

INDIRA GANDHI GOVT. COLLEGE PANDARIA,  
DISTT. – KABIRDHAM (C.G.)



ENERGY AUDIT REPORT

2022

## Energy Audit Assessment Team

### (Internal Auditors)

- Mr. Madhusudan Singh Rajput (Asst. Proff) Department of Sociology
- Mr. Dinesh Kumar Kashyap (Asst. Proff) Department of History
- Mr. Omprakash Dewangan ( Asst. Proff) Department of Mathematics
- Mr. Chitrasen Thakur (Asst. Proff) Department of Botany
- Mr. Bholam Ram Dhritlahre (Asst. Proff) Department of Chemistry
- Mr. Satyam Kumar Dounde (Guest lecturer) Department of Zoology
- Mrs. Madhuri Ratna Bhaskar (Guest lecturer) Department of Zoology

### (External Auditor)

- Mr. Prakash Agrawal  
Assistant Engineer (S/D)  
CSPDCL, Mainpura Pandaria  
(Assistant Engineer)  
CSPDCL Department, Mainpura Pandaria  
Distt.- kabirdham

# Acknowledgement

---

By Energy Assessment Audit Team of Indira Gandhi Government College, Pandariya of is very much thankful to Principal Dr. B.S.Chauhan, IQAC Coordinator for motivating us for 'Energy Audit For Evaluation of Electrical Instruments, Bills , Safety & Conservation Of Electricity of an Institution Via Audit Report.

  
PRINCIPAL  
INDIRA GANDHI GOVT. COLLEGE  
PANDARIYA, DIST. JALGAON (E.O.)

## CONTENTS

- Introduction
- About our College
- Objective
- Electricity instruments objects used in Institute
- Electricity Bill summary
- Alternative source of Energy
- Recommendations

# Introduction

---

The 'Energy audit' aims it is a technique used to establish the pattern of Energy use, and identifies the areas where energy can be saved or where Energy can be used judiciously. An energy audit consists of a detailed Examination of how a facility uses energy, what the facility pays for that energy, and finally, a recommended program for changes in operating practices or energy consuming equipment that will effectively save on energy bills.

Energy audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

## About our College

---

Indira Gandhi Government College, Pandaria is emerging college in Kabirdham District of Chhattisgarh. It was established in 1984 and enlightening the student fraternity of Pandariya and nearby villages. The most respected first Principal Dr. V. B. Choudhary gave special attention to college The College has touched new heights by making its goal meaningful. The college was established in 1984, when the college had a system of study in the arts faculty till graduation. Started 37 years ago with about 100 students, the college is today imparting education to about 1500 students. Earlier, the college was being run in an additional room of basic primary school Pandaria which is today operating from its own 15 acre building in Village-Rauha (Pandaria). In this college from the academic session 1984 to 2008 only B.A. Classes of the Faculty of Arts continued to be conducted. In the education session 2008-09, B.Sc. and B.Com. Classes were started under public participation and from the session 2010-11, MA in Sociology M.Com Begins in 2019 Session, History and Hindi literature classes are conducted under state Government. Today the study-teaching work of all the faculties of the college is being done continuously



Geographical location of Indira Gandhi Government College, Pandariya  
Distt.- Kabirdham (A/C To Google earth)

# Objectives

---

The main objectives of carrying out Energy Audit are:-

The primary objectives of energy audit are to identify and evaluate Opportunities to reduce energy consumption per unit of product output and reduce operating costs through energy conservation and planning.

Energy audit provides a "bench- mark" for managing energy in the organization and also provides the basis for planning a more effective use of energy throughout the organization.

## ELECTRICITY INSTRUMENT USED IN AN INSTITUTION

S. N.	Room No.	LIGHT			FANS		COMPUTER	PRINTER	UPS	A/C	PROJECTOR	OTHER INSTRUMENTS
		TUBELIGHT	CF L	LEDLIGHT	CELLING FAN	WALL FAN						
1.	PHYSICS LAB	5	2	0	2	1	1	1	1	0	0	0
2.	ACCOUNT SEC.	3	1	0	1	2	0	1	0	0	0	REFRIGERATOR 1, COOLAR 1
3.	BOTANY/ZOOLOGY LAB	6	3	0	4	1	1	1	0	0	1	REFRIGERATOR 1,
4.	CHEMISTRY LAB	7	3	0	4	1	0	0	0	0	0	0
5.	GEOGRAPHY LAB	6	2	0	4	0	0	0	0	0	0	0
6.	ROOM No. 01	5	0	0	4	0	0	0	0	0	0	0
7.	ROOM NO. 02	4	0	0	4	0	0	0	0	0	0	0
8.	ROOM NO. 03	2	0	0	2	0	0	0	0	0	0	0
9.	ROOM NO. 05	4	0	0	2	0	0	0	0	0	0	0
10.	ROOM NO. 06	6	0	0	6	0	0	0	0	0	0	0
11.	BARAMADA NO. 01	0	4	0	3	0	0	0	0	0	0	0
12.	BARAMADA NO. 02	0	2	0	3	0	0	0	0	0	0	0
13.	BARAMADA NO. 03	0	3	0	2	0	0	0	0	0	0	0
14.	BARAMADA NO. 04	1	2	0	1	0	0	0	0	0	0	WATER COOLAR 1
15.	PRINCIPAL ROOM	5	1	0	3	4	0	0	0	0	0	REFRIGERATOR 1, TV 2
16.	PRINCIPAL WASH ROOM	0	0	0	0	0	0	0	0	0	0	0
17.	STAAF ROOM	7	1	0	4	2	1	1	1	0	0	COOLAR 1
18.	STAAF WASH ROOM	0	1	0	0	1	0	0	0	0	0	0
19.	OFFICE	4	0	0	2	2	2	1	1	0	0	0
20.	BARAMADA NO. 05	2	0	0	0	2	0	0	0	0	0	0
21.	LIBRARY	8	0	0	4	1	1	1	0	0	0	0
22.	COUTYARD	0	0	3	0	0	0	0	0	0	0	0
23.	HELP DESK	1	0	0	0	2	0	0	0	0	0	0
24.	MAIN DOOR	1	0	0	1	0	0	0	0	0	0	0
25.	SPORT ROOM	2	0	0	2	0	0	0	0	0	0	0



2 6.	ROOM NO. 04	2	0	0	2	0	0	0	0	0	0	0
2 7.	BOYS TOILET	1	0	0	0	0	0	0	0	0	0	0
2 8.	GIRLS COMMAN ROOM	0	1	0	0	0	0	0	0	0	0	PAD MACHIN
2 9.	COLLEGE CAMPUS OUTER SIDE	0	6	0	0	0	0	0	0	0	0	0

# Electricity Bill Analysis.

## ELECTRICITY BILLS FOR ACADEMIC YEAR 2017-18

S.NO	BILLING MONTH	SUMMARY	NET BILL	SURCHARGE	PAID AMOUNT	TOTAL ARREARS
1	02.05.2017	BIL AMT.	5396			14296
2	02.05.2017	SURCHARGE		81		14375
3	06.06.2017	BIL AMT.	6444			20818
4	06.06.2017	SURCHARGE		178		20996
5	07.07.2017	BIL AMT.	7007			28003
6	07.07.2017	SURCHARGE		283		28286
7	01.08.2017	BIL AMT.	6291			34576
8	01.08.2017	SURCHARGE		377		34953
9	05.09.2017	BIL AMT.	6027			40980
10	05.09.2017	SURCHARGE		467		41447
11	07.10.2017	BIL AMT.	4563			46010
12	07.10.2017	SURCHARGE		536		46546
13	25.10.2017	PAYMENT LOT			37640	8906
14	08.11.2017	BIL AMT.	4286			13192
15	08.11.2017	SURCHARGE		64		13256
16	30.11.2017	BIL AMT.	5712			18968
17	30.11.2017	SURCHARGE		150		19118
18	27.12.2017	BIL AMT.	155			19274
19	27.12.2017	SURCHARGE		152		19426
20	01.01.2018	PAYMENT LOT			10520	8906
21	29.01.2018	BIL AMT.	827			9733
22	29.01.2018	PAYMENT LOT			830	8903
23	06.03.2018	BIL AMT.	764			9667
<b>Electricity bill Analysis 2018-19</b>						
1	04.05.2018	BIL AMT.	1443			12811
2	04.05.2018	SURCHARGE		58		12869
3	05.06.2018	BIL AMT.	2078			17947
4	05.06.2018	SURCHARGE		89		15037
5	05.07.2018	BIL AMT.	2281			17317
6	05.07.2018	SURCHARGE		123		17441
7	06.08.2018	BIL AMT.	2744			20185

8	06.08.2018	SURCHARGE		-164		20439
9	31.08.2018	BIL AMT.	3450			23799
10	31.08.2018	SURCHARGE		216		24015
11	27.09.2018	PAYMENT LOT			15120	8895
12	28.09.2018	BIL AMT.	3498			12393
13	28.09.2018	SURCHARGE		52		12445
14	02.11.2018	BIL AMT.	4385			16830
15	02.11.2018	SURCHARGE		118		16948
16	15.11.2018	PAYMENT LOT			4880	12068
17	28.11.2018	BIL AMT.	3512			15581
18	28.11.2018	SURCHARGE		100		15681
19	21.12.2018	BIL AMT.	3545			19226
20	21.12.2018	SURCHARGE		153		19379
21	23.01.2019	BIL AMT.	2870			22249
22	23.01.2019	SURCHARGE		196		22445
23	25.02.2019	BIL AMT.	2187			24633
24	25.02.2019	SURCHARGE		299		24862
25	27.03.2019	BIL AMT.	191			25053
26	27.03.2019	SURCHARGE		232		25285

**Electricity bill Analysis 2019-20**

1	03.05.2019	BIL AMT.	157			25442
2	03.05.2019	SURCHARGE		234		25677
3	27.06.2019	PAYMENT LOT			17310	8880
4	02.07.2019	BIL AMT.	2029			10909
5	02.07.2019	SURCHARGE		30		10939
6	24.07.2019	BIL AMT.	384			11323
7	24.07.2019	SURCHARGE		36		11359
8	29.08.2019	BIL AMT.	3720			15079
9	29.08.2019	SURCHARGE		92		15171
10	04.10.2019	BIL AMT.	7460			22631
11	04.10.2019	SURCHARGE		204		22834
12	05.12.2019	BIL AMT.	3740			26574
13	05.12.2019	SURCHARGE		260		26834
14	04.01.2020	BIL AMT.	4517			31351
15	04.01.2020	SURCHARGE		327		31679
16	30.01.2020	PAYMENT LOT			22450	9229
17	31.01.2020	BIL AMT.	4328			13557

18	31.01.2020	SURCHARGE		70		13627
19	28.02.2020	BIL AMT.	2139			15766
20	28.02.2020	SURCHARGE		102		15867
21	27.03.2020	BIL AMT.	3466			19333

### Electricity bill Analysis 2020-21

1	17.04.2020	BIL AMT.	2029			21362
2	27.05.2020	BIL AMT.			756	20606
3	27.05.2020	SURCHARGE		117		20723
4	19.06.2020	BIL AMT.	9350			30073
5	19.06.2020	SURCHARGE		211		30283
6	14.07.2020	PAYMENT LOT			18800	11483
7	17.07.2020	BIL AMT.	817			12300
8	17.07.2020	SURCHARGE		185		12485
9	19.08.2020	BIL AMT.	8667			21152
10	19.08.2020	SURCHARGE		315		21467
11	18.09.2020	BIL AMT.	4342			25808
12	18.09.2020	SURCHARGE		380		26188
13	06.10.2020	PAYMENT LOT			6200	19988
14	16.10.2020	BIL AMT.	3761			23749
15	16.10.2020	SURCHARGE		356		24105
16	17.11.2020	BIL AMT.	4469			28574
17	17.11.2020	SURCHARGE		423		28997
18	16.12.200	BIL AMT.	1722			30719
19	16.12.200	PAYMENT LOT			30720	1
20	18.01.2021	BIL AMT.	1869			1869
21	18.01.2021	SURCHARGE		28		1897
22	17.02.2021	BIL AMT.	1717			3614
23	17.02.2021	SURCHARGE		54		3668
24	16.03.2021	BIL AMT.	3220			6888
25	16.03.2021	SURCHARGE		102		6990

### Electricity bill report 2021-22

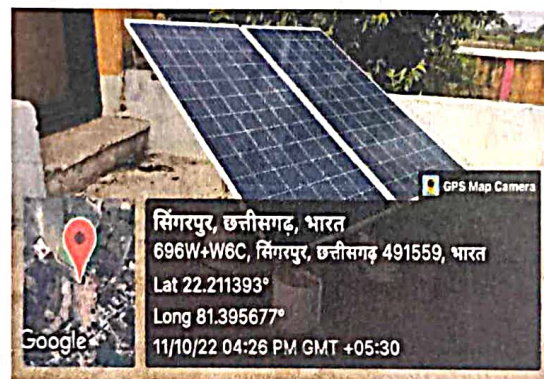
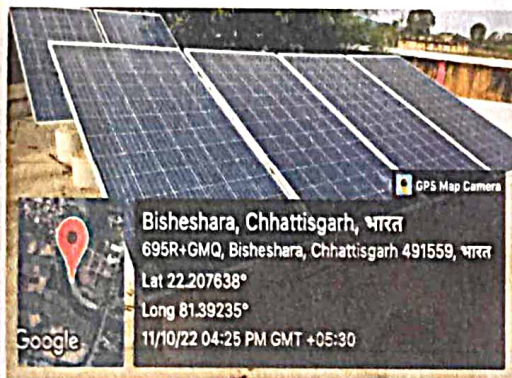
1	05.04.2021	PAYMENT LOT			5770	1220
2	16.04.2021	BIL AMT.	4426			5646
3	16.04.2021	SURCHARGE		85		5731

4	19.05.2021	BIL AMT.	2029			7675
5	18.06.2021	BIL AMT.	2029			9704
6	18.06.2021	SURCHARGE		146		9850
7	16.07.2021	BIL AMT.	14298			24148
8	16.07.2021	SURCHARGE		360		24508
9	17.08.2021	BIL AMT.	8529			33031
10	17.08.2021	SURCHARGE		488		33519
11	17.09.2021	BIL AMT.	6071			39590
12	17.09.2021	SURCHARGE		579		40169
13	21.10.2021	BIL AMT.	17116			57285
14	21.10.2021	SURCHARGE		836		58121
15	23.11.2021	BIL AMT.	15893			74013
16	23.11.2021	SURCHARGE		1074		75087
17	21.12.2021	BIL AMT.	11972			87059
18	21.12.2021	SURCHARGE		1254		88313
19	01.01.2022	PAYMENT LOT			25000	63313
20	19.01.2022	BIL AMT.	15211			78524
21	19.01.2022	SURCHARGE		1178		79702
22	18.02.2022	BIL AMT.	13965			93667
23	18.02.2022	SURCHARGE		1387		95054
24	22.03.2022	BIL AMT.	22816			117870
25	22.03.2022	SURCHARGE		1730		119600
26	31.03.2022	PAYMENT LOT			117870	1730

## Alternative source of Energy

In an institute has the main energy source in Alternative current in form & also solar panel present for an alternative source of electricity Energy.

The solar panel put in college as per Chhattisgarh state renewable energy development agency (CREDA) & the 2 solar panels & 4 batteries attach with panels for the flow of Alternative currents in college. The Electricity power 2 KWp with 12V & 150 Ah batteries with 4Nos.



Pic:- The Solar Panels present on the roof top of the college for an alternative source of Energy.

## Recommendations

According to the energy auditors we can easily save between 5 and 10% of their energy consumption (and costs) by changing our behavior such as switching electrical equipment off at the mains rather than leaving it on stand-by, turning off lights when they're not being used.

Today's major appliances don't hog energy the way older models do because they must meet minimum federal energy efficiency standards. These standards have been tightened over the years, so any new appliance you buy today has to use less energy than the model you're replacing.

### Lighting

- Get into the habit of turning lights off when you leave a room. — Saving Energy 0.5 %
- Use task lighting (table and desktop lamps) instead of room lighting
- The ordinary regulator would take 20 watts extra at low speed.
- The energy loss can be compensated by using electronic regulator.
- Buy efficient electric appliances:
- They use two to 10 times less electricity for the same functionality, and are mostly higher quality products that last longer than the less efficient ones. In short, efficient appliances save you lots of energy and money.
- In many countries, efficiency rating labels are mandatory on most appliances. Look Energy Star label is used.
- The label gives you information on the annual electricity consumption. In the paragraphs below, we provide some indication of the consumption of the most efficient appliances to use as a rough guide when shopping. Lists of brands and models and where to find them are country-specific and so cannot be listed here.
- Average consumption of electric appliances in different regions in the world, compared with the high efficient models on the market.
- Educate everyone in the home, including children and domestic helpers.

# CONCLUSION

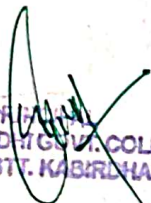
---

An energy audit is a tool, which is the start of every activity to improve energy efficiency. Under the concept of an energy audit, many activities actually take place – from simple analyses of energy consumption, which are implemented within expert groups in organizations, to comprehensive energy audits, which enable the creation of a quality mid-term energy strategy.

If a comprehensive review of possibilities for energy consumption optimization isn't implemented, some opportunities are lost, which is evident in higher energy costs. Based on good cooperation with expert groups within organizations, we can identify and also implement simpler measures that don't require higher investments.

Within the energy audit, we create a plan, which proposes possible organizational and investment measures and also enables systematic achievement of savings. With every measure, the level and return of investment and a sensible priority of measure implementation are determined alongside energy and cost savings.

Recorded energy cost savings, which fluctuate between 5 and 15 percent of total energy cost in organizations, depend on multiple factors. These factors are mostly energy complexity of organizations, existing energy use control and organizational and expert qualifications of responsible persons.

  
INDIRA GANDHI GOVT. COLLEGE  
PANDARIA, DISTT. KABIRNAGAR (C.G.)

  
Assistant Engineer (S/D)  
C.S.P.D.C.L.Pandariya