% of total project cost.

10. Revenue Collection Mechanism : - Nil

11. Project Benefit

Social Aspects:-

(ii) Health Aspects:-

Worldwide both national and utility-specific surveys consistently indicate that consumers prefer environmentally clean energy and are willing to pay extra for "green" power. Renewable energy sources offer a number of different avenues for satisfying these expressed public preferences

(iii) Environmental Aspects:-

Renewable energy technologies are either emissions-free or emissions-neutral. In the coming years, they may be key to least-cost strategies to meet emissions reduction standards. Future environmental regulations might include carbon dioxide emissions; renewable energy technologies can provide a cushion for states and utilities against both current and future emissions limits.

(iv) Economic Aspects:

Other than routine maintenance, costs for renewable energy technologies using solar, wind resources are embedded in the equipment-the fuel will always be free. Utility and other planners need not consider unexpected fuel price spikes, or even account for steady increase in fuel price, in their cost projections for renewable energy technologies.

12. Project Financial Viability

a)	Generation from the 5.5 kW system	- 15 - 18 units / day.
b)	Annual Generation (for 365 days)	- 15 X 365 =5475 kWh (units)
c)	Present Tariff of M.S.E.B.	-@ Rs. 6 per units
d)	Total annual energy saving	-Rs. 32850/-
e)	User contribution	- Rs. 6,00,000/-
f)	Pay back period (e / d)	- 18 years.

User's contribution will be recovered within 17 to 18 years considering increase of M.S.E.B. charges in future.

13. Overall impact of the project:-

The supply is essential mainly during load shading period. The power supply is essential requirement of continuous power supply in the administrative building of college.



