



Energy Audit Report 2023



S.B.D. GOVERNMENT COLLEGE
SARDARSHAHAR
CHURU, RAJASTHAN, INDIA
PIN CODE-331403

1. Introduction

Energy audit is an inspection, survey and analysis of energy flows for energy conservation in building or a system to reduce the amount of energy input into the system without adding a negative impact on the output. Energy audits are means to understand the flow of energy starting from the source to its final use.

As per the Energy Conservation Act, 2001, Energy auditing is the verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption.

1.1. Goals of Energy Auditing:

- a) Identification of strengths and weaknesses in green practices.
- b) Analyze and suggest solutions for problems identified.
- c) Identify and assess environmental risk.
- d) Motivate staff for optimal sustainable use of available resources.
- e) Increase environmental awareness throughout the campus.
- f) Collect baseline data of environmental parameters and prepare plans for issues before they become problems.

1.2. Objectives of Energy Audit:

- a) Analyze current practices and determine their impact on the environment.
- b) Identify and analyze significant environmental issues.
- c) Continuous assessment for better environmental performance.
- d) Establish and implement a green energy strategy in the campus and sensitize the faculty and students.

1.3. Benefits to Educational Institutions:

- a) Improve the energy utilization within and outside the campus premises.
- b) Help recognize cost-effective green strategies that enable conservation of energy
- c) Empower people linked to the organization to move towards conscious environmental thinking and practice.
- d) It helps improve the image and builds a positive impression of the institution for its green and clean resource use.

1.4. Audit Parameters

Following are the key parameters used in Energy audit:

- Energy sources
- Measurement and Consumption
- Best Practices
- Suggestions/ Recommendations

Observation and Inferences

I. Energy source

S. No.	Electricity Source	Capacity in KW
1	Grid Power supply from JVVNL	25 KW
2	Solar on Grid connection	25 KW
3	Diesel Generator set	35 KW

II. Measurement and Consumption

Analysis of Electrical Load

Connected load & Consumption Estimate

Load Equipment	Wattage for Each One	Total Quantity	Total KW	Average usage in Hrs./day	KWH per/day
Motor	746	3	2.24	1	27
LED Light	18	250	4.5	6	105.6
Fans	60	220	13.2	8	96
AC	1500	8	12	8	32
Computer	200	40	8	4	2.7
Photocopiers	300	3	0.9	3	36
Refrigerator	300	5	1.5	24	3
Street Light	60	5	0.3	10	3
Other Lab Equipment	200	60	12	0.25	
			54.64		305.3

Power Consumption as per electricity bill (Reference 2020-2021)

Meter-1 Last K no. 980	Month	June-20	Aug-20	Oct-20	Dec-20	Feb-21	Aug-21		Total Units
	Units	2967	4089	5585	6622	3791	9456		32510
	Amount	69316	53,526	65795	73183	44179	61041		367044
Meter-2 Last K no. 906	Month	June-20	Aug-20	Oct-20	Dec-20	Feb-21	Aug-21		Total Units
	Units	691	740	1112	2037	879	3279		8738
	Amount	28,258	12739	15091	23142	14150	23026		116406

Total units for the study time of both meter =41248 units [average 3438 units/month]

Total amount = 483450

Per person consumption = 10.85 units/year

III. Best Practices

- The campus uses 25 KW solar plant on grid system
- Periodic maintenance of electrical/electronic equipment is done to optimize the power uses
- The campus uses only 6 Air conditioners
- Energy saving through the replacement of incandescent bulbs, CFL lamps and tube lights to LED light
- All computers work on power saving mode.

IV. Suggestion & Recommendations:

- Foot valves shall be used to automatically switch off the water supply when the tank reaches optimal levels. This could help save both energy as well as water. Automatic bore well management systems with sensors at the overhead tank as well as underground would help pump water only in case of shortages.
- Using Brushless Direct Current Fans could help reduce the consumption by half
- All traditional electric appliances shall be replaced with energy efficient ones to reduce power consumption and wastages.
- Holding power conservation and awareness events could help keep the college community engaged
- Usage of Star rated Electric/Electronic Appliances

Consolidation of Energy Audit Findings

The Energy audit was conducted in S.B.D. Govt. P.G., Sardarshahar Rajasthan. Based on the above observation and analysis it was found that the total energy utilization of the Institution for different purpose was approximately KWH/Year. The main source of power is the electricity purchased from Jodhpur Vidut Vitran Nigam Limited. The institution has already implemented many measures to decrease the dependence on

conventional power; few initiatives taken in this direction are solar powered lights along the campus as a replacement to conventional street light. The institution has installed 25 KW solar plants connected with on grid system.



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दिनांक :-06.09.22

वर्ष 2020-21 एवं 2021-22 में महाविद्यालय के विद्युत एवं पानी बिलों के व्यय का विवरण :-

क्र.सं.	विवरण	माह	राशि
1.	विद्युत बिल माह (मुख्य भवन) (4माह)	जून -2020	69316
2.	विद्युत बिल माह (विज्ञान भवन) (4माह)	जून -2020	28258
3.	विद्युत बिल माह (मुख्य भवन)	अगस्त -2020	53526
4.	विद्युत बिल माह (विज्ञान भवन)	अगस्त -2020	12739
5.	विद्युत बिल माह (मुख्य भवन)	अक्टूबर -2020	65795
6.	विद्युत बिल माह (विज्ञान भवन)	अक्टूबर -2020	15091
7.	विद्युत बिल माह (मुख्य भवन)	दिसम्बर -2020	73183
8.	विद्युत बिल माह (विज्ञान भवन)	दिसम्बर -2020	23142
9.	विद्युत बिल माह (मुख्य भवन)	फरवरी -2021	44179
10.	विद्युत बिल माह (विज्ञान भवन)	फरवरी -2021	14150
11.	विद्युत बिल माह (मुख्य भवन)	अप्रैल -2021	46473
12.	विद्युत बिल माह (विज्ञान भवन)	अप्रैल -2021	17281
13.	विद्युत बिल माह (मुख्य भवन)	जून -2021	46358
14.	विद्युत बिल माह (विज्ञान भवन)	जून -2021	16457
15.	विद्युत बिल माह (मुख्य भवन)	अगस्त -2021	61041
16.	विद्युत बिल माह (विज्ञान भवन)	अगस्त -2021	23026
17.	विद्युत बिल माह (मुख्य भवन)	अक्टूबर -2021	83538
18.	विद्युत बिल माह (विज्ञान भवन)	अक्टूबर -2021	21797
19.	विद्युत बिल माह (मुख्य भवन)	दिसम्बर -2021	68182
20.	विद्युत बिल माह (विज्ञान भवन)	दिसम्बर -2021	22810
21.	विद्युत बिल माह (मुख्य भवन)	फरवरी -2022	91255
22.	विद्युत बिल माह (विज्ञान भवन)	फरवरी -2022	16400
	कुल व्यय -	-	9,13,997

क्र.सं.	विवरण	माह	राशि
1.	पानी बिल	फरवरी-जुलाई-2020	3782
2.	पानी बिल	अगस्त- सितम्बर-2020	1787
3.	पानी बिल	अक्टूबर-नवम्बर 2020	1261
3.	पानी बिल	दिसम्बर-20-जनवरी - 2021	1261
4.	पानी बिल	फरवरी-मार्च -2021	1261
5.	पानी बिल	फरवरी-मार्च -2021	2521
6.	पानी बिल	अगस्त-सितम्बर - 2021	1261
7.	पानी बिल	अक्टूबर-नवम्बर - 2021	2521
8.	पानी बिल	दिसम्बर-20-जनवरी - 2022	1261
	कुल व्यय	-	16,916



प्राचार्य
राजकीय महाविद्यालय
सरदारशहर





SOLAR PANEL

Electric Supply in
Play ground



Solar Plate

कार्मिलशहीद स्मृति वाटिका



Latitude: 28.43581
Longitude: 74.518729
Elevation: 251.59±2 m
Accuracy: 34.5 m
Time: 24-03-2022 13:20
Note: Kargil Vatika Front View

DC Generator

Solar Plate

Latitude: 28.43559
Longitude: 74.518561
Elevation: 251.59±2 m
Accuracy: 17.2 m
Time: 24-03-2022 13:13
Note: Use of Solar Light

Latitude: 28.43582
Longitude: 74.518518
Elevation: 251.59±2 m
Accuracy: 8.3 m
Time: 24-03-2022 13:10
Note: Generator Set

Generator Set



Waste Management