Green Audit

Certificate of Green Audit

PPS Energy Solutions

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Date: 30th December 2021

WORK COMPLETION CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that, we M/s. **PPS Energy Solutions Pvt. Ltd.** has successfully completed **Energy and Green Audit at Matoshree Vimalabai Deshmukh Mahavidyalaya, Amravati conducted in December 2021** and submitted report.

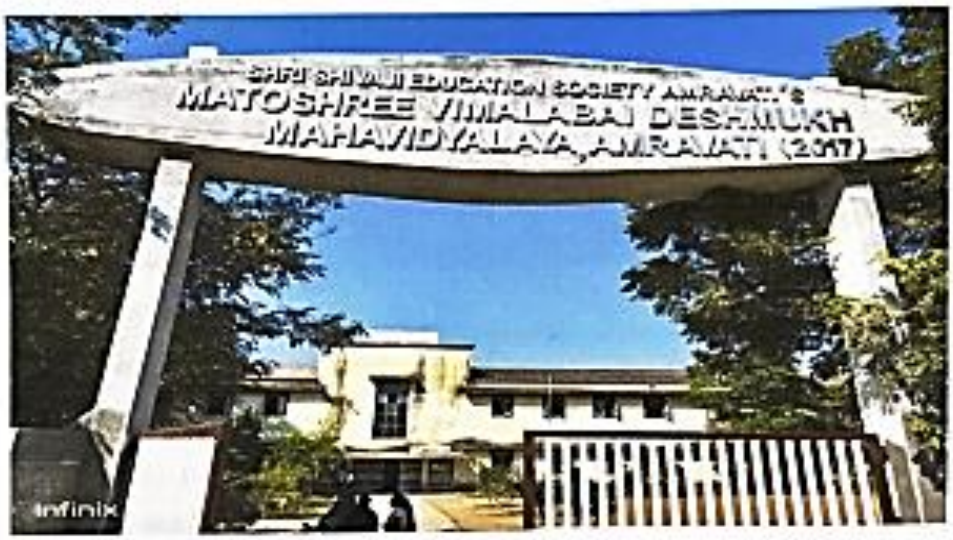
For PPS Energy Solutions Pvt. Ltd, Pune

PPS ENERGY SOLUTIONS PVT. LTD. PPS

Dr. Ravi. G. Deshmukh
Director

Report of Green Audit

GREEN AUDIT ASSESSMENT REPORT



MATOSHREE VIMALABAI DESHMUKH MAHAVIDYALAYA

Panchvati Chouk, Amravati

444601

JULY 2021

Conducted By

PPS Energy Solutions Pvt. Ltd.

Engineering Consultants

Plot No-18, Girish Housing Society

Warje, Pune – 411058, Maharashtra, India.

Dr. Ravi G.Deshmukh
Energy Auditor Class - A
MEDA/ECNCR-05/2018-19/EA-05

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GREEN AUDIT REPORT

1. About Green Audit

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience.

Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. If self enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self enquiry is a natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric carbon-di-oxide from the environment. The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In recent time, the Green Audit of an institution has been becoming a paramount important for self assessment of the institution which reflects the role of the institution in mitigating the present environmental problems. Many institutions undertake lot of good measures to resolve these problems but are not documented due to lack of green documentation awareness. All this non-scholastic efforts of the administrations play an important role in ensuring the green quotient of the campus is intact.

Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

2. Objectives

Main Objectives of Green Audit :

1. Geographica Location
2. Floral and Faunal diversity
3. Meteorological parameter
4. Energy Consumptions
5. Waste disposal system
6. Ambient Environmental Condition
7. To avoid the interruptions in environment that are more difficult to handle and their correction requires high cost.
8. Awarness & Training on Sustainability for Students

3. Benefits

- It would help to prepare plan to protect the environment.
- Recognize the cost saving methods through waste minimization and management.
- Point out the prevailing and forthcoming impacts on environment.
- Ensures conformity with the applicable laws.
- Empower the organizations to frame a better environmental performance.
- It portrays a good image of an institute which helps building better relationships with the group of interested parties.
- Promotes the alertness for environmental guidelines and duties.

4. Green Audit Constitution

Constitution For Green Audit :-

The Green Audit is carried out as per the environmental policy of the Matoshree Vimalabai Deshmukh Mahavidyalaya, Amravati and Green audit checklist. The aim of the audit is to check the existing practices and provide advice for the development of environmental policy and practice in the areas of:

- Waste Management
  - i. Solid waste management
  - ii. E-waste management
- Water conservation and management
- Tree plantations
- Bio-diversity and threatened endangered species preservations
- Energy use and conservations
- Eco-friendly campus
- Green environment and clean campus

5. Executive Summary

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development. Shri Shivaji Arts and Commerce College, Amravati, is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher learning, the college has initiated 'The Green Campus' program two years back that actively promote the various projects for the environment protection and sustainability.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Environmental Policy adopted by the institution. The methodology include: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student health and learning in the college and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

Dr. Ravi G. Deshmukh
Energy Auditor Class - A
MEDA/ECNCR-05/2018-19/EA-05

6. Observations & Recommondations

OBSERVED POINTS

1. College has prepared Green Environmental policy and has taken efforts for sustainable development on the college campus.

2. College has formed the team of faculty and student which works to maintain biodiversity on the campus and also participates in preventing pollution in society through various drives during different festivals, etc.

3. College has a system of Hazardous waste disposal through authorized agency.

4. College has conducted Environment. Awareness trainings and workshop for faculty and students.

RECOMMENDATIONS

1. College should go for ISO 14001:2015 certification

2. More number of Energy and flow meters to be installed for monitoring of energy and water consumption building wise/department wise.

3. PUC certificate for all the vehicles entering the campus to be made mandatory and to be checked by security.

4. College should maintain the legal register for the applicable environment related regulations and comply with this as per the requirement.

5. Bio-waste: Composting system to be adopted.

6. College has to install solar panels.

Remark : Since the building number and Campus is small , Installation of separate sewage treatment plant for these building is not economically feasible .

7. Overall Recommendations

1) Lab waste water quantity is not measured and drained to municipal drainage system.

2) Solid waste segregation is not done in lab as well as store room before final disposal.

3) Planning of chemical consumption and purchase to be ensured.

4) Calibration of instrument in lab to be done.

5) Composting of bio degradable waste to be scientifically done.

6) Septic tank sewage water analysis is to be done.

7) Plan for green belt development to be prepared.

8) Drinking water analysis shall be done as per IS 10500.

9) Rain water Harvesting (RWH) is to be done technically.

10) Reduction of wood policy.

11) Department wise electrical load consumption is to be done.

12) Energy used by each appliance is to be estimated.

13) List of equipment/instrument and their consumption of (energy/water) is to be estimated.

14) Awareness for energy and water conservation among students and staff by displaying boards.

15) Automatic leak detections in water flowing pipeline

16) Water usage reduction techniques to be used.

17) No previous for disposal of sanitary napkins. As per the Biomedical waste disposal Act.

19) Tree plantation shall be done to maintain biodiversity as well as artificial nesting shall be installed.

20) D. G. stack monitoring/Exhaust gas analysis shall be done.

21) Awareness among students and staff about green environment shall be done use tools like display boards.

8. Annexure – I

Annexure - I

1 Ashy Prinia	53 Red Wattled Lapwing
2 Asian Koel	54 Red-rumped Swallow
3 Asian Pied Starling	55 Red-Throated Flycatcher
4 Barn Owl	56 Red Avadavat (Red Munia)
5 Baya Weaver bird	57 Rock Blue Pigeon
6 Black Drongo	58 Rose ringed Parakeet
7 Black Kite	59 Rosy Starling
8 Black Redstart	60 Rufous Treepie
9 Black Shouldered kite	61 Scaly-breasted Munia
10 Blyth's Reed Warbler	62 Shikra
11 Brahminy Starling	63 Small Minivet
12 Brown Rock Chat	64 Spotted owlet
13 Cattle Egret	65 Verditer Flycatcher
14 Chestnut Starling	66 White Throated Fantail
15 Common Hoopoe	67 White Browed Wagtail
16 Common Iora	68 White-throated Kingfisher
17 Common Kestrel	69 Wire-tailed Swallow
18 Common Myna	70 Yellow eyed babbler
19 Common Rosefinch	71 Yellow Wagtail
20 Common Tailor bird	72 Yellow-footed Green Pigeon
21 Coppersmith Barbet	73 Indian Scops Owl
22 Dusky Crag Martin	74 Common Chiffchaf
23 Golden Oriole	75 Common Kingfisher
24 Greater Coucal (crow pheasant)	76 Red naped Ibis (in flight)
25 Green Bee-eaters	77 Common Hawk Cuckoo
26 Greenish Warbler	78 Grey Bellied Cuckoo
27 Grey Wagtail	79 Indian Peafowl
28 House Crow	80 Grey Francolin
29 House Sparrow	81 Paddy Field Pipit
30 House Swift	82 Rufous tailed Lark
31 Indian Grey Hornbill	83 Indian Cormorant (in flight)
32 Indian Pond Heron	84 Spotted Dove
33 Indian Robin	85 Yellow Crowned Woodpecker
34 Indian Roller	86 Common Woodshrike
35 Indian Silverbill	87 Brown Shrike
36 Indian Spotted Eagle	88 Bay-Backed Shrike
37 Jungle Babbler	89 Ashy Drongo
38 Laughing Dove	90 Black Naped Monarch
39 Lesser Goldenback	91 Rufuous Treepie
40 Little Egret	92 Cinnerious Tit
41 Long tailed Shrike	93 Black-lored Tit
42 Orange-Headed Thrush	94 Ashy-Crowned Sparrow Lark
43 Oriental Magpie Robin	95 White Browed Bulbul
44 Oriental white eye	96 Red Breasted Flycatcher
45 Pied cuckoo	97 Zitting Cisticola
46 Pied Kingfisher	98 Booted Warbler
47 Plain Prinia	99 Syke's Warbler
48 Plum headed parakeets	100 Sulphur Bellied Warbler
49 Purple Heron	101 Lesser Whitethroat
50 Purple rumped sunbird	102 Ultramarine Flycatcher
51 Purple Sunbird	103 Tickell's Blue Flycatcher
52 Red vented Bulbul	104 Grey-Headed Canary Flycatcher

LIST OF BIRDS SPOTTED AROUND CAMPUS

Annexure - II

ENERGY SAVING UTILITY DATA

Summary of Recommended Energy Conservation Measures:

Sr.No.	Equipment Name	ECM Details	Investment (Rs. In Lacs)	Savings (kWh/year)	Carbon credit (Tons of Co2)	Saving (Rs.In Lacs /Year)	Payback (Years)
1	Tube Lights	Replacement of conventional lights with suitable LEDs	0.89	3000	2.55	0.21	4.28
2	Fans	Replacement of existing fans with energy efficient Super fans	1.65	6683	5.68	0.46	3.55
Total			2.54	9683	8.23	0.67	3.78

Note: Estimated savings may base on operating conditions

About PPSES

M/s. PPS Energy Solutions Pvt. Ltd (PPSES) is an ambitious company, established by enterprising engineering professionals in the year 2009. The company offers services pertaining to Energy and Engineering to clients across the globe. Our team is based in Pune, a city known for its Software and Engineering talent in India. We are a rapidly growing company with a team of about 100 people which includes highly trained and experienced Techno-Managers, Analysts, and Engineers & Detailers.

We are presently working in India (Maharashtra, Assam, Madhya Pradesh, Gujarat, Andhra Pradesh, Delhi, Orissa, Chhattisgarh, Bihar, Andhra Pradesh, Telangana and Jharkhand) and Abroad (Bahrain, Stanford)

PPSES Team Members Name	Role	Academics and Expertise
Dr. Ravi Deshmukh	ECM verification, Report verification and presentation	Accredited Energy Auditor PhD, M tech, MBA (Power), Graduate E&TC Engineer with over 18 years of experience in Energy Management, Management of Power System, street light projects, Power Exchange Operations, Power Trading and Analysis, Electrical Automation. Has worked as Expert in Iron & Steel sector and Energy
Mr .Nilesh Saraf	Co-ordination with officers, project status review.	Expert in Energy sector with 16 years of experience in Energy efficiency assessment, Industrial engineering sector & Renewable Energy.
Mr. Vinayak Apte	Energy Audit Expert	Graduate Electrical Engineer with more than 10 years of experience in various sectors. He handled Energy Audits, Energy Conservation and Energy Efficiency projects in Industries, Commercial and Residential Buildings, Pump House
Mr. Vedmurthy Swamy	Field study, data tabulation and analysis, report preparation	Graduate Mechanical Engineer with 5 years of experience in project management, energy efficiency assessment

**********END OF THE REPORT**********