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ENERGY AUDIT REPORT OF VIDYA PRABODHINI PORVORIM

Auditor: Abhinav Apte



Energy Audit Completion Certificate

This is to certify that the following Institution has carried out a Energy Audit.

DECEMBER 2023

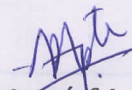
TRACK CHANGE LLP

202, Patantali, Post Bandora, Ponda Goa 403401

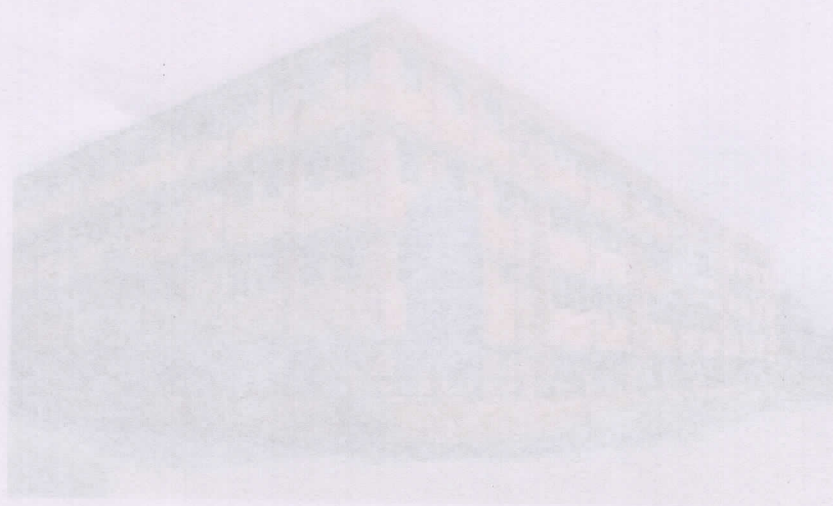
**Name of Institution : VIDYA PRABODHINI COLLEGE OF COMMERCE, EDUCATION,
COMPUTER AND MANAGEMENT**

Details of the facilities Audited : Institute Building and Premises

Name of Auditor : Abhinav Apte


Signature of Auditor:

21/12/2023



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1 About the College

Vision

- EXCELLENCE EVERYWHERE EVERYTIME

Mission

- To create and develop a quality learning environment through the integration of conceptual knowledge, application of skills, basic human values, and field realities, thereby nurturing competent, value based and resourceful citizens, who selflessly contribute to Nation Building by serving the nation above self.

Objectives

- Design and develop skill based and practical oriented curriculum.
- Increase students' learning through classroom teaching-learning process.
- Inculcate basic human values in students through curriculum.
- Develop application-oriented students' performance evaluating mechanism.
- Promote teaching of topics of current relevance beyond the syllabus.
- Promote a research culture and spirit of inquiry among teachers and students.
- Develop abilities and competencies in research through workshops and training programmes.
- Inculcate employability skills in students and thereby promote their overall personality development.
- Increase placement opportunities for students through linkages with business houses and educational institutions/organizations.
- Promote collaborations and interactions with industry and research institutions for the benefits of institution.
- Sustain an Institution-Neighbourhood network to enhance learning opportunities.
- Promote participation of students and teachers in outreach and community development activities.
- Seek feedback from stakeholders for the improvement of the institution's performance.
- Create industrial and entrepreneurial outlook for self-employment and Employment generation.

Motto

College to Village and Campus to Community

Background Purpose and Scope of the Energy Audit

1.1 Background

The **Sustainable Development Goals (SDGs)**, also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic, and environmental sustainability.

Countries have committed to prioritize progress for those who are furthest behind. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls. The creativity, knowhow, technology, and financial resources from all of society is necessary to achieve the SDGs in every context.

India along with other countries signed the declaration on the 2030 Agenda for Sustainable Development, comprising of seventeen Sustainable Development Goals (SDGs) at the Sustainable Development Summit of the **United Nations in September 2015**.

In line with the same vision, the National Accreditation body which rates various Educational Institutions based on various parameters has introduced Energy Audit as a part of requirements that the institutions must fulfil. Energy Audit has therefore become one of the parameters of quality.

1.2 Purpose

The Energy Audit is done to understand the current baseline of the various sustainability parameters and suggestions on how the College can improve on those parameters. Through the Energy Audit, all the stakeholders of the Institute can understand where the college stands in various sustainability parameters and what role each of them can play in taking the Institute towards better sustainability.

The learnings that come out from the Audit also equip all stakeholders, especially students who are future leaders of the society with knowledge and ideas that can transform the Sustainability Landscape of whichever sector and organization they choose to work in the future.

1.3 Goals of Energy Audit

- The objective of Energy Audit is securing the environment and cutting down the threats posed to human health.
- To make sure that rules and regulations are taken care of to avoid the interruptions in environment that are more difficult to handle, and their correction requires high cost.
- To suggest the best protocols for adding to sustainable development

1.4 Benefits of Energy Audit

- It would help to shield the environment.
- Recognize the cost saving methods through waste minimizing and managing.
- Point out the prevailing and forthcoming complications.
- Authenticate conformity with the implemented laws.
- Empower the organizations to frame a better environmental performance.

- It portrays a good image of a company which helps building better relationships with the group of stakeholders.
- Enhance the alertness for environmental guidelines and duties.

1.5 Scope: -

The scope of this audit is to analyse and understand the current scenario of various initiatives and measures taken in the fields of Energy and offer recommendations for the immediate term, short term, and long-term interventions.

2 Executive Summary

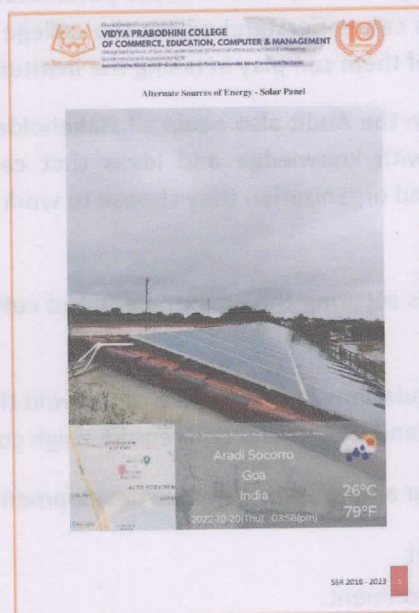
The initiatives that the institute has taken in the Energy Conservation are commendable and need to be duly appreciated.

2.1 Energy: --

The Campus gets supply from the Electricity Department, however, to play their part in as a sustainability initiative, the college has installed **Solar Panels** on rooftops.

2.2 Awareness Initiatives

The College has been very active in various awareness and outreach initiatives towards sustainability.



14kWp Grid Connected Solar Rooftop PV PowerPlants

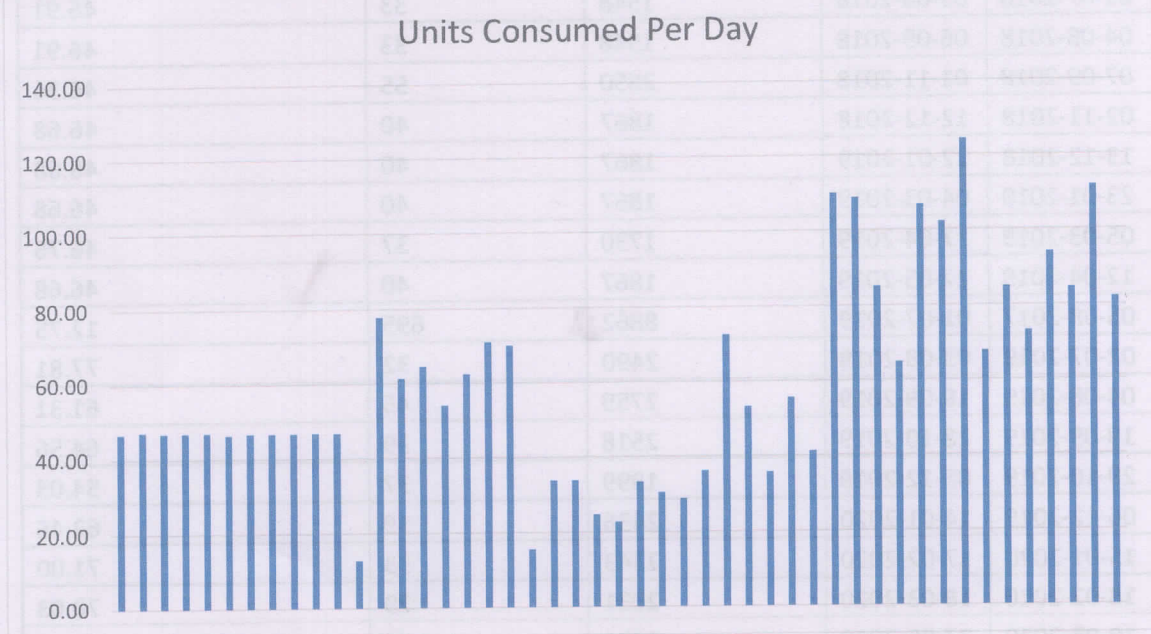
3 Energy Audit

3.1 Energy consumption pattern: --

The trend for energy consumption for one year is analysed from electricity bills and presented below:

From	To	Units Consumed	Number of Days	Units Consumed Per Day
16-03-2018	25-04-2018	1867	40	46.68
26-04-2018	24-05-2018	1320	28	47.14
25-05-2018	30-06-2018	1685	36	46.81
01-07-2018	03-08-2018	1548	33	46.91
04-08-2018	06-09-2018	1548	33	46.91
07-09-2018	01-11-2018	2550	55	46.36
02-11-2018	12-12-2018	1867	40	46.68
13-12-2018	22-01-2019	1867	40	46.68
23-01-2019	04-03-2019	1867	40	46.68
05-03-2019	11-04-2019	1730	37	46.76
12-04-2019	22-05-2019	1867	40	46.68
05-08-2017	01-07-2019	8862	695	12.75
02-07-2019	03-08-2019	2490	32	77.81
04-08-2019	18-09-2019	2759	45	61.31
19-09-2019	28-10-2019	2518	39	64.56
29-10-2019	05-12-2019	1999	37	54.03
06-12-2019	14-01-2020	2436	39	62.46
15-01-2020	17-02-2020	2343	33	71.00
18-02-2020	18-03-2020	2031	29	70.03
19-03-2020	27-05-2020	1071	69	15.52
28-05-2020	01-07-2020	1147	34	33.74
02-07-2020	01-08-2020	1013	30	33.77
02-08-2020	03-09-2020	792	32	24.75
04-09-2020	05-10-2020	702	31	22.65
06-10-2020	06-11-2020	1032	31	33.29
07-11-2020	14-12-2020	1126	37	30.43
15-12-2020	18-01-2021	981	34	28.85
19-01-2021	23-02-2021	1267	35	36.20
21-02-2021	26-03-2021	2395	33	72.58
27-03-2021	05-05-2021	2072	39	53.13
06-05-2021	22-07-2021	2744	77	35.64
23-07-2021	21-08-2021	1611	29	55.55
22-08-2021	22-09-2021	1278	31	41.23
23-09-2021	26-10-2021	3622	33	109.76
27-10-2021	02-12-2021	3909	36	108.58
03-12-2021	13-01-2022	3491	41	85.15

14-01-2022	24-02-2022	2660	41	64.88
25-02-2022	06-04-2022	4264	40	106.60
07-04-2022	10-05-2022	3367	33	102.03
11-05-2022	08-06-2022	3476	28	124.14
09-06-2022	17-08-2022	4674	69	67.74
18-08-2022	15-09-2022	2379	28	84.96
16-09-2022	22-10-2022	2636	36	73.22
16-09-2022	25-11-2022	6575	70	93.93
26-11-2022	02-01-2023	3131	37	84.62
03-01-2023	01-02-2023	3236	29	111.59
02-02-2023	10-04-2023	5499	67	82.07



Key insights

- Average Daily consumption throughout the period has been **59.69** units

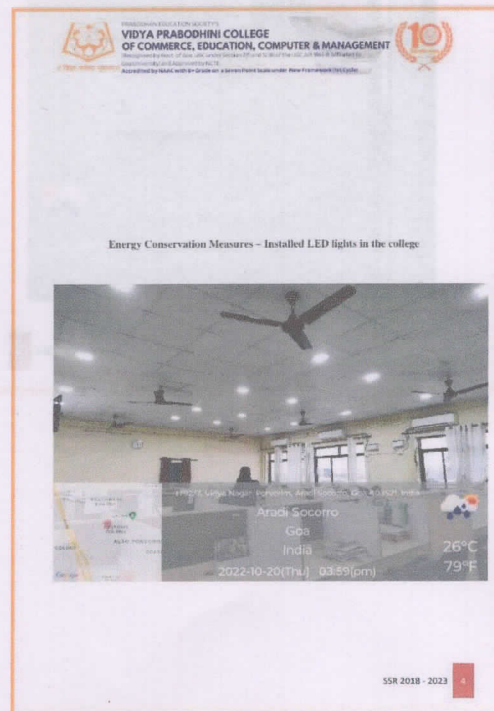
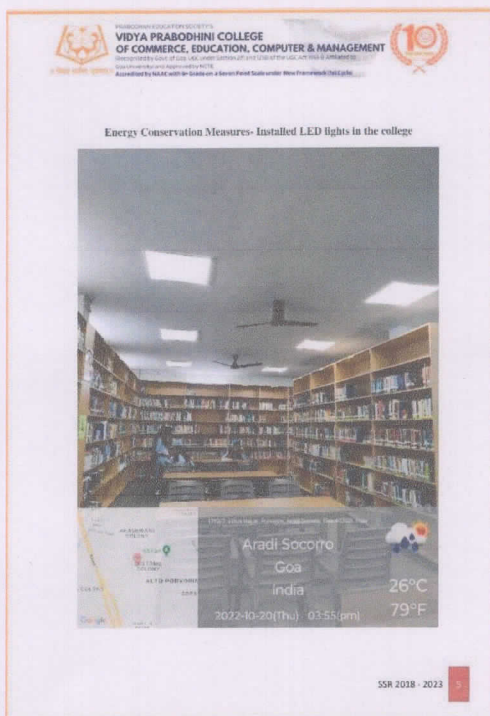
Energy Saving Measures taken

3.1.1 Use of renewable energy: Solar PV plant

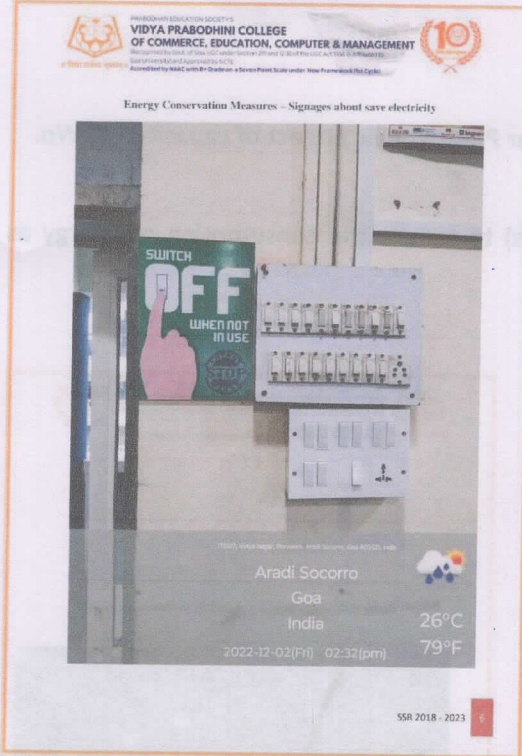
The institute has implemented a project for Rooftop Solar Photovoltaic project of capacity 14 kWp.

3.1.2 Use of energy efficient lamps.

The College has installed Energy Efficient Lamps (LED's) to reduce the consumption of energy as against conventional or fluorescent lamps.



3.1.3 Signages for saving electricity



3.1.4 Other energy conservation measures

1. It has activated Power Management Features on computers so that they consume lesser energy. It makes a lot of difference when such small interventions add up at the scale of the college.
2. The College has a biogas plant. One which processes waste generated at the Canteen.



3.2 Observations and Recommendations

1. Sub-metering of the College should be done as a priority, so that whatever steps that the college takes towards saving of energy can be measured and monitored regularly.

Currently the Electricity bill is being generated for many buildings together through a common meter. Through the Energy Audit it has been understood that there is only one energy meter installed.

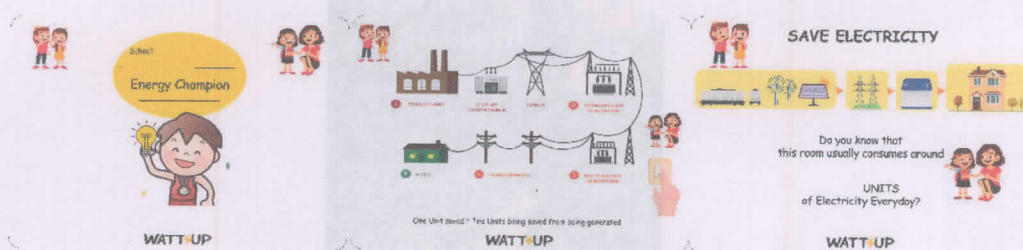
The different buildings do not have any sub-metering and therefore it is not possible to understand how much electricity is consumed by each of them in the current scenario.

Sub-metering will enable better monitoring as well as responsibility for reducing the electricity bills.

2. Labelling

- Labelled Switchboards: --The switchboards need to be labelled with attractive labels which will show wattage of each of the electrical appliances. As the boards are not labelled, students may switch on all tube lights/fans when only 1 or 2 are required.
- Labelling should also be used as a tool for better monitoring of the Energy Consumption and enabling behaviour change.
- Labels also help in reminding when a particular equipment is due next for maintenance.

Some Sample Awareness material is given below for reference.



- Energy Conservation Club in the institution which will be a team of Teachers+students who will regularly monitor the Energy consumption.
- Fans which are used for the maximum number of hours (like staff room etc) may be replaced with Super-Efficient Fans.
- As the consumption of electricity is much more than the generation of Electricity by Solar, there is a good scope for capacity enhancement of the Solar Power System. The institute should aim to be self-sufficient with its power requirements.
- A list of critical electrical and electronic equipment is given as **Annexure 1**. The institute should maintain an inventory and regularly get the maintenance of these equipment done in accordance with the standard maintenance manual of the manufacturer. This inventory of equipment needs to be continuously modified as actuals based on additions of equipment as well as disposal.

4 Conclusion and Summary of Recommendations

Being a relatively new college, the strides that the institute has taken in sustainability are commendable. The focus of the leadership on ensuring best practices is evident from the various initiatives that have been taken.

The topic wise recommendations are given below each topic. The Summary of the same is given in the below tables.

Interventions	Energy
Immediate	1. Separate Submetering of all institutions
Short Term	1. Energy Conservation Club for measuring and monitoring
Medium Term	1. Extensive Labelling campaign for awareness and evoking action
Long Term	1. Increasing the capacity of the solar power plant to make the institute self-sufficient in its power requirements.

As a college it is recommended that the College organize various intercollegiate programs, seminars, and tie-up with more government bodies like the Electricity/Energy Department, through which its initiatives can be taken as a model case study for other colleges to follow.

5 Acknowledgements

- a. We thank the Principal, Vice Principals, the Professors, administrative staff, students, and all other stakeholders who have helped to collect all the data required for carrying out this audit.
- b. Our appreciation goes to the entire top management including the founders and all stakeholders who have built a very strong foundation of sustainability in which the institute is taking giant strides.

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