

AUDITING FOR ENERGY MANAGEMENT

1. List ways that you use energy in your college. (Electricity, electric stove, kettle, microwave, LPG, firewood, Petrol, diesel and others).

College uses energy in the form of (1) Electricity (2) LPG

2. Electricity bill amount for the last year

Rs.167887/- (For the Financial Year: From 01.04.2020 to 31.03.2021)

(Electricity bill Excludes hostel as hostel electricity bill is paid by their respective departments ie social welfare department.

3. Amount paid for LPG cylinders for last one year

Rs.756/-

4. Weight of firewood used per month and amount of money spent? Also mention the amount spent for petrol/diesel/ others for generators?

Nil

5. Are there any energy saving methods employed in your college? If yes, please specify. If no, suggest some.

- Energy saving appliances are purchased and being used to save energy.
- Electrical appliances like Refrigerator, air conditioners are adjusted to moderate temperatures to make consumption of low energy.
- Turning of lights and fans while leaving rooms. Turning off electrical appliances, laboratory instruments when not in use.
- Usage of LED bulbs rated by energy star in campus as street lights.
- Replacing incandescent bulbs with LED bulbs in rooms.
- Sign boards are placed in class rooms to remind students to turn off lights and fans when not in use.

6. How much money does your college spend on energy such as electricity, gas, firewood, etc. in a month?

Around Rs.15000 per month (Rs.14050.83)

7. How many CFL bulbs has your college installed? Mention use (Hours used/day for how many days in a month)

Number of CFL bulbs : 07

Number of Hours used per Day : 04

Number of Days used in a Month : 25

8. Energy used by each bulb per month? (For example- 60 watt bulb x 4hours x number of bulbs = Kwh).

1.2Kwh

9. How many LED bulbs are used in your college? Mention the use (Hours used/day for how many days in a month)

Number of LED bulbs : 10

Number of Hours used per Day : 04

Number of Days used in a Month : 25

10. Energy used by each bulb per month? (kWh).

0.6kWh

11. How many incandescent (tungsten) bulbs have your college installed? Mentions use (Hours used/day for how many days in a month)

Nil

12. Energy used by each bulb per month? (kWh).

9 kWh

13. How many fans are installed in your college? Mention use (Hours used/day for how many days in a month)

Number of fans : 210

Number of Hours used per Day : 04

Number of Days used in a Month : 25

14. Energy used by each fan per month? (kWh).

21 kWh

15. How many air conditioners are installed in your college? Mention use (Hours used/day, for how many days in a month)

Number of air conditioners : 07

Number of Hours used per Day : 04

Number of Days used in a Month : 25

16. Energy used by each air conditioner per month? (kWh).

45kWh

17. How many electrical equipment including weighing balance are installed your college? Mention the use (Hours used/day for how many days in a month)

S.No	Electrical Appliances	Number	Number of Hours used per Day	Number of Days used in a Month
1	Colorimeter	06	02	10
2	Conductometer	06	02	10
3	Potentiometer	02	02	10
4	Exhaust fan	02	02	25
5	PH Meter	03	02	10
6	Electronic Balance	03	02	25

18. Energy used by each electrical equipment per month? (kWh).

S.No	Electrical Appliances	Energy used by each electrical equipment per month (kWh)
1	Colorimeter	
2	Conductometer	
3	Potentiometer	
4	Exhaust fan	
5	PH Meter	
6	Electronic Balance	

19. How many computers are there in your college? Mention the use (Hours used/day for how many days in a month)

Number of computers : 293
Number of Hours used per Day : 04
Number of Days used in a Month : 25

20. Energy used by each computer per month? (kWh).

25kWh

21. How many photocopiers are installed by your college? Mention use (Hours used/day for how many days in a month).

Number of photocopiers : 06
Number of Hours used per Day : 06
Number of Days used in a Month : 25

22. How many cooling apparatuses are in installed in your college? Mention use (Hours used/day for how many days in a month)

Nil

23. Energy used by each cooling apparatus per month? (kWh) Mention use (Hours used/day for how many days in a month)

Nil

24. Energy used by each photocopier per month? (Kwh) Mention the use (Hours used/day for how many days in a month) how many inverters your college installed? Mentions use (Hours used/day for how many days in a month)

Energy used by each photocopier per month = 10.56 kWh

Number of Inverters : 06
Number of Hours used per Day : 04
Number of Days used in a Month : 05

25. Energy used by each inverter per month? (kWh).

3.75kWh

26. How many electrical equipment are used in different labs of your college? Mention the use (Hours used/day for how many days in a month)

No. of Electrical equipment	Hours /day used	How many days /months used
46	02	16

27. Energy used by each equipment per month? (kWh)

6.73kWH

28. How many heaters are used in the canteen of your college? Mention the use (Hours used/day for how many days in a month)

Nil

29. Energy used by each heater per month? (kWh)

Nil

30. No of street lights in your college?

32

31. Energy used by each street light per month? (kWh)

0.36 kwh

32. No of TVs in your college and hostels?

5

33. Energy used by each TV per month? (kWh)

1 kwh

34. Any other item that uses energy (Please write the energy used per month) Mention the use (Hours used/day for how many days in a month)

Nil

35. Are any alternative energy sources/nonconventional energy sources employed / installed in your college? (Photovoltaic cells for solar energy, windmill, energy efficient stoves, etc..) Specify.

Nil

36. Do you run "switch off" drills at college?

yes

37. Are your computers and other equipment put on power-saving mode?

yes

38. Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby mode most of the time? If yes, how many hours?

Yes, 1hr.

39. What are the energy conservation methods adapted by your college?

Install heat resistant windows.

40. How many boards displayed for saving energy awareness?

04

41. How much ash is collected after burning fire wood per day in the canteen?

Nil

42. Write a note on the methods/practices/adaptations by which you can reduce the energy use in your college campus in future.

Choosing right lights, using power strip to reduce plug load, biogas plant, and solar power plant installation

Calculation of energy for electrical appliances
Appliance Power used in (watt) Usage per day (hours) Number of appliances Average kWh per day (Watt X hours X Number X 1000)
Average kWh per month (Watt X hours X Number X 1000 x 30) Incandescent bulb 60 watt
CFL 18 W Microwave 1000W Stove 3000W Kettle 2500W

No. Non-teaching staff; Male: 07 Female: 13 Total: 20

Which of the following are available in your College?

➤ ENERGY AUDIT REPORT OF EACH EQUIPMENT IN THE COLLEGE:

S. No	Electrical Appliances /Instruments	Number	Power (W) /Unit	Total Power (W)	Total Power (kW)	Operation /Day (Hours)	Power Consumed Per Day (kW/Hr)	No.of Days in month	Total consumption per month
1	2	3	4	5	6	7	8	9	10
				3 X 4	5/1000		6 X 7		8 X 9
1	Tube Lights (Including Dept Corridors)	258	40	10320	10.32	2	20.64	25	516
2	Filament Bulbs	10	60	600	0.6	1	0.6	25	15
3	CFL bulbs	1	20	20	0.02	1	.02	25	0.5
4	Ceiling Fans	210	75	15750	15.7	3	47.25	25	1181.2
5	Exhaust Fans	4	40	160	0.16	2	0.32	25	8.0
6	LCD Projector	9	282	2538	2.53	2	5.076	5	25.38
7	Computers	293	250	73250	73.25	2	146.5	5	732.5
8	Printers	10	100	1000	1	1	1	25	25
9	Xerox Machines		1000	1000	1	1	1	25	25
10	UPS	2	2000	4000	4	12	24	25	600
11	AC s	2	5000	10000	10	6	60	25	1500
12	Refrigerators	2	1200	2400	2.4	6	14.4	25	360
13	Ovens	1	1500	1500	1.5	1	1.5	5	7.5
14	Centrifuses	2	850	1700	1.7	1	1.7	5	8.5
15	CC TV DVR	2	40	80	0.08	8	0.64	25	16
16	Street Lights	3	500	1500	1.5	12	18	30	540
17	Borewell Motors	4	1000	4000	4	4	16	30	480
18	Any Other Appliance/s	2	220	440	0.4	2	0.8	30	24

➤ **ENERGY AUDIT REPORT OF THE COLLEGE:**

	Name of the department/ room	Total Energy consumption per month in kWh
1	Administrative Block	1501.56
4	Library	82.23
5	Physics block	20.06
6	Chemistry block	256.6
7	Botany department	236.975
8	Zoology department	232.22
9	Computer lab	1492.7
10	Telugu department	25.72
11	Hindi department	15.0
12	English department	18.52
13	Commerce department	497.45
14	Economics department	104.02
16	Auditorium	218.8
17	TSKC Lab	925.6

Total Energy consumption = 5626.11 kWh

SOUND REPORT OF THE COLLEGE:

S.No.	Name of the department/ room	Sound in dB
1	Office room	56
2	Principal's room	53
3	Exam branch	58
4	Library	43
5	Physics block /Lab	52
6	Chemistry block /Lab	52
7	Botany department /Lab	50
8	Zoology department /Lab	50
9	Computer lab	42
10	Telugu department	50
11	Hindi department	42
12	English department	62
13	Commerce department	54
14	Economics department	66
15	History department	66
16	Class rooms	64
17	Play ground	56

PRINCIPAL
GOVERNMENT DEGREE COLLEGE FOR WOMEN,
KARIMNAGAR, TELANGANA.