

ENERGY AUDIT REPORT

B.C.S. Government PG. College Dhamtari
Chhattisgarh



(2021-22)

Submitted

To
IQAC
&

Principal

B.C.S. Government PG. College Dhamtari Chhattisgarh

By

(Energy Audit Committee)

Principal
Dr. Shreedevi Choubey

Energy Audit Committee

1. Asst. Prof. Kishor Kumar (Incharge).....
2. Abhishek Mishra (Member).....
3. Dineshwar Salam (Member).....

Preface

Billions of Indian households, industries, institutes etc. are facing an energy crisis. The steep increase in the cost of electricity means that it is more important than ever to find savings and to do this, it helps to focus on the things that use the most and cost more money.

Some electrical appliances use a lot of electricity, while others don't. Every appliance has a power rating, usually given in watts (W) or kilowatts (KW) ($1\text{ KW}=1000\text{W}$) this is the amount of electricity it needs in order to work. Of course the amount of electricity it uses depends on how long it's on for.

Data collection for energy audit in B.C.S. govt. PG College, Dhamtari was done by the team. This audit was comprised of inquire about the management of the energy competence in the campus. We collected data from each classroom, laboratory, office room, and other rooms. The work is completed by considering how many tube Lights, Fans, A.Cs, etc. are in use. We work out to find the electricity consumption of each component as per their individual share of power consumed.

Acknowledgement

Energy Audit In charge of B.C.S. Government P.G.College Dhamtari is Very much thankful to Principal Dr. Shreedevi Choubey, IQAC Coordinator NAAC for motivating us for Energy Audit. We thank all the members of auditing team. We also thank the office staff who helped us during the audit process.

Energy Audit Team

INTRODUCTION

This table shows what it costs to use a range of common appliances. We have taken an average power rating for each appliances, the actual power rating will depend on the size and specifications of the appliance.

List of the power consumption of some typical electronic appliances

Appliance	Energy consumption(per hour)	Cost per hour (Rs)	Cost per day (Rs)
100 W light bulb (incandescent)	100W	0.37	8.88
60 W light bulb(incandescent)	60W	0.22	5.28
Air cooler	80W	0.30	7.2
Ceiling fan	70W	0.26	6.24
Computer monitor	30W	0.10	2.4
Desktop computer	450W	1.67	40.08
Home AC	4000W	14.8	355.2
Extractor fan	12W	0.40	9.6
Fridge	220W	0.81	19.44
Internet router	15W	0.06	1.44
Home phone	5W	0.02	0.48
Inkjet printer	30W	0.11	2.64
Laser printer	800W	2.96	71.04
Laptop computer	100W	0.37	8.88
LED light bulb	10W	0.04	0.96
Projector	270W	0.99	23.76
Tube light	22W	0.08	1.92
Wi-Fi Booster	2W	0.01	0.17
Wi-Fi Router	10W	0.04	0.96

The electricity is sold by the kilowatt hour (KWh) usually referred to as “units” on the electricity bill.

Let's say we have 500W (0.5KW) dehumidifier and we run it for a whole day (24h). It will use 12kwh of electricity (e.g. half a kilowatt per hour). The electricity now costs around 3.7 Rs per unit, so multiply 12kwh (12 units) by 3.7 and we get the total cost of humidifier using 24 hours.

Chhattisgarh state tariff rate per unit

In CG consumption of 0to 100 unit we have to pay 3.70 Rs. Per unit, above 100 and below 200, per unit charge will be 3.90 Rs for 201 to 400 unit, it is 5.30 Rs per unit, for 401 to 600, 6.3 Rs per unit and above 600 units the per unit cost will be 7.90 Rs per unit.

BCS Govt. PG college Dhamtari (C.G.)

Electronic Equipments in use

Year 2021-22

ROOM NO.	FAN	TU BE LIGHT	LED	P C	PRINTER	PHOTO COPIER	AC	FRIDGE	WATER COOLER	EXHAUST	PROJECTOR	TV SCREEN
MAIN BUILDING												
OFFICE	9	5	12	2	1	1	-	-	1	-	-	-
EXAM CELL	2	-	2	1	1	-	-	-	-	-	-	-
IQAC	4	4	-	2	3	1	-	-	-	-	-	-
RN 1	5	1	3	-	-	-	-	-	-	-	-	-
RN 2	5	1	3	-	-	-	-	-	-	-	-	-
NCC	2	2	-	-	-	-	-	-	-	-	-	-
NSS	2	2	-	-	-	-	-	-	-	-	-	-
TOILET	-	2	-	-	-	-	-	-	-	2	-	-
STAFF TOILET	-	-	3	-	-	-	-	-	-	2	-	-
COMMERCE DEPT.	2	2	3	1	1	-	-	-	-	-	-	-
RN3	5	-	3	-	-	-	-	-	-	-	-	-
GEOGRAPHY DEPT	6	5	-	5	1	-	-	-	-	-	-	-
GEOGRAPHY ROOM	4	2	2	-	-	-	-	-	-	-	-	-
SMART CALSS	4	2	6	-	-	-	-	-	-	-	-	1
ECONOMICS DEPT	2	3	-	1	2	1	-	1	1	-	-	-
HINDI DEPT	2	1	4	1	-	1	-	-	-	-	-	-
GALLERY	1	-	2	-	-	-	-	-	-	-	-	1
PRINCIPAL ROOM	2	-	7	-	-	-	1	1	-	-	-	1
COMPUTER ROOM	1	-	3	2	1	1	-	-	-	-	-	-
RN 5	5	4	-	-	-	-	-	-	-	-	-	-
RN 6	5	3	-	-	-	-	-	-	-	-	-	-
RN 7	5	3	-	-	-	-	-	-	-	-	-	-
RN 8	5	3	-	-	-	-	-	-	-	-	-	-
RN 9	6	2	-	-	-	-	-	-	-	-	-	-
RN 10	5	3	-	-	-	-	-	-	-	-	-	-
PHYSICS DEPT	15	11	-	5	-	-	-	-	-	-	-	-
DARK ROOM	2	1	-	-	-	-	-	-	-	-	-	-
STAFF ROOM	5	4	1	-	-	-	-	-	-	1	-	-
SOCIOLOGY DEPT	1	1	-	1	-	-	-	-	1	-	-	-
BOTANY DEPT	7	7	-	1	1	-	-	-	-	-	-	-
ZOOLOGY DEPT	7	7	-	1	1	-	-	-	-	2	-	-

POL. SC. ROOM NO.	1 FAN	1 TU BE LIG HT	- LE D	1 P C	- PRINTE R	- PHOTO COPIER	- AC	- FRIDG E	- WATE R COOL ER	- EXHAU ST	- PROJEC TOR	- TV SCREE N
IGNOU DEPT	5	2	-	1	1	-	-	-	-	-	-	-
IGNOU CO. DEPT	1	1	-	-	-	-	-	-	-	-	-	-
ENGLISH DEPT	1	1	-	1	1	-	-	-	-	-	-	-
PSYCOL OGY DEPT	1	1	-	1	-	-	-	-	-	-	-	-
HISTORY DEPT				1	1	-	-	-	-	-	-	-
RN 11	3	2	-	-	-	-	-	-	-	-	-	-
RN 12	4	2	-	-	-	-	-	-	-	-	-	-
RN 13	7	5	-	-	-	-	-	-	-	-	-	-
RN 14	5	2	-	-	-	-	-	-	-	-	-	-
RN 15	6	2	-	-	-	-	-	-	-	-	-	-
RN 16	5	4	-	-	-	-	-	-	-	-	-	-
RN 17	6	3	-	-	-	-	-	-	-	-	-	1
RN 18	6	3	-	-	-	-	-	-	-	-	-	-
RN 19	8	4	-	-	-	-	-	-	-	-	-	-
RN 20	6	3	-	-	-	-	-	-	-	-	-	-
RN 21	5	6	-	-	-	-	-	-	-	-	-	-
HOME SC.DEPT	2	3	3	-	-	-	-	1	1	-	-	-
STORE ROOM	2	2	-	-	-	-	-	-	-	-	-	-
OTHER	3	2	2	-	-	-	-	-	-	-	-	-
TOTAL	203	130	59	28	15	5	1	3	4	7	-	4

LIBRARY BUILDING

GROUND FLOOR	27	33	3	13	-	1	2	1	1	-	-	1
LAW DEPT	26	30	1	1	1	-	-	-	2	8	-	-
TOTAL	53	63	4	14	1	1	2	1	3	8	-	1

IT BUILDING

IT LAB	9	-	33	45	2	-	4	1	-	-	1	-
RN 1	2	1	1	-	-	-	-	-	-	-	-	-
RN 2	6	3	2	-	-	-	-	-	-	-	1	-
RN 3	2	-	2	-	-	-	-	-	-	-	-	-
STAFF ROOM	1	2	-	-	-	-	-	-	-	-	-	-
LIBRARY	1	1	-	-	-	-	-	-	-	-	-	-
TOILET	-	1	-	-	-	-	-	-	-	2	-	-
TOTAL	21	8	38	45	2	-	4	1	-	2	2	-

RUSA BUILDING

ROOM NO.	FAN	TUBE LIGHT	LED	PC	PRINTER	PHOTOCOPIER	AC	FRIDGE	WATER COOLER	EXHAUST	PROJECTOR	TV SCREEN
GALLERY GROUND	1	-	5	-	-	-	-	-	-	-	-	-
CHEM LAB	13	-	14	2	1	-	-	1	-	4	-	-
RN 3	5	-	6	-	-	-	-	-	-	-	-	-
RN 4	5	-	6	-	-	-	-	-	-	-	-	-
TOILET GRAOND	-	-	2	-	-	-	-	-	-	1	-	-
GALLERY 1 ST FLOOR	2	-	5	-	-	-	-	-	1	-	-	-
HALL	13	-	24	-	-	-	-	-	-	3	1	-
RN 5	5	-	6	-	-	-	-	-	-	-	-	-
RN 6	5	-	6	-	-	-	-	-	-	-	-	-
CHEM PG LAB	5	-	6	-	-	-	-	-	-	-	-	-
RN 4	6	-	8	-	-	-	-	-	-	-	-	-
RN 5	6	-	8	-	-	-	-	-	-	-	-	-
RN 6	6	-	8	-	-	-	-	-	-	-	-	-
GALLERY	3	-	4	-	-	-	-	-	-	-	-	-
TOTAL	75	-	108	2	1	-	-	-	-	-	-	-

GIRL'S HOSTEL

Room No.	Fan	Tube Light	Led	Pc	Printer	Photocopier	Ac	Fridge	Water Cooler	Exhaust	Projector	Tv Screen
KITCHEN	-	1	-	-	-	-	-	-	-	-	-	-
STORE ROOM	-	1	-	-	-	-	-	-	-	-	-	-
HALL	6	2	1	-	-	-	-	-	1	-	-	-
LIVING ROOM	19	8	10	-	-	-	-	-	-	-	-	-
CORRIDOR	-	2	1	-	-	-	-	-	-	1	-	-
BATHROOM +TOILET	-	2	-	-	-	-	-	-	-	3	-	-
OTHER	-	-	1	-	-	-	-	-	-	-	-	-
TOTAL	25	16	13	-	-	-	-	-	1	4	-	-
GRAND TOTAL	377	217	222	89	19	6	7	5	8	21	2	5

This table below shows the consumption of electricity by the appliances that are available in the college premises.

SN	APPLIANCES	TOTAL NO. OF APPLIANCES	CONSUMPTION OF ELECTRICITY PER HOUR (UNIT)	CONSUMPTION OF ELECTRICITY PER DAY (UNIT)	CONSUMPTION OF ELECTRICITY PER MONTH (UNIT)
1.	FAN	377	26.39	633.33	19000
2.	TUBE LIGHT	217	4.77	114.57	3437.28
3.	LED	222	2.22	53.28	1598.4
4.	PC	89	40.05	961.2	28836
5.	PRINTER	19	0.57	13.68	410.4
6.	PHOTOCOPIER	6	4.8	115.2	3456
7.	AC	7	28	672	20160
8.	FRIDGE	5	1.1	26.4	792
9.	WATER COOLER	8	0.64	15.36	460.8
10.	EXHAUST	21	0.24	5.76	172.8
11.	PROJECTOR	2	0.54	12.96	388.8
12.	TV SCREEN	5	0.53	12.72	381.6
	TOTAL	978	109.85	2636.46	79094.1

Note: These data are provided for the consumption of electricity in units on the basis of the 24 hour run time of the appliances. Note that in college premises the electronic equipments are not in 24 h in use. The approximate run time of the most of electronic equipments here in the premises is under 7 hours.

BCS GOVT. PG COLLEGE DHAMTARI (C.G.)

Electricity bill of the college premises for the last few Months

SN	MONT H	MAIN BUILDING		NEW BUILDING		LIBRARY BUILDING		IT BUILDING		HOSTLE		TOTAL	
		UNIT	COST (RS)	UNIT	COST (RS)	UNIT	COST (RS)	UNIT	COST (RS)	UNIT	COST (RS)	UNIT	COST (RS)
1.	APRIL 22	2277	19510	339	3410	1576	11220	421	2680	108	380	4721	37200
2.	MAY 22	-	-	452	4840	-	-	-	-	90	320	-	-
3.	JUNE 22	2277	19880	101	1730	981	6510	843	4750	127	450	4323	33320
4.	JULY 22	2277	19651	-	3031	-	8561	-	-	128	451	-	-
5.	AUG 22	-	-	-	1110	-	5840	739	3770	130	460	-	-
6.	SEPT 22	2277	20180	349	3550	1208	8520	988	6280	184	650	5006	43536
7.	OCT 22	2277	20600	304	3290	950	6550	645	3290	-	-	4176	33730
AVERAGE		2277	19964	309	2994	1178	7866	727	4154	127	451	4556	36946

Conclusion:

The above data shows the average consumption of electricity and average expenditure on the same. These data are based on only few months of the electricity bill provided by the college management. The college premises need on an average 4556 units of electricity per month to run successfully.

RECOMENDATION

Steps to Save Energy

1. LED bulbs can be used instead of tube lights and CFL.
2. High power rated appliances can be used to save more power.
3. College management should replace years old devices and appliances with the modern one.

APPRECIABLE

Total Campus area of our College is approximately 27Acre. And all the five buildings of our College are constructed with Wide space and have Excellent Ventilation system in every Classroom, staff room, laboratory room and other rooms.

Students and Teachers are Responsible to Switch On and switch off Electrical Equipments as per need.


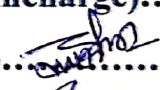

From the Office of The Principal there is a strict Order to Switch off the equipment after the Class is over.

ENERGY AUDIT REPORT 2021-22

In this report the team has taken the data based on the consumption of electricity by the electronic equipments. The college premises have a good management of electricity. There are more to be done to improve the electric consumption and the team has suggested that could be done in the future so the energy could be utilized in a more efficient way than ever. In this way we can reduce the loss of the electricity as well as the cost.


Principal
Dr. Shreedevi Choubey

Energy Audit Committee

4. Asst. Prof. Kishor Kumar (Incharge).....
5. Abhishek Mishra (Member).....
1. Dineshwar Salam (Member).....



B.C.S. Government PG. College Dhamtari, Chhattisgarh

CERTIFICATE

This is to certify that the B.C.S. Government P.G. College Dhamtari has Conducted "Energy Audit" of Session 2021-2022 to assess the Consumption of electricity with the use of Renewal energy awareness activities.

The college has submitted the necessary data for this Audit. The data presented is Satisfactory to Allocate and Measure the Audit.

Place :- ... *Dhamtari*

Date :- ... *16.01.2023*


(V. K. SHARMA)
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