

Wind-Solar Hybrid Project (10KV)

Need: The whole Maharashtra is observing a problem of poor electricity supply these days. To comply with this shortage of electricity, the Government of Maharashtra has started wind-mill projects in the hilly regions of the Western Ghats and plateaus on a large scale. Deur, being a hilly region and having an ideal situation to produce wind-mill energy, gave us an idea to overcome this problem by installing a small scale wind mill for our day-to-day needs. As an outcome of this, our institution has installed wind-solar hybrid system (10kw) to comply with non-conventional energy resources. Now, the institution has self-reliance in electricity generation. This system provides un-interrupted power supply to the overall equipments of the institution.

Technical Specifications: Wind-solar hybrid energy system is provided by Unitron Energy Systems Pvt. Ltd, Pune.



1. System Details	
MNRE Sanction No.and date	23/01/2009-SWES, dt 16/04/2012
Capacity of the system (KW)	10KW
Aero generator Component (KW)	6.4KW
SPV Component (KW)	3.6KW
Name of Manufacturer / Supplier	'UNITRON'
Commissioning Date	08/05/2012
2. Estimated Energy Requirement	
Type of load	
Usage Time (hours)	6 to 9 hours
Quantity	-
Per Day Energy Requirement (kWh)	30 to 45 kWh / day
3. Technical Details of the System Installed	
Aero generator	
Total Capacity	6.4KW
Capacity of single machine	3.3KW

No. of Machines	2 Nos.
MNRE's reference No. / date of issue of inclusion in MNRE list	C-WET/R&D/EMPL/2010-11/02 Dt. 25/06/2010
Rated wind speed	10.5m/s
Rated Peak power	3600 watts
UIN of each aero generator	UE/MAH/361/080512 UE/MAH/362/080512
Voltage controller	Automatic
Over speed protection	Through frequency, voltage and angle furling
SPV Modules	
Total Capacity	3.6KW
Capacity of each module	300Wp
Nos. of SPV Modules	12Nos.
Peak power per module	300 Wp
Weight	29kgs
Dimension	1955 X 990 X 42MM
Temperature	- 40 to + 90 Deg. C.
Wind load	Up to 200 kmph
No. and Place of Installation of Energy Meters	2 Nos. In the control room
Battery Bank	
Total Energy Consumption / day	30 to 45 kWh
Voltage configuration	96V
Power factor	0.8
Battery efficiency	75%
Depth of discharge	50 to 60% typical
Battery capacity required	600AH
Inverter	
Total Load	4KW
Power factor	0.8
Inverter efficiency	Approx. 90%
Inverter capacity required	5KVA



Total cost of the project is 24.2 lacks. Ministry of New and Renewable Energy, Government of India has given subsidy of 15.00 lacks and remaining funds was given by the mother institution.



- **Usage:** Per day energy requirement of the institution is 30 to 45 kWh. This energy has been utilized for office, library, computers, and other electrical and electronic equipments.

- **Benefits:**
- System gives un-interrupted power supply to the campus.
- It helped us to promote ICT enabled short duration certificate courses.
- We support our sister concerns with the excess power back-up.
- It has helped the teachers and students to have an unprecedented teaching learning experience with the use of information and communication technology without any power snag.