MAHARSHI KARVE STREE SHIKSHAN SAMSTHA'S

COLLEGE OF COMPUTER APPLICATION FOR WOMEN, SATARA

[Faculty: B.C.A., B.A. & B.Com.]

Affiliated to SNDTWU, Mumbai

Criterion 7 – Institutional Values and Best Practices(100)

7.1.6 Quality audits on environment and energy regularly undertaken by the Institution and any awards received for such green campus initiatives (5)

- **Reports on environment and energy audits**

Energy Audit Report

of

College of Computer Application for women, Satara

By

Shri. Dhumal D.S

Head

Electical Technology,

H.S.C Vocational

A.A Dhavale Jr. College,Kanyashala, Satara

Introduction:

One of the most troubling issues of today is the rising cost of energy. Technology has provided new resources from natural entities, such as solar energy.

An energy audit is an inspection survey and an analysis of energy flows for energy conservation in a building.

The energy audit consists mainly of collecting and measuring data that are valuable for the energy assessment of the building.

In the present study, college electricity audit has been done. All data collected from each classroom, computer lab and Library. The work is completed by considering how many tubes, fans, computers and electronic instruments in each room and their proportion in total electricity consumption. We also studied total generation electricity from the solar energy.

Data Collection:

23Kilowatt (kW) Solar system has installed for B.C.A Senior College, Junior College & Kanya Shala in Satara.

4kW solar for B.C.A Senior college & 8kW solar for A.A. Dhavale Jr.College.

4kW+8kW= 12 kW used for projected Building A & Building B.

In this survey, all data collected from each classroom, computer lab, Library, staff room, MKCL Lab from Building A and Building B. How many fans, tubes, computers, projector etc. has measured. According to survey following data is collected.

Building A:

Class	Tube Light		Fan	Computer	Printer	Projector	Instrument
	40 Watt	28 Watt					
F.Y.B.C.A- A		6				1	
F.Y.B.C.A-B		6		1 CPU		1	
4th Floor Passage		3					
Bathroom	2	1	1				
3rd Floor Passage		3					
S.Y.B.C.A-A		6	7	1 CPU		1	
S.Y.B.C.A-B		6	7	1 CPU		1	
Bathroom	2	1	1				
2nd Floor Passage		3					
T.Y.B.C.A-A	2	6	7	1 CPU		1	
T.Y.B.C.A-B	2	6	7	1 CPU		1	3 Battery
Bathroom	2	1	1				
1st Floor Passage		3					
Office	4	3	2		2		
Principal Cabin	3	3	1				
Staffroom	4	3	1	1	1		
Conference	4	4					
Bathroom	2	1	1				
Maingate		3					2 Battery
Multipurpose Hall	2	15					
Library	7	4	2				
Total	36	87	38	6	3		
Total Power	**36×40 Wt = 1440**	**87 ×28 wt= 2436**	**38×60 = 2280**	**6×85 Wt= 510**	**3× 50 Wt = 150**	**6 × 800 wt = 4800**	**5 × 12 wh**
Use in Hour	**1440 × 3hrs =4,320 Wh**	**2436 × 3hrs = 7,308 Wh**	**2280× 2hrs = 4560Wh**	**510 × 2 hrs = 1020**	**150× 3 hrs= 450**	**4800 × 3 hrs = 14,400**	**60 Wh**

Building B:

F.Y.B.Com A	3		1			1	
F.Y.B.A-Eco	1	2	1			1	
T.Y.B.A Eco	2	1	1			1	
F.Y.B.Com B	2	1	1			1	
S.Y.B.A- Eco	2	1	1			1	
3rd Floor Passage	5	1					
Bathroom	4						
MKCL Lab		8	5	30	1	1	16 Battery
S.Y.B.Com A	3		1			1	
T.Y.B.Com B	2	1	1				
T.Y.B.Com A	2	1	1			1	
S.Y.B.Com B	2	1	1				
T.Y.B.A Eng	3		1				
2nd Floor Passage	3	2					
Bathroom	5		2				
Tejswini Health Club(G2A)	1	2	1			1	
Tejswini Health Club(G2B)	3		1				
Virtual Classroom	4		1			1	
NSS/Sports Room	1	2	1			1	
Councelling	3						
1st Floor Passage		6					
Computer Lab	1	1	1				
Lab 3	5	3	6	31			
Lab 2	5	3	6	17	2		
Lab 1	4	2	6	18			
Gents Staff room	1	1	1				
Storage							6 Battery
Lab Passage	1	2	1				
Total	68	41	42	96			
Total Power	**68×40 Wt = 2,720**	**41 ×28 wt= 1,148**	**42× 60 = 2520**	**96 ×85 Wt=8,160**	**3× 50 Wt = 150**	**12 × 800 wt = 9600**	**22 × 12 wh**
Use in Hour	**2,720 × 3 hrs =8,160 Wh**	**1,148 × 3 hrs = 3,444 Wh**	**2520× 2hrs = 5040Wh**	**8,160 × 5 hrs = 40,800 Wh**	**150× 3 hrs= 450 Wh**	**9600 × 2 hrs = 19,200 Wh**	**264wh**

Results and Conclusion:

Total Watt-hour (Wh)for building A

32,118 Wh/1000 = 32.118 Kwh (Unit) per day

Total Watt-hour (Wh)for building B

77,358Wh/1000 = 77.358 Kwh (Unit) per day

Total kWh for Building A & B = 32.118 + 77.358 = 109.476 kWh per day

Total generation solar energy per day:

80% efficiency of 12kW solar = 9.6 kW × 4 hrs = 38.4 Kwh

60% efficiency of 12 kW solar = 7.2 kW× 4 hrs = 28.8 Kwh

Total generation solar energy per day = 67.2 Units (approx.)

Total generation solar energy per month:

Solar energy generated per month = 67.2 × 30 Days = 201.6 Units

Energy consumed per month approx.. 109 × 25 Days = 275.5 Units

Total requirement of electricity, generation of electricity using renewable energy sources.

Power requirement met by renewable energy sources per month	Total power requirement per month	Renewable energy source
201 Units	275 Units	Solar

Conclusion :

In Conclusion, Data generated in energy audit are useful for to understand the energy distribution and utilization of college. College needs 275 units and solar energy generates the only 201 units per month. 70 % solar energy generated in the campus.

Above survey is based on estimates. The time of electricity consumption can be varying according to the time of using electrical devices. All electricity devices were used less during the corona pandemic situation.

Dhumal D. S.
D.E.E.
Electrical Technology Dep.
Kanya Shala. H.S.C. Vocational.
Satara.

Principal Vocational Education Kanyashala, Satara