

# Nutan Urja Solutions

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Date: 18/08/2021

## CERTIFICATE

This is to certify that we have conducted Green Audit at Brahma Valley College Of Engineering And Research Institute, Nashik for the year 2020-21.

The College has already adopted **Green** practices like:

- Installation of Rain Water Harvesting system
- Installation of Bio composting pit
- Installation of Biogas Generation Plant
- Installation of Solar Thermal Hot Water System
- Usage of Energy Efficient LED
- Usage of Energy Efficient BEE STAR Rated equipment
- Every year Tree Plantation is conducted under NSS
- Fruit plantation on college preises

We appreciate the support of Management, involvement of faculty members and students in the process of making the campus Green.

Nutan Urja Solutions,



K G Bhatwadekar,

Certified Energy Auditor,

EA - 22428



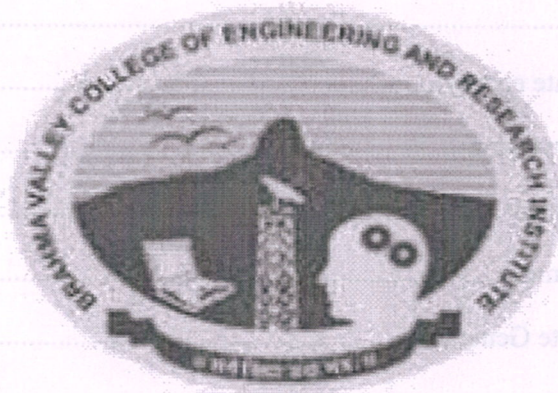
**Report  
On  
Green Audit  
At  
Brahma Valley College Of Engineering And Research Institute,  
Nashik  
(Year 2020-21)**



Prepared by  
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## Acknowledgement

We at Nutan Urja Solutions, Pune, express our sincere gratitude to the management of Brahma Valley College Of Engineering And Research Institute, Nashik for awarding us the assignment of Green Audit of their college premises.

We are also thankful to various Head of Departments & other Staff members for helping us during the field measurements.

We hope that the recommendations stated in this report will be useful and worthy of discussions to take things forward to help implementation of energy conservation measures and green practices. While we have made every attempt to adhere to high quality standards, in both data collection and analysis through the report, we would welcome your suggestions so as to improve upon this report further.

Sr no	Parameter	Count	Value (Watt)
1	Maximum	10,148	15.32
2	Minimum	964	0.76
3	Average	2,430	6.76
4	Total	1,01,392	81.12

### 1. Various Measures Adopted for Energy Conservation

1. Usage of STAR Rated ACs at new installations
2. Usage of LED lights at some indoor locations
3. Usage of LED lights for outdoor lighting

### 2. Usage of Renewable Energy

The college has installed Solar Thermal Hot Water System.

### 4. Rain Water Harvesting

The College has installed the Rainwater harvesting project, to reduce dependency on municipal corporation water supply.

### 5. Waste Management

The College has already installed a bio-composting plant, wherein, the bio-degradable waste is composted & is used as fertilizer for the garden.

The internal communication is through emails and there is hardly any generation of e-Waste in the premises.

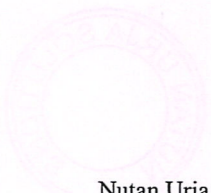


Abbreviations

**6. Notes and Assumptions**

1. Daily working hours-10 Nos
2. Annual working Days-250 Nos
3. Average Rate of Electrical Energy : Rs 11/- per kWh

CFE	: Compact Fluorescent Lamp
FTL	: Fluorescent Tube Light
LED	: Light Emitting Diode
V	: Voltage
I	: Current
KW	: Kilo-Watt
KWh	: kilo-Watt Hour
KVA	: Active Power



## 1. Introduction

Brahma Valley Educational Campus is located in the outskirts of Anjaneri, (Trimbakeshwar High-Way Nashik ) comprising a sprawling campus of about 35 acres land. The campus is situated in the valley surrounded by hills & reflects the beauty of nature. This place is also known as the birth place of Lord Hanuman and is close to Trimbakeshwar Temple which is one of the 12 Jyotirlingas of Lord Shiva which adds to the holiness and beauty of this area.

### 1.1 Objectives

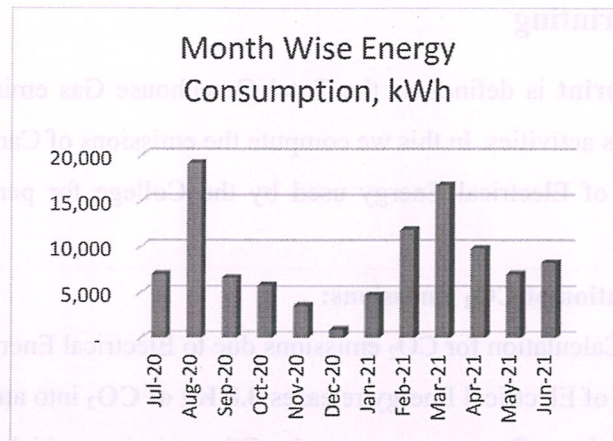
1. To study present level of Energy Consumption
2. To Study the present CO<sub>2</sub> emissions
3. To assess the various equipment/facilities from Energy efficiency aspect
4. To measure various Electrical parameters
5. To study Scope for usage of Renewable Energy
6. To study various measures to reduce the Energy Consumption

### 1.2 Audit methodology

1. Study of connected load
2. Study of various Electrical parameters
3. To prepare the Report with various Encon measures with payback analysis

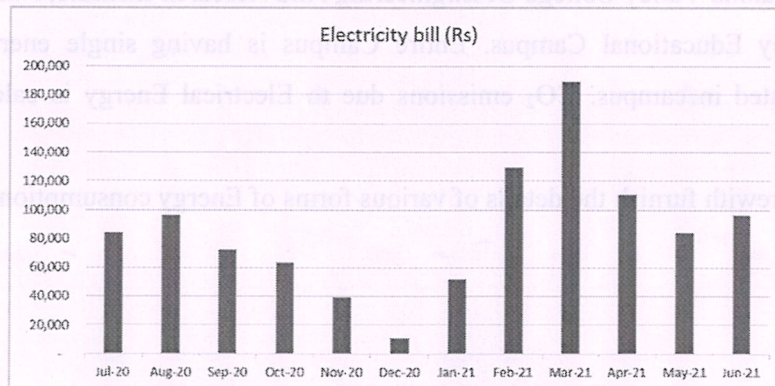
Month	Energy Consumption (kWh)	CO <sub>2</sub> Emissions (kg)
Jan-20	101,382	222,720
Feb-20	84,596	184,596
Mar-20	68,796	151,440
Apr-20	75,459	165,504
May-20	63,143	138,300
Jun-20	67,780	148,116
Jul-20	51,874	113,712
Aug-20	47,739	105,024
Sep-20	51,874	113,712
Oct-20	51,874	113,712
Nov-20	51,874	113,712
Dec-20	51,874	113,712
Total	1,01,382	222,720





**Figure 2.1: Month wise energy consumption**

Monthly variation in electricity bill is as follows,



**Figure 2.2: Month wise electricity bill**

Key observations of electricity bill are as follows,

**Table no 2.2: Key observations**

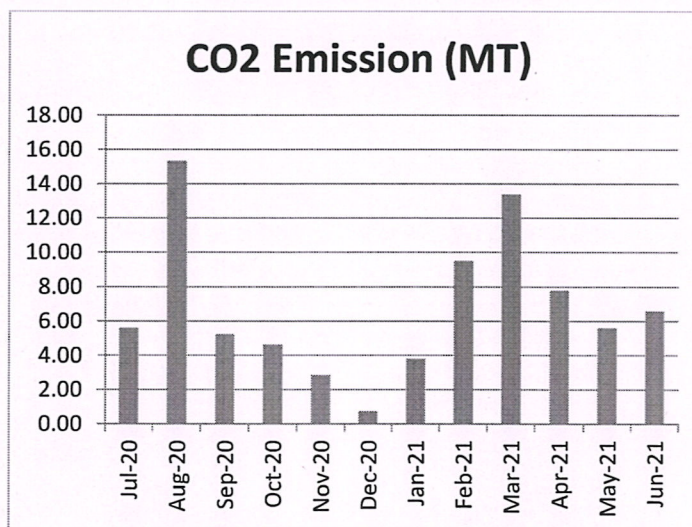
Sr no	Parameter	Energy consumed, (Units)	CO2 Emission (MT)
1	Maximum	19,146	15.32
2	Minimum	944	0.76
3	Average	8,450	6.76
4	Total	1,01,395	81.12



**Table 3.1: Month wise Consumption of Electrical Energy & CO2 Emissions**

No	Month	Energy Consumed, kWh	CO2 Emissions, MT
1	Jun-21	8,252	6.60
2	May-21	6,994	5.60
3	Apr-21	9,775	7.82
4	Mar-21	16,727	13.38
5	Feb-21	11,874	9.50
6	Jan-21	4,739	3.79
7	Dec-20	944	0.76
8	Nov-20	3,578	2.86
9	Oct-20	5,780	4.62
10	Sep-20	6,592	5.27
11	Aug-20	19,146	15.32
12	Jul-20	6,994	5.60
	<b>Total</b>	<b>1,01,395</b>	<b>81.12</b>

In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 3.1: Month wise CO2 Emission**





## 5. Study of Rain Water Harvesting

The College has already installed Rain Water Harvesting project, wherein the rain water falling on the terrace is collected and through pipes it is fed to Water Storage. This stored water is then reused for domestic purpose.

### Photograph of Rain Water Harvesting pipe



## **7. Study of Green Practices**

### **7.1 No of students who don't use own Vehicle for coming to Institute**

Out of total students coming to Institute, about 60% students use own Automobile.

### **7.2 Usage of Public Transport**

During the Students transport study, it was revealed that the local students who are residing near areas make use of Public Transport like Municipal Transport local buses, local sharing type auto rickshaws. Some students use bicycles. Institute encourages students to not to use automobiles.

### **7.3 Pedestrian Friendly Roads**

The Institute has well defined pedestrian foot paths as to facilitate the easy movement of the students within the campus.

#### **Photograph of Road within campus**



### **7.4 Plastic Free Campus**

The Institute is an active participant in the Government of India's most prestigious project of SWATCHH BHART ABHIYAN. The Institute has displayed boards in the Campus, to make the campus plastic free. Various measures adopted for this purpose are as follows

- Installation of Separate waste bins for Dry waste & wet waste
- Usage of paper tea cups in the Institute canteen
- Display of boards in the campus for Plastic Free campus

### **7.5 Paperless Office**

The internal communication of the Institute is through the Internet. There are hardly any day to day operations, where printing is required.

### **7.6 Green Landscaping with Trees and Plants**

The Institute has beautiful maintained Garden.