# ENERGY AUDIT REPORT

## PAYYANUR COLLEGE

### PAYYANUR


OTTOTRACTIONS
Energy - Engineering - Environment

DNRA 170, Valiyavila, Thirumala P O, Thiruvananthapuram 695006
Ph/Fax:0471 3966250,2368747 Helpline: +919447068747, 9447621674,
email:ottotractions@email.com, otenergy@gmail.com
www.ottotractions.com


*Executed by*

OTTOTRACTIONS
Energy-Engineering-Environment

**2023**

ESTABLISHED IN 1965
PAYYANUR COLLEGE

Accredited Energy Auditor: AEA-33
Empanelled Accredited Energy Auditor: EmAEA-33
Bureau of Energy Efficiency,
Government of India.

Empanelled Energy Auditor: EMCEEA-0211F,
EMC (Energy Management Centre-Kerala.)

# ENERGY AUDIT REPORT

## PAYYANUR COLLEGE

## PAYYANUR

OTTOTRACTIONS
Energy-Engineering-Environment

# Energy Audit Report

## Payyanur College, Payyanur

Report No: EA 1056

2023

`

Empaneled Accredited Energy Auditor, AEA 33
Bureau of Energy Efficiency
Government of India

Empaneled Energy Auditor, EMCEEA-0211F,
Energy Management Centre
Government of Kerala.

Authorized Energy Auditor, GEDA/ENC/EAC: Autho/2014/8/103/2316,
Gujarat Energy Development Agency
Government of Gujarat

Empaneled Energy Auditor, India SME Technology Services Ltd
A joint Venture of SIDBI, SBI, Indian Bank, Oriental Bank of Commerce
& Indian Overseas Bank

## About OTTOTRACTIONS

OTTOTRACTIONS established in 2005, is an organization with proven track record and knowledge in the field of energy, engineering, and environmental services. They are the first Accredited Energy Auditor from Kerala for conducting Mandatory Energy Audits in Designated Consumers as per Energy Conservation Act-2001. Government of Kerala recognized and appreciated OTTOTRACTIONS by presenting its prestigious “The Kerala State Energy Conservation Award” for the best performance as an Energy Auditor. Ottotractions is an ISO 9001-2015, ISO 17020-2012 and ISO 14001-2015 Certified organization, which ensures the quality of its services.

## Acknowledgement

We were privileged to work together with the administration and staff of Payyanur College, Payyanur. We are grateful to them for the timely help extended to complete the audit and bringing out this report.

With gratitude, we acknowledge the diligent effort and commitments of all those who have helped to bring out this report.

We also take this opportunity to thank the bona-fide efforts of audit team for unstinted support in carrying out this audit.

We thank our consultants, engineers and backup staff for their dedication to bring this report.

Thank you.

For OTTOTRACTIONS

B V Suresh Babu
Accredited Energy Auditor
AEA 33, Bureau of Energy Efficiency
Government of India

## Contents

# *Certification*

**This is to certify that**

The data collection has been carried out diligently and truthfully;

All data monitoring devices are in good working condition and have been calibrated or certified by approved agencies authorised and no tampering of such devices has occurred;

All reasonable professional skill, care and diligence had been taken in preparing the energy audit report and the contents thereof are a true representation of the facts;

Adequate training provided to personnel involved in daily operations after implementation of recommendations; and

The energy audit has been carried out in accordance with the Bureau of Energy Efficiency (Manner and Intervals of Time for the Conduct of Energy Audit) Regulations, 2010.

SURESH BABU B V
ACCREDITED ENERGY AUDITOR (AEA 33)
BUREAU OF ENERGY EFFICIENCY
GOVERNMENT OF INDIA

| Executive Summary | | | | | |
|---|---|---|---|---|---|
| Consolidated Cost Benefit Analysis of Energy Efficiency Improvement Projects | | | | | |
| Payyanur College, Payyanur | | | | | |
| Sl No | Projects | Investment | Cost saving (in Lakhs) | SPB (Simple Pay Back) | Energy saved |
| | | (Lakhs Rs) | (Rs)/Yr | Months | kWh/Yr |
| 1 | Energy Saving in Lighting by replacing existing 50 No's T8 (40W) Lamps to 18W LED Tube | 0.15 | 0.074 | 24.35 | 1056 |
| 2 | Energy Saving in Lighting by replacing existing 17 No's T12 (55W) Lamps to 18W LED Tube | 0.05 | 0.032 | 19.38 | 451 |
| 3 | Energy Saving in Lighting by replacing existing 4 No's CFL(15W) Lamps to 9W LED Bulb | 0.004 | 0.001 | 35.71 | 17 |
| 4 | Energy Saving by replacing existing 371 No's in-efficent ceiling fans with Energy Efficient Five star fans | 11.13 | 0.489 | 273.32 | 6981 |
| 5 | Installation of 20kWp Solar Power Plant | 11.00 | 3.641 | 36.26 | 27375 |
| | **Total** | **22.33** | **4.24** | **77.81** | **35880** |
| (The saving are projected as per the assumed operation time observed based in the discussions with the plant officials. The data of saving percentages are taken from BEE guide books and field measurements.) | | | | | |

# 1 Introduction

**A** detailed energy audit has been carried out at Payyanur College, Payyanur by OTTOTRACTIONS in July 2023. During the energy audit energy saving opportunities has been identified to help improving energy efficiency of the facility. OTTOTRACTIONS is an Accredited Energy Auditor of Bureau of Energy Efficiency and Empaneled Energy Auditor of Energy Management Centre, Government of Kerala.

This energy audit report complies with the clauses in *Energy Conservation Act, 2001* on mandatory energy audit (**Form 4** [refer regulation 6(2)] guidelines for preparation of energy audit report) and complies with the G.O (Rt) No.2/2011/PD dated 01.01.2011 issued by Government of Kerala on mandatory energy audit.

## 1.1. General Building details and descriptions

Payyanur College, Payyanur is one of the premier institutions of higher learning in Malabar, North Kerala. Currently affiliated to Kannur University, and re-accredited by the NAAC with 'B+' grade in 2018, this postgraduate college caters to the higher education needs of over 1800 students, most of whom hail from the economically-weak families of the rural areas around Payyanur. The college offers undergraduate courses in 14 disciplines, postgraduate courses in five and PhD Programmes in three. The establishment of the college in the village area of Edat in 1965 led to the materialization of the higher educational dreams of thousands of youngsters during

the past five decades. The college holds an enviably-high performance record in curricular and co-curricular activities.

| Occupancy Details | | |
|---|---|---|
| Particulars | 2021-22 | 2022-23 |
| Total Students | 1962 | 1939 |
| Staffs | 114 | 114 |
| Total Occupancy of the college | 2076 | 2053 |

For calculating specific energy consumption, the total built-up area is taken into account.

## Energy audit team

The Energy Audit team is listed below. Besides this list various domine experts also participated in this project.

1. Suresh Babu B V, Accredited Energy Auditor, AEA 33
2. B. Zachariah, Chief Technical Consultant
3. Abin Baby, Project Engineer
4. Jomon J S, Project Engineer
5. Amrutha A M, Data Analyst
6. Anjana B S, Project Assistant

# 2

# Process description

The energy audit has been carried out at Payyanur College, Payyanur. The following is the baseline data of this building.

| BASELINE DATA SHEET FOR GREEN AUDIT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Name of the Organisation | Payyanur College, Payyanur | | | | | | | | | | |
| 2 | Address (include telephone, fax & e-mail ) | Payyanur, P.O Edat - 670327<br>Kannur Dt, Kerala, India<br>payyanurcollege@rediffmail.com<br>Ph No: 0497 2805121, 9497653521 | | | | | | | | | | |
| 2 | Year of Establishment | 1965 | | | | | | | | | | |
| 3 | Name of building and Total No. of Electrical Connections/building | Payyannur College (7) | | | | | | | | | | |
| 4 | Total Number of Students | Boys | 593 | Girls | 1346 | Total | 1939 | | | | | |
| 5 | Total Number of Staff | 114 | | | | | | | | | | |
| 6 | Total Occupancy | 2053 | | | | | | | | | | |
| 7 | Total area of green cover | 50% | | | | | | | | | | |
| 8 | Type of Electrical Connection | HT | 0 | LT | 7 | | | | | | | |
| 9 | Total Connected Load (kW) | 109 | | | | | | | | | | |
| 10 | Average Maximum Demand (KVA) | - | | | | | | | | | | |
| 11 | Total built up area of the building ($M^2$) | 18286.23 | | | | | | | | | | |
| 12 | Number of Buildings | 7 | | | | | | | | | | |
| 13 | Average system Power Factor | 0.99 | | | | | | | | | | |
| 14 | Details of capacitors connected | Nil | | | | | | | | | | |
| 15 | Transformer Details (Nos., kVA, Voltage ratio) | TR 1 | | | | | | | | | | |
| | | 0 | | | | | | | | | | |
| 15 | DG Set Details (kVA, ) | DG1 | DG2 | DG3 | DG4 | DG5 | Remarks | | | | | |
| | | 62.5 | | | | | | | | | | |
| 16 | Details of motors | Rating | | Nos. | | Remarks | | | | | | |
| | | 5 to 10 | | 2 | | | | | | | | |
| | | 10 to 50 | | | | | | | | | | |
| | | Above 50 | | | | | | | | | | |

# 3

# Energy and utility system description

## 3.1 Electricity

Electricity is purchased from KSEB under Seven LT Connections, the details are given below. A 62.5 kVA Diesel Generator are in operation at this campus

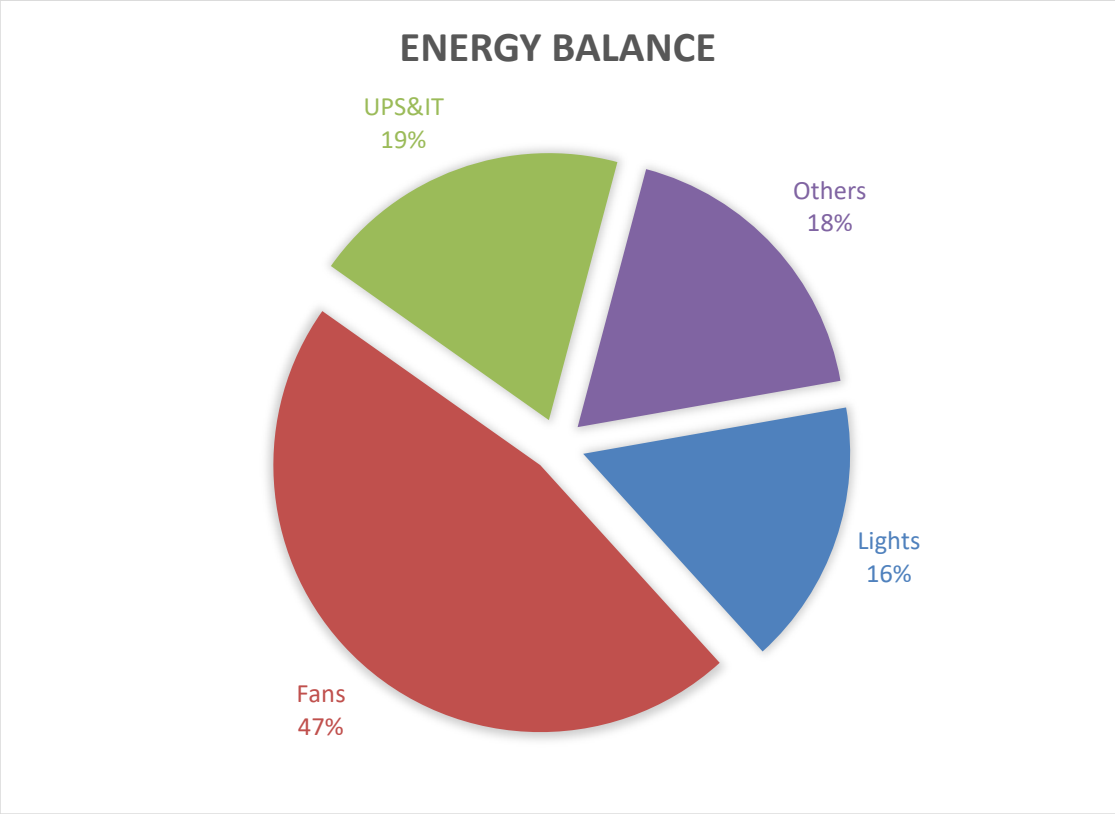
| Electricity Connection Details | | |
|---|---|---|
| **Payyanur College, Payyanur** | | |
| 1 | Name of the Consumer | Payyanur College, Payyanur |
| 2 | Tariff | LT-6A Ndom, LT-7B Ndom, LT-4A Ndom, LT-6B Ndom, LT-7A Ndom |
| 3 | Consumer Numbers | 1166396000079, 1166396000080, 1166393001873, 1166394001043, 1166393000082, 1166390009225, 1166390015190 |
| 5 | Connected Load Total (kW) | 109 |
| 6 | Annual Electricity Consumption (kWh) | 45340 |

## 3.2. Thermal Energy / Transportation

One Bus is operated from college for transportation. LPG is used for cooking in the canteen and diesel is used to operate Diesel Generators.

# 4

# Energy Balance




47 % of the total energy consumed in this facility is used to operate Fans. Lighting uses 16% UPS and IT Uses 19%. Others uses 18%.

# 5

# Performance evaluation of major utilities and process equipment's /systems.

## 5.1. List of equipment and process where performance testing was done.

5.1.1. Electrical System

5.1.2. Lighting & Fans

## 5.2. Results of performance testing

### 5.2.1. Electrical System

The average unit cost of electricity is **7.00 Rs/kWh**. This is taken as the basis for the financial analysis of electrical energy efficiency projects. The information on average energy consumption is taken from the historical electricity bill analysis.

## Electricity Consumption

| Electricity Bill Details (2022-23) | | | | | | |
|---|---|---|---|---|---|---|
| Name of the Consumer | | | Payyanur College, Payyanur | | | |
| Connected Load (kW) | | | 78 | Consumer no | 1166396000079 | |
| Tariff | | LT-6A Ndom | | Section | Kunhimangalam | |
| Month | kWh | Fixed charge (Rs) | Energy charge (Rs) | Duty (Rs) | Meter rent (Rs) | Total amount to be paid (Rs) |
| Apr-22 | 2479 | 5460 | 23825 | 2383 | 0 | 31668 |
| May-22 | 973 | 5460 | 4865 | 487 | 0 | 10812 |
| Jun-22 | 2325 | 5460 | 11625 | 1163 | 0 | 18248 |
| Jul-22 | 2479 | 5460 | 16000 | 1600 | 0 | 23060 |
| Aug-22 | 1912 | 5460 | 9560 | 956 | 0 | 15976 |
| Sep-22 | 1694 | 5460 | 8470 | 847 | 0 | 14777 |
| Oct-22 | 1823 | 5460 | 9115 | 912 | 0 | 15487 |
| Nov-22 | 1859 | 5460 | 9295 | 930 | 0 | 15685 |
| Dec-22 | 2988 | 5460 | 14940 | 1494 | 0 | 21894 |
| Jan-23 | 1958 | 5460 | 9790 | 979 | 0 | 16229 |
| Feb-23 | 2438 | 5460 | 12190 | 1219 | 0 | 18869 |
| Mar-23 | 2479 | 5460 | 19085 | 1909 | 0 | 26454 |

| Electricity Bill Details (2022-23) | | | | | | |
|---|---|---|---|---|---|---|
| Name of the Consumer | | | Payyanur College, Payyanur | | | |
| Connected Load (kW) | | | 2 | Consumer no | 1166396000080 | |
| Tariff | | LT-6A Ndom | | Section | Kunhimangalam | |
| Month | kWh | Fixed charge (Rs) | Energy charge (Rs) | Duty (Rs) | Meter rent (Rs) | Total amount to be paid (Rs) |
| Apr-22 | 33 | 120 | 165 | 17 | 17.7 | 319 |
| Jun-22 | 4 | 120 | 20 | 2 | 17.7 | 160 |
| Aug-22 | 20 | 120 | 100 | 10 | 17.7 | 248 |
| Oct-22 | 19 | 120 | 95 | 10 | 17.7 | 242 |
| Dec-22 | 86 | 120 | 430 | 43 | 17.7 | 611 |
| Feb-23 | 73 | 120 | 365 | 37 | 17.7 | 539 |

| Electricity Bill Details (2022-23) | | | | | | |
|---|---|---|---|---|---|---|
| Name of the Consumer | | | **Payyanur College, Payyanur** | | | |
| Connected Load (kW) | | | **6** | Consumer no | **1166394001043** | |
| Tariff | | **LT-4A Ndom** | | Section | **Kunhimangalam** | |
| Month | kWh | Fixed charge (Rs) | Energy charge (Rs) | Duty (Rs) | Meter rent (Rs) | Total amount to be paid (Rs) |
| Apr-22 | 1730 | 120 | 10380 | 1038 | 17.7 | 11556 |
| May-22 | 2041 | 120 | 12246 | 1225 | 17.7 | 13608 |
| Jun-22 | 429 | 120 | 2574 | 257 | 17.7 | 2969 |
| Jul-22 | 663 | 120 | 3978 | 398 | 17.7 | 4514 |
| Aug-22 | 493 | 120 | 2958 | 296 | 17.7 | 3392 |
| Sep-22 | 548 | 120 | 3288 | 329 | 17.7 | 3755 |
| Oct-22 | 531 | 120 | 3186 | 319 | 17.7 | 3642 |
| Nov-22 | 487 | 120 | 2922 | 292 | 17.7 | 3352 |
| Dec-22 | 704 | 120 | 4224 | 422 | 17.7 | 4784 |
| Jan-23 | 366 | 120 | 2196 | 220 | 17.7 | 2553 |
| Feb-23 | 441 | 120 | 2646 | 265 | 17.7 | 3048 |
| Mar-23 | 544 | 120 | 3264 | 326 | 17.7 | 3728 |

| Electricity Bill Details (2022-23) | | | | | | |
|---|---|---|---|---|---|---|
| Name of the Consumer | | | **Payyanur College, Payyanur** | | | |
| Connected Load (kW) | | | **2** | Consumer no | **1166393000082** | |
| Tariff | | **LT-6A Ndom** | | Section | **Kunhimangalam** | |
| Month | kWh | Fixed charge (Rs) | Energy charge (Rs) | Duty (Rs) | Meter rent (Rs) | Total amount to be paid (Rs) |
| Apr-22 | 0 | 120 | 0 | 0 | 17.7 | 138 |
| Jun-22 | 1 | 120 | 5 | 1 | 17.7 | 143 |
| Aug-22 | 0 | 120 | 0 | 0 | 17.7 | 138 |
| Oct-22 | 0 | 120 | 0 | 0 | 17.7 | 138 |
| Dec-22 | 0 | 120 | 0 | 0 | 17.7 | 138 |
| Feb-23 | 0 | 120 | 0 | 0 | 17.7 | 138 |

| Electricity Bill Details (2022-23) | | | | | | |
|---|---|---|---|---|---|---|
| Name of the Consumer | | | **Payyanur College, Payyanur** | | | |
| Connected Load (kW) | | | **19** | Consumer no | **1166390009225** | |
| Tariff | | **LT-6B Ndom** | | Section | **Kunhimangalam** | |
| Month | kWh | Fixed charge (Rs) | Energy charge (Rs) | Duty (Rs) | Meter rent (Rs) | Total amount to be paid (Rs) |
| Apr-22 | 1658 | 120 | 9948 | 995 | 17.7 | 11081 |
| May-22 | 227 | 120 | 1362 | 136 | 17.7 | 1636 |
| Jun-22 | 301 | 120 | 1806 | 181 | 17.7 | 2124 |
| Jul-22 | 1329 | 120 | 7974 | 797 | 17.7 | 8909 |
| Aug-22 | 1053 | 120 | 6318 | 632 | 17.7 | 7088 |
| Sep-22 | 949 | 120 | 5694 | 569 | 17.7 | 6401 |
| Oct-22 | 948 | 120 | 5688 | 569 | 17.7 | 6395 |
| Nov-22 | 1335 | 120 | 8010 | 801 | 17.7 | 8949 |
| Dec-22 | 1806 | 120 | 10836 | 1084 | 17.7 | 12057 |
| Jan-23 | 1148 | 120 | 6888 | 689 | 17.7 | 7715 |
| Feb-23 | 1469 | 120 | 8814 | 881 | 17.7 | 9833 |
| Mar-23 | 1567 | 120 | 9402 | 940 | 17.7 | 10480 |

| Electricity Bill Details (2022-23) | | | | | | |
|---|---|---|---|---|---|---|
| Name of the Consumer | | | **Payyanur College, Payyanur** | | | |
| Connected Load (kW) | | | **1** | Consumer no | **1166390015190** | |
| Tariff | | **LT-7A Ndom** | | Section | **Kunhimangalam** | |
| Month | kWh | Fixed charge (Rs) | Energy charge (Rs) | Duty (Rs) | Meter rent (Rs) | Total amount to be paid (Rs) |
| Apr-22 | 99 | 120 | 495 | 50 | 17.7 | 682 |
| Jun-22 | 125 | 120 | 625 | 63 | 17.7 | 825 |
| Aug-22 | 213 | 120 | 1065 | 107 | 17.7 | 1309 |
| Oct-22 | 575 | 120 | 2875 | 288 | 17.7 | 3300 |
| Dec-22 | 839 | 120 | 4195 | 420 | 17.7 | 4752 |
| Feb-23 | 622 | 120 | 3110 | 311 | 17.7 | 3559 |

| Annual Electricity Consumption (kWh) | | | |
|---|---|---|---|
| **Consumer No** | **2021-22** | **2022-23** | **Connected Load (kW)** |
| 1166396000079 | 13907 | 25407 | 78 |
| 1166396000080 | 67 | 235 | 2 |
| 1166393001873 | 0 | 113 | 1 |
| 1166394001043 | 1200 | 5206 | 6 |
| 1166393000082 | 1 | 1 | 2 |
| 1166390009225 | 7659 | 11905 | 19 |
| 1166390015190 | 207 | 2473 | 1 |
| Total | 23041 | 45340 | 109 |

### 5.2.2. Diesel

The campus has a Diesel Generator. The details of Diesel consumption are given below.

| Diesel Consumption Details | | | | |
|---|---|---|---|---|
| | Transportation | Generator | Total | cost |
| | in L | in L | in L | in Rs |
| 21-22 | 0 | 266 | 266 | 25000 |
| 22-23 | 1029 | 257 | 1286 | 125000 |

| **Base Line Energy Data** | | | |
|---|---|---|---|
| **Payyanur College, Payyanur** | | | |
| | | 2021-22 | 2022-23 |
| 1 | Electricity KSEB (kWh) | 23041 | 45340 |
| 2 | Electricity DG (kWh) | 798 | 772 |
| 3 | Electricity Solar , Off grid (kWh) | 6867 | 6867 |
| 4 | Electricity (KSEB + DG + Off grid) kWh | 30705 | 52978 |
| 5 | Electricity Grid Tied (kWh) | 26289 | 27466 |
| 6 | Diesel (L) | 266 | 1286 |
| 7 | LPG (kg) | 2457.33 | 2533.33 |
| 8 | Biogas generated/year (kg) | 412.50 | 247.50 |

| Energy Consumption Profile | | | |
|---|---|---|---|
| Sl No | Fuel | 2021-22 | 2022-23 |
| | | kCal | kCal |
| 1 | Electricity | 26406455 | 45561361 |
| 2 | Diesel | 2791662 | 13505865 |
| 3 | LPG | 29488000 | 30400000 |
| 4 | Biogas | 1925000 | 1155000 |
| Total | | 60611117 | 90622226 |

### 5.2.3. Solar Power Plant

| Solar Power Plant | | |
|---|---|---|
| Capacity (kWp) | 2021-22 | 2022-23 |
| | Annual generation (kWh) | |
| 21.5 | 26289 | 27466 |

### 5.2.4. Lighting

| Payyanur College, Payyanur | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sl.No | Floor | Location | Lights | | | | | | |
| | | | LED-T | LED-B | LED-SQ | T5 | T8 | T12 | CFL |
| 1 | | Canteen | 17 | | | | | | |
| 2 | Main Block | Girls Room | 4 | | | | | | |
| 3 | | Classroom1 | 1 | | | | 1 | | |
| 4 | | Classroom2 | 2 | | | | 2 | | |
| 5 | | 2 Classrooms | 6 | | | | 2 | | |
| 6 | | 5 Classrooms | 5 | | | | 5 | | |
| 7 | | Staffroom | 3 | | | | 1 | | |
| 8 | | Principal Room | | | 4 | | | | |
| 9 | | office | 10 | | | | 1 | | |
| 10 | | 3 Classrooms | 7 | | | | | | |
| 11 | | G1 | 3 | | | | | | |
| 12 | | Dept. of Management studies | 3 | | | | | | |
| 13 | | 4 Classrooms | 16 | | | | | | |
| 14 | | G4 | 3 | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15 | | Corridor | 8 | | | | | | |
| 16 | | B.Com 4Classrooms | 20 | | | | | | |
| 17 | | Commerce Department | 2 | | | | | | |
| 18 | | IQAC | | | 4 | | | | |
| 19 | | Computer Lab | | | 2 | | | | |
| 20 | | Department Room | 5 | | | | | | |
| 21 | | 9 Classrooms | 27 | | | | | | |
| 22 | | English Department | 5 | | | | | | |
| 23 | Life Science Block | library | 2 | | | | | | |
| 24 | | botany Lab | 9 | 3 | | | | | |
| 25 | | Msc. Plant Science Classroom | 6 | | | | | | |
| 26 | | Botany Department Staffroom | 4 | | | | | | |
| 27 | | zoology lab | 9 | 5 | | | | | |
| 28 | | Zoology Department Staffroom | 4 | | | | | | |
| 29 | | Msc. Zoology | 6 | | | | | | |
| 30 | Physical Science Lab | MSc Chemistry | 2 | 1 | | | 1 | | |
| 31 | | Chemistry Department | 1 | 4 | | | 2 | | |
| 32 | | Chemistry Lab | 9 | 2 | | | 3 | | 2 |
| 33 | | BSc Chemistry | 7 | 14 | | | 1 | 1 | 1 |
| 34 | | Library | 2 | | | | | | |
| 35 | | Bsc Physics lab | 10 | | | | 2 | | |
| 36 | | Classroom | 3 | | | | 3 | | |
| 37 | | MSc Physics Lab | 4 | | | | | | |
| 38 | | Physics Department | | | | | | 2 | |
| 39 | | Classroom | 3 | | | | | | |
| 40 | Western Block | Economics Department | 1 | | | | | | |
| 41 | | 13 Classroom | 13 | | | | 26 | | |
| 42 | | 3 Departments | 6 | | | | | | |
| 43 | Seminar Block | 3 Classrooms | 12 | | | | | | |
| 44 | | seminar hall | | | | | | | |
| 45 | Hostel | 50 Rooms | 50 | | | | | | |
| 46 | | Corridor | 14 | | | | | | |
| 47 | | Auditorium | 10 | 2 | | | | 14 | |
| 48 | | Library | 41 | 4 | | | | | 1 |
| | | **Total** | **375** | **35** | **10** | **0** | **50** | **17** | **4** |

## 5.2.5. Lux Measurement

| Sl.No | Floor | Location | Avg |
|---|---|---|---|
| 1 | Main Block | Girls Room | 112 |
| 2 | | Classroom1 | 123 |
| 3 | | Classroom2 | 97 |
| 4 | | Staffroom | 123 |
| 5 | | Principal Room | 125 |
| 6 | | office | 134 |
| 7 | | G1 | 133 |
| 8 | | Dept. of Management studies | 123 |
| 9 | | G4 | 111 |
| 10 | | B.Com 4Classrooms | 124 |
| 11 | | Commerce Department | 125 |
| 12 | | IQAC | 126 |
| 13 | | Computer Lab | 112 |
| 14 | | Department Room | 125 |
| 15 | | English Department | 134 |
| 16 | Life Science Block | library | 133 |
| 17 | | botany Lab | 123 |
| 18 | | Msc. Plant Science Classroom | 80 |
| 19 | | Botany Department Staffroom | 91 |
| 20 | | zoology lab | 134 |
| 21 | | Zoology Department Staffroom | 133 |
| 22 | | Msc. Zoology | 123 |
| 23 | Physical Science Lab | MSc Chemistry | 80 |
| 24 | | Chemistry Department | 123 |
| 25 | | Chemistry Lab | 80 |
| 26 | | BSc Chemistry | 91 |
| 27 | | Library | 135 |
| 28 | | Bsc Physics lab | 89 |
| 29 | | Classroom | 134 |
| 30 | | MSc Physics Lab | 164 |
| 31 | | Physics Department | 153 |
| 32 | | Classroom | 159 |
| 33 | | Economics Department | 164 |
| 34 | | seminar hall | 99 |
| 35 | | Auditorium | 88 |
| 36 | | Library | 128 |

# 6

# Energy efficiency in utility and process system

The specific energy consumption is normally taken as the ratio of total energy consumed to the total are of building.

| OTTOTRACTIONS- ENERGY AUDIT | | | |
|---|---|---|---|
| Payyanur College, Payyanur | | | |
| Energy Performance Index (EPI) | | | |
| **Sl No** | **Particulars** | 2021-22 | 2022-23 |
| 1 | Total building area ($m^2$) | 18286.23 | 18286.23 |
| 2 | Annual Energy Consumption (kCal) | 60611117 | 90622226 |
| 3 | Annual Energy Consumption (kWh) | 70478 | 105375 |
| 4 | Total Energy in Toe | 6.06 | 9.06 |
| 5 | Specific Energy Consumption kWh/$m^2$ | 3.85 | 5.76 |

**The Energy Performance Index (EPI) is**

**5.76 kWh/$m^2$**

The EPI of 2022-23 may be taken as benchmark.

# 7

# Evaluation of energy management system

## Energy management policy

There is no written energy policy available, but environment policy is available which includes energy conservation also. A draft energy management policy is given below. The management may constitute an energy management policy and display the same in the plant to motivate the staff.

**PAYYANUR COLLEGE,**
**PAYYANUR**

*ENERGY POLICY*

*(Draft)*

*We are committed to optimally utilize various forms of energy in a cost effective manner to effect conservation of energy resources. We are committed to conserve the energy which is a scarce resource with the requisite consistency in the efficiency, effectiveness in the cost involved in the operations and ensuring that production quality and quantity, environment, safety, health of people are maintained. We are also committed to increase the renewable energy share of the total energy we use.*

***We are also committed to monitor continuously the saving achieved and reduce its specific energy consumption by minimum of 2% every year.***

*Date ----------*

*Head of the Institution*

## 7.1. Energy management monitoring system

- **Energy Management Cell** has to be constituted with an objective to revise action plan for energy conservation thereby reducing the production cost.
- Energy conservation tips/ posters are displayed in crucial points.
- Use of renewable energy has to be encouraged.

## 7.2. Training to staff responsible for operational and Documentation.

- The staff and students need to be made more aware of the importance of energy saving and management.
- Log books shall be maintained to record Electricity Consumption and Diesel consumption.
- Meter reading shall be taken and compared with KSEB regularly.
- Better operating practices regarding appliances and fixtures should be taught to the staff.

## 7.3. Best Practices

- Have solid waste management program
- Conducted Green Audit.
- Have different social and environmental clubs
- Installed LED bulbs
- Conducted Energy Conservation Training Programs
- Installed 21.5kWp Solar power plant.

# 8

# Energy Conservation Measures and Recommendations

| Executive Summary | | | | | |
|---|---|---|---|---|---|
| Consolidated Cost Benefit Analysis of Energy Efficiency Improvement Projects | | | | | |
| Payyanur College, Payyanur | | | | | |
| Sl No | Projects | Investment | Cost saving (in Lakhs) | SPB (Simple Pay Back) | Energy saved |
| | | (Lakhs Rs) | (Rs)/Yr | Months | kWh/Yr |
| 1 | Energy Saving in Lighting by replacing existing 50 No's T8 (40W) Lamps to 18W LED Tube | 0.15 | 0.074 | 24.35 | 1056 |
| 2 | Energy Saving in Lighting by replacing existing 17 No's T12 (55W) Lamps to 18W LED Tube | 0.05 | 0.032 | 19.38 | 451 |
| 3 | Energy Saving in Lighting by replacing existing 4 No's CFL(15W) Lamps to 9W LED Bulb | 0.004 | 0.001 | 35.71 | 17 |
| 4 | Energy Saving by replacing existing 371 No's in-efficent ceiling fans with Energy Efficient Five star fans | 11.13 | 0.489 | 273.32 | 6981 |
| 5 | Installation of 20kWp Solar Power Plant | 11.00 | 3.641 | 36.26 | 27375 |
| | **Total** | **22.33** | **4.24** | **77.81** | **35880** |
| (The saving are projected as per the assumed operation time observed based in the discussions with the plant officials. The data of saving percentages are taken from BEE guide books and field measurements.) | | | | | |

| OTTOTRACTIONS- ENERGY AUDIT | |
|---|---|
| Energy Saving Proposal Code 1 | |
| **Energy Saving in Lighting by replacing existing 50 No's T8 (40W) Lamps to 18W LED Tube** | |
| **Existing Scenario** | |
| 50 numbers of T8(40 W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%. | |
| **Proposed System** | |
| The existing T8 may be replaced to LED Tube of 18W in phased manner and the savings will be of 55% (inclusive of improved light output and reduced energy consumption) | |
| **Financial Analysis** | |
| Annual working hours (hr) | 2400 |
| No of fittings | 50 |
| Total load (kW) | 2.00 |
| Annual Energy Consumption (kWh) | 1920 |
| Expected Annual Energy saving for replacing all fittings (kWh) | 1056 |
| Cost of Power (Rs) | 7.00 |
| Annual saving in Lakhs Rs (1st year) | 0.07 |
| Investment required for complete replacements [@Rs 300 per fittings](Lakhs Rs) | 0.15 |
| Simple Pay Back (in Months) | 24.35 |

| OTTOTRACTIONS- ENERGY AUDIT | |
|---|---|
| Energy Saving Proposal Code 2 | |
| **Energy Saving in Lighting by replacing existing 17 No's T12 (55W) Lamps to 18W LED Tube** | |
| **Existing Scenario** | |
| 17 numbers of T12(55 W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%. | |
| **Proposed System** | |
| The existing T12 may be replaced to LED Tube of 18W in phased manner and the savings will be of 67% (inclusive of improved light output and reduced energy consumption) | |
| **Financial Analysis** | |
| Annual working hours (hr) | 2400 |
| No of fittings | 17 |
| Total load (kW) | 0.94 |
| Annual Energy Consumption (kWh) | 673 |
| Expected Annual Energy saving for replacing all fittings (kWh) | 451 |
| Cost of Power (Rs) | 7.00 |
| Annual saving in Lakhs Rs (1st year) | 0.03 |
| Investment required for complete replacements [@Rs 300 per fittings](Lakhs Rs) | 0.05 |
| Simple Pay Back (in Months) | 19.38 |

| OTTOTRACTIONS- ENERGY AUDIT | |
|---|---|
| Energy Saving Proposal 3 | |
| **Energy Saving by replacing existing 371 No's in-efficent ceiling fans with Energy Efficient Five star fans** | |
| **Existing Scenario** | |
| There are 371 numbers of ceiling fans installed in the facilty with minimum 8 hrs a day operation. All are conventional type and most of them are very old. | |
| **Proposed System** | |
| There is an energy saving opportunity in replace the existing fans with new five star labelled fans.The five star labelled fans give a savings up to 30% with higher service value (air delivery/watt). | |
| **Financial Analysis** | |
| Annual working hours (hrs) | 2400 |
| Total numbers of ordinary fans | 371 |
| Total load (kW) | 25.97 |
| Annual Energy Consumption (kWh) | 24931 |
| Expected Annual Energy saving, for total replacement(kWh) | 6981 |
| Cost of Power (Rs) | 7.00 |
| Annual saving in Lakhs Rs (1st year) | 0.49 |
| Investment required for a total replacement (Lakhs Rs)[@3000 Rs per Fan with 50W at full speed] | 11.13 |
| Simple Pay Back (in Months) | 273.32 |

| OTTOTRACTIONS- ENERGY AUDIT | |
|---|---|
| Energy Saving Proposal 4 | |
| **Energy Saving in Lighting by replacing existing 4 No's CFL(15W) Lamps to 9W LED Bulb** | |
| **Existing Scenario** | |
| 24 numbers of CFL (15W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%. | |
| **Proposed System** | |
| The existing CFL may be replaced to LED Bulb of 9W in phased manner and the savings will be of 40% (inclusive of improved light output and reduced energy consumption) | |
| **Financial Analysis** | |
| Annual working hours (hr) | 2400 |
| No of fittings | 4 |
| Total load (kW) | 0.06 |
| Annual Energy Consumption (kWh) | 43 |
| Expected Annual Energy saving for replacing all fittings (kWh) | 17 |
| Cost of Power (Rs) | 7.00 |
| Annual saving in Lakhs Rs (1st year) | 0.001 |
| Investment required for complete replacements [@Rs 90 per fittings](Lakhs Rs) | 0.004 |
| Simple Pay Back (in Months) | 35.71 |

| Energy Saving Proposal | |
|---|---|
| **Installation of 20kWp Solar Power Plant** | |
| **Existing Scenario** | |
| There is a good potential of solar power electricity generation. The availability of sunlight is very high. There are some canopies available in the proposed site, but by having proper trimming of trees this may be avoided. If the SPVs are place in the roof top it will help improving RTTV (Roof Thermal Transmit Value) of the building. | |
| **Proposed System** | |
| It is proposed to have a Solar Power Plant of 10kW at the beginning stage. The state and central government is pushing and giving good assistance to the installation. It can be installed as an internal grid connected system which is much cheaper than off grid system. Now days the technology provides trouble free grid interactive and connected system. The installation will provide 25yrs trouble free generation with only 20% efficiency loss at the 25th year. | |
| **Financial Analysis** | |
| Proposed Solar installed Capacity (kW) | 20 |
| Total average kWh per day expected (3.5kWh/day average) | 75.00 |
| Total annual Generating Capacity (kWh) | 27375 |
| Cost of energy generated annually Lakhs Rs | 3.64 |
| Investment required (INR lakh)(Approx) | 11.00 |
| Simple Pay Back (in Months) | 36.26 |
| Life cycle in Yrs | 25 |
| Total Saving in Life Cycle (Approx) RS lakh | 91.02 |

# Technical Supplements

| Payyanur College, Payyanur | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sl.No | Floor | Location | Lights | | | | | | | Fans | | | | IT | | | Projector | AC (1Tr) 3* | TV | Grinder | UPS | |
| | | | LED-T | LED-B | LED-SQ | T5 | T8 | T12 | CFL | CF | WF | EF | PF | Printer | Photostat | PC | | | | | 15 | 2 |
| 1 | | Canteen | 17 | | | | | | | 13 | | 2 | | | | | | | | 1 | | |
| 2 | Main Block | Girls Room | 4 | | | | | | | 2 | | | | | | | | | | | | |
| 3 | | Classroom1 | 1 | | | | 1 | | | 2 | | | | | | | | | | | | |
| 4 | | Classroom2 | 2 | | | | 2 | | | 4 | | | | | | | | | | | | |
| 5 | | 2 Classrooms | 6 | | | | 2 | | | 8 | | | | | | | | | | | | |
| 6 | | 5 Classrooms | 5 | | | | 5 | | | 20 | | | | | | | | | | | | |
| 7 | | Staffroom | 3 | | | | 1 | | | 5 | | | | 1 | | 2 | | | | | | |
| 8 | | Principal Room | | | 4 | | | | | | 2 | | 1 | 1 | | 1 | | 1 | 1 | | | |
| 9 | | office | 10 | | | | 1 | | | 11 | | | | 2 | 1 | 10 | | | | | | |
| 10 | | 3 Classrooms | 7 | | | | | | | 5 | | | | | | | | | | | | |
| 11 | | G1 | 3 | | | | | | | 4 | | | | | | | | | | | | |
| 12 | | Dept. of Management studies | 3 | | | | | | | 4 | | | | 1 | | 1 | | | | | | |
| 13 | | 4 Classrooms | 16 | | | | | | | 24 | | | | | | | 4 | | | | | |
| 14 | | G4 | 3 | | | | | | | 4 | | | | | | | | | | | | |
| 15 | | Corridor | 8 | | | | | | | | | | | | | | | | | | | |
| 16 | | B.Com 4Classrooms | 20 | | | | | | | 24 | | | | | | | 4 | | | | | |
| 17 | | Commerce Department | 2 | | | | | | | 6 | | | | 1 | | 1 | | | | | | |
| 18 | | IQAC | | | 4 | | | | | | 3 | | | 1 | | 4 | 1 | 1 | | | | |
| 19 | | Computer Lab | | | 2 | | | | | | 8 | | | | | 52 | | 3 | | | 1 | |

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | Department Room | 5 | | | | | | | 5 | | | | 3 | | 2 | | | | | | |
| 21 | | 9 Classrooms | 27 | | | | | | | 36 | | | | | | | 7 | | | | | |
| 22 | | English Department | 5 | | | | | | | 5 | | | | 1 | | 1 | | | | | | |
| 23 | Life Science Block | library | 2 | | | | | | | | | | | | | | | | | | | |
| 24 | | botany Lab | 9 | 3 | | | | | | 8 | | | | | | | 1 | | | | | |
| 25 | | Msc. Plant Science Classroom | 6 | | | | | | | 4 | | | | | | | 1 | | | | | |
| 26 | | Botany Department Staffroom | 4 | | | | | | | 3 | 1 | | | 1 | | 2 | | | | | | |
| 27 | | zoology lab | 9 | 5 | | | | | | 8 | | | | | | | 1 | | | | | |
| 28 | | Zoology Department Staffroom | 4 | | | | | | | 3 | 1 | | | 1 | | 2 | | | | | | |
| 29 | | Msc. Zoology | 6 | | | | | | | 4 | | | | | | | 1 | | | | | |
| 30 | Physical Science Lab | MSc Chemistry | 2 | 1 | | | 1 | | | 2 | | | | | | | 1 | | | | | |
| 31 | | Chemistry Department | 1 | 4 | | | 2 | | | 4 | | | | | | 1 | | | | | | |
| 32 | | Chemistry Lab | 9 | 2 | | | 3 | | 2 | | | 4 | | | | | | | | | | |
| 33 | | BSc Chemistry | 7 | 14 | | | 1 | 1 | 1 | 1 | 2 | 10 | 1 | | | | | | | | | |
| 34 | | Library | 2 | | | | | | | 2 | | | | | | | | | | | | |
| 35 | | Bsc Physics lab | 10 | | | | 2 | | | 10 | | | | | | 1 | | | | | | |
| 36 | | Classroom | 3 | | | | 3 | | | 6 | | | | | | | | | | | | |
| 37 | | MSc Physics Lab | 4 | | | | | | | 8 | | | | | | | | | | | | |
| 38 | | Physics Department | | | | | | 2 | | 4 | | | | 1 | | 1 | | | | | | |
| 39 | | Classroom | 3 | | | | | | | 2 | | | | | | | 1 | | | | | |
| 40 | Western Block | Economics Department | 1 | | | | | | | 1 | | | | | | | | | | | | |
| 41 | | 13 Classroom | 13 | | | | 26 | | | 26 | | | | | | | 16 | | | | | |
| 42 | | 3 Departments | 6 | | | | | | | 6 | | | | 3 | | 3 | | | | | | |
| 43 | Seminar Block | 3 Classrooms | 12 | | | | | | | 9 | | | | | | | | | | | | |
| 44 | | seminar hall | | | | | | | | | | | | | | | | | | | | |
| 45 | Hostel | 50 Rooms | 50 | | | | | | | 50 | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | | Corridor | 14 | | | | | | | 1 | | | | | | | | | | | | |
| 47 | | Auditorium | 10 | 2 | | | | 14 | | 20 | 2 | | | | | | | | | | | |
| 48 | | Library | 41 | 4 | | | | | 1 | 7 | 9 | 1 | | 2 | | | | | | | | 1 |
| | | **Total** | **375** | **35** | **10** | **0** | **50** | **17** | **4** | **371** | **28** | **17** | **2** | **19** | **1** | **84** | **38** | **5** | **1** | **1** | **1** | **1** |

CALL
1912
CUSTOMER CARE 24X7
KSEB

Demand/Disconnection Notice
( As per Reg 122 of Supply Code-2014 )
Kunhimangalam Section
0497-2811379
KSEBL-GSTIN:32AAECK2277N8Z1

C#: 1166394001043

Bill# : 6639220600718
Conn Id : 10182790
Name : PRINCIPAL PAYYANUR C
EDATKUNHIMANGALAMKA
C Status : Connected
Pole : NH-65/2
Trans : J K VILLA
Meter# : QD14715112
Bill Area : MO1/1/59
Bill Date : 01/06/2022
Due Date : 11/06/2022
Disconn Dt: 27/06/2022
Tariff : LT-4A Ind
Purpose : Pumping Water F
S Deposit : 8750
Meter(MM) Status OK
Load : 6 KW
C Demand : 5.6 KVA
Phase : 3
Prv Rd Dt : 03/05/2022
Prs Rd Dt : 01/06/2022
Nt Rd(OMF): 1

Prev. Payment

Prv Paid Dt : 07-05-2022
Prv Paid Amt : 12823

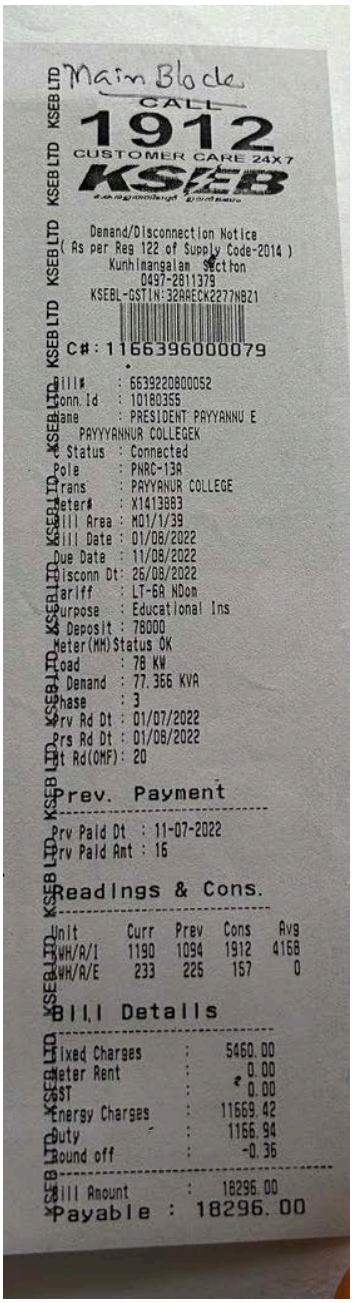
Readings & Cons.

| Unit | Curr | Prev | Cons | Avg |
|---|---|---|---|---|
| KWH/A/1 | 44464 | 44035 | 429 | 1337 |

Bill Details

| | | |
|---|---|---|
| Fixed Charges | : | 120.00 |
| Meter Rent | : | 17.70 |
| Energy Charges | : | 2423.85 |
| Duty | : | 242.38 |
| Round off | : | 0.07 |
| Bill Amount | : | 2804.00 |
| ACD/ADJ | : | 8144.00 |
| Advance | : | 372.00 |

Payable : 10576.00



Main Block

CALL
1912
CUSTOMER CARE 24X7
KSEB

Demand/Disconnection Notice
( As per Reg 122 of Supply Code-2014 )
Kunhimangalam Section
0497-2811379
KSEBL-GSTIN:32AAECK2277N8Z1

C#: 1166396000079

Bill# : 6639220800052
Conn Id : 10180355
Name : PRESIDENT PAYYANNU E
PAYYYANNUR COLLEGEK
C Status : Connected
Pole : PNRC-13A
Trans : PAYYANUR COLLEGE
Meter# : X1413883
Bill Area : MO1/1/39
Bill Date : 01/08/2022
Due Date : 11/08/2022
Disconn Dt: 26/08/2022
Tariff : LT-6A NDom
Purpose : Educational Ins
S Deposit : 78000
Meter(MM) Status OK
Load : 78 KW
C Demand : 77.366 KVA
Phase : 3
Prv Rd Dt : 01/07/2022
Prs Rd Dt : 01/08/2022
Nt Rd(OMF): 20

Prev. Payment

Prv Paid Dt : 11-07-2022
Prv Paid Amt : 15

Readings & Cons.

| Unit | Curr | Prev | Cons | Avg |
|---|---|---|---|---|
| KWH/A/1 | 1190 | 1094 | 1912 | 4168 |
| KWH/A/E | 233 | 225 | 157 | 0 |

Bill Details

| | | |
|---|---|---|
| Fixed Charges | : | 5460.00 |
| Meter Rent | : | 0.00 |
| GST | : | 0.00 |
| Energy Charges | : | 11669.42 |
| Duty | : | 1166.94 |
| Round off | : | -0.36 |
| Bill Amount | : | 18296.00 |

Payable : 18296.00

# ELECTRICAL SECTION KUNHIMANGALAM

## CONSUMER No. 1166396000079

## Solar OnGrid Consumption Adjustment Report

| Bill Month | Consumer # | Import | Export | Net Rdg (+ve Import -ve Export) | Zone Code | Consu Mption | Ban Ked Ene Rgy | Factor | Solar Energy (Bank Ene Rgy X Factor) | Adju Sted from Bank | Billed Consu Mption | Ban Ked Bala Nce | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 202109 | 1166396000079 | 188 | 28 | 160 | A | 188 | 0 | 1 | 0 | 0 | 160 | 0 | |
| 202110 | 1166396000079 | 1696 | 0 | 1696 | A | 1696 | 0 | 1 | 0 | 0 | 1696 | 0 | |
| 202111 | 1166396000079 | 2241 | 116 | 2125 | A | 2241 | 0 | 1 | 0 | 0 | 2125 | 0 | |
| 202112 | 1166396000079 | 2144 | 416 | 1728 | A | 2144 | 0 | 1 | 0 | 0 | 1728 | 0 | |
| 202201 | 1166396000079 | 1443 | 901 | 542 | A | 1443 | 0 | 1 | 0 | 0 | 542 | 0 | |
| 202202 | 1166396000079 | 1218 | 798 | 420 | A | 1218 | 0 | 1 | 0 | 0 | 420 | 0 | |
| 202203 | 1166396000079 | 1687 | 486 | 1201 | A | 1687 | 0 | 1 | 0 | 0 | 1201 | 0 | |
| 202204 | 1166396000079 | 4765 | 396 | 4369 | A | 4765 | 0 | 1 | 0 | 0 | 4369 | 0 | |
| 202205 | 1166396000079 | 973 | 1227 | -254 | A | 973 | 0 | 1 | 0 | 0 | 0 | 254 | |
| 202206 | 1166396000079 | 2325 | 0 | 2325 | A | 2325 | 0 | 1 | 0 | 0 | 2071 | 0 | |
| 202207 | 1166396000079 | 3200 | 135 | 3065 | A | 3200 | 0 | 1 | 0 | 0 | 3065 | 0 | |
| 202208 | 1166396000079 | 1912 | 157 | 1755 | A | 1912 | 157 | 1 | 157 | 157 | 1755 | 0 | |
| 202209 | 1166396000079 | 1694 | 466 | 1228 | A | 1694 | 466 | 1 | 466 | 466 | 1228 | 0 | |
| 202210 | 1166396000079 | 1823 | 840 | 983 | A | 1823 | 0 | 1 | 0 | 0 | 983 | 0 | |
| 202211 | 1166396000079 | 1859 | 568 | 1291 | A | 1859 | 568 | 1 | 568 | 568 | 1291 | 0 | |

# ELECTRICAL SECTION KUNHIMANGALAM

## CONSUMER No. 1166396000079

## Solar OnGrid Consumption Adjustment Report

| Bill Month | Consumer # | Zone Code | Import | Export | Export + Banked Energy | Factor | Solar Energy (Bank Energy X Factor) | Adjusted from Bank | Billed Consumption | Banked Balance | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 202212 | 1166396000079 | A | 2988 | 222 | 222 | 1 | 222 | 222 | 2766 | 0 | |
| 202301 | 1166396000079 | A | 1958 | 870 | 870 | 1 | 870 | 870 | 1088 | 0 | |
| 202302 | 1166396000079 | A | 2438 | 481 | 481 | 1 | 481 | 481 | 1957 | 0 | |
| 202303 | 1166396000079 | A | 3817 | 267 | 267 | 1 | 267 | 267 | 3550 | 0 | |
| 202304 | 1166396000079 | A | 3038 | 565 | 565 | 1 | 565 | 565 | 2473 | 0 | |
| 202305 | 1166396000079 | A | 1447 | 934 | 0 | 1 | 0 | 0 | 513 | 0 | |
| 202306 | 1166396000079 | A | 1961 | 602 | 602 | 1 | 602 | 602 | 1359 | 0 | |
| 202307 | 1166396000079 | A | 3297 | 195 | 195 | 1 | 195 | 195 | 3102 | 0 | |
| 202308 | 1166396000079 | A | 3246 | 96 | 96 | 1 | 96 | 96 | 3150 | 0 | |
| 202309 | 1166396000079 | A | 2762 | 494 | 494 | 1 | 494 | 494 | 2268 | 0 | |