



COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution)

(Affiliated to Anna University, Chennai & Approved by AICTE, New Delhi)

Established in 1956, A Unit of V.Rangasamy Naidu Educational Trust
CIVIL AERODROME POST, COIMBATORE-641 014, TAMILNADU, INDIA

Criterion VII–Institutional Values and Best Practices

Key Indicator - 7.1 Institutional Values and Social Responsibilities

7.1.2: Alternate sources of energy and energy conservation

Contents

- Solar Energy
- Bio-Gas Plant
- Wheeling to the Grid
- Use of LED Bulbs / Power Efficient Equipment

7.1.2. Alternative Source of Energy and Energy Conservation

Coimbatore Institute of Technology have taken steps to use alternative sources of energy and implement energy conservation measures, which include the following:

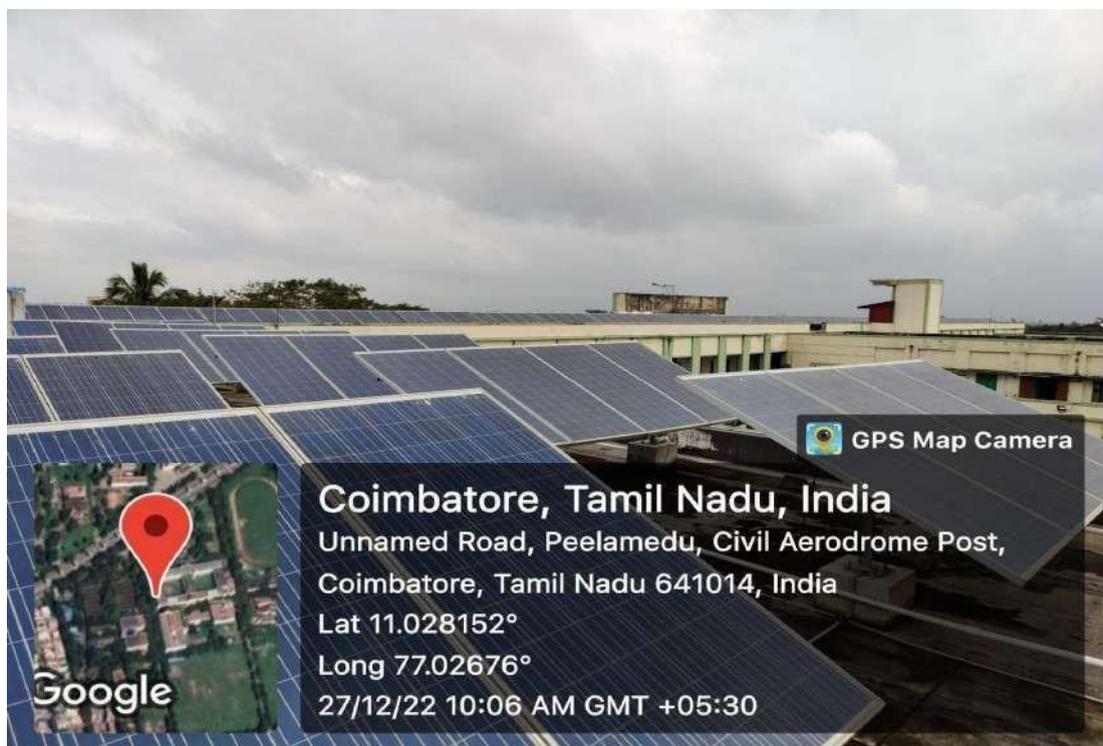
- Solar Energy
- Bio Gas Plant
- Wheeling to the grid
- Use of LED bulbs/Power Efficient Equipment

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7.1.2 - ALTERNATE SOURCES OF ENERGY

1. Solar Energy

Solar power is energy from the sun that is converted into thermal or electrical energy. Solar energy is the cleanest and most abundant renewable energy source available in the world. Solar technologies can harness this energy for a variety of uses, including generating electricity, providing light or a comfortable interior environment, and heating water for domestic, commercial, or industrial use. In college campus, the spacious roofs and open spaces that are flooded with sunlight for most of the days are perfect for installing a photovoltaic solar system to enjoy its benefits. Renewable energy is the future of employment, where harnessing solar for educational institutions can be a great way to teach students in a practical and interactive way photovoltaic systems and their future possibilities.



2. Biogas Plant

A biogas plant is a facility that provides oxygen-free conditions where anaerobic digestion can occur. Simply put, it is an artificial system where you can turn waste into sustainable energy and fertilizers, with positive effects on the environment. It reduces waste and produces energy. In addition, the residues from the digestion process can be used as high-quality fertilizer. This closes the nutrient cycle. By understanding the today's need of saving of energy, CIT taken an initiative & sets up Bio-Gas plant to process canteen waste. The canteen caters to more than 1500 students daily and generates over 75 kg of solid and semi-solid waste, in the form of left-over food and remains of vegetables and fruits. It was a tedious task to pack the huge amount of waste in polythene bags and hand them over to the civic body almost daily. It is now easy to dump this waste & processed at the biogas plant after some segregation.

The biogas plant aims at addressing the issue of disposal of waste from the canteen and other parts of the campus in an eco-friendly manner.



3. Wheeling to the grid

In electric power transmission, wheeling is the transportation of electric energy (megawatt-hours) from within an electrical grid to an electrical load outside the grid boundaries.

The college has a 390 kW capacity roof-top solar plant producing 45,000 units of electric power generation per month on average. Contributing 40% supply to the demand of college.

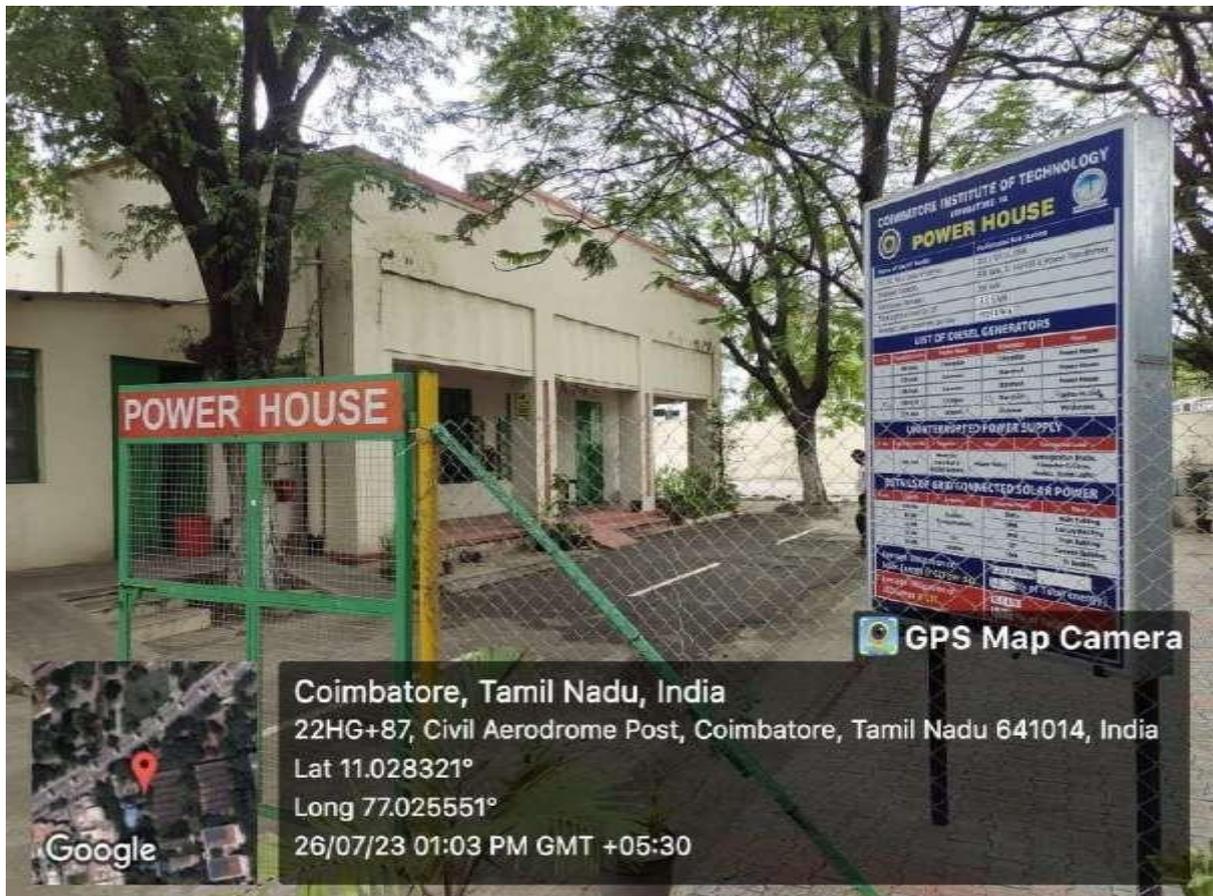
On holidays exporting solar generation to the grid (TANGEDCO). The solar generation saved the following energy expenditure.

1. Low power factor penalty by TANGEDCO is reduced to minimum.
2. Maximum Demand charges or Rs 475 for 100 KVA is reduced to minimum.



4. Use of LED bulbs/ power-efficient equipment

The college uses LED Lamps fitted across the institution in various place reduces the power consumption and contributes about 12.1% of total power that is being consumed by the lighting load(38.5kW out of 318 kW)





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COIMBATORE – 641 014.

ELECTRICAL MAINTENANCE & POWER HOUSE

Name of the HT feeder	Kallimadai Sub Station
H.T.SC. No	103
Installed Capacity (Incoming Transformer)	500 kVA, 11 kV/433 V, Power Transformer
Sanctioned Demand	350 kVA
Total Lighting Load including street light	322 kW
Average Load Consumed per day (During August 2023-January 2024)	4032 kWh

CAPTIVE POWER PLANT (LIST OF DIESEL GENERATORS)

Sl. No	Capacity in kVA	Engine Make	Alternator	Place
1.	500	Caterpillar	Caterpillar	Power House
2.	320	Cummins	Stamford	Power House
3.	100	Cummins	Stamford	Power House
4.	180	Cummins	Stamford	Ladies Hostel
5.	62.5	Leyland	Kirloskar	Polytechnic

BACKUP POWER SYSTEM (UNINTERRUPTED POWER SUPPLY)

Sl. No	Capacity in kVA	Supplier	Place	Connected Load
1.	300 kVA	Novateur Electrical & Digital Systems	Power House	Administrative Blocks, Computer Centres, Hostels, Street Lights

DETAILS OF GRID CONNECTED SOLAR PV POWER PLANTS

Sl. No	Capacity in kW	Supplier	Inverter Make	Place
1.	100	Swelect Energy Systems	Delta/ Growatt	Main Building
2.	60		SMA	Library Building
3.	20		SMA	Main Building
4.	100	Kondaas Automation Pvt Ltd	SMA	IT Building
5.	8.1	CIT	CIT	Canteen Building

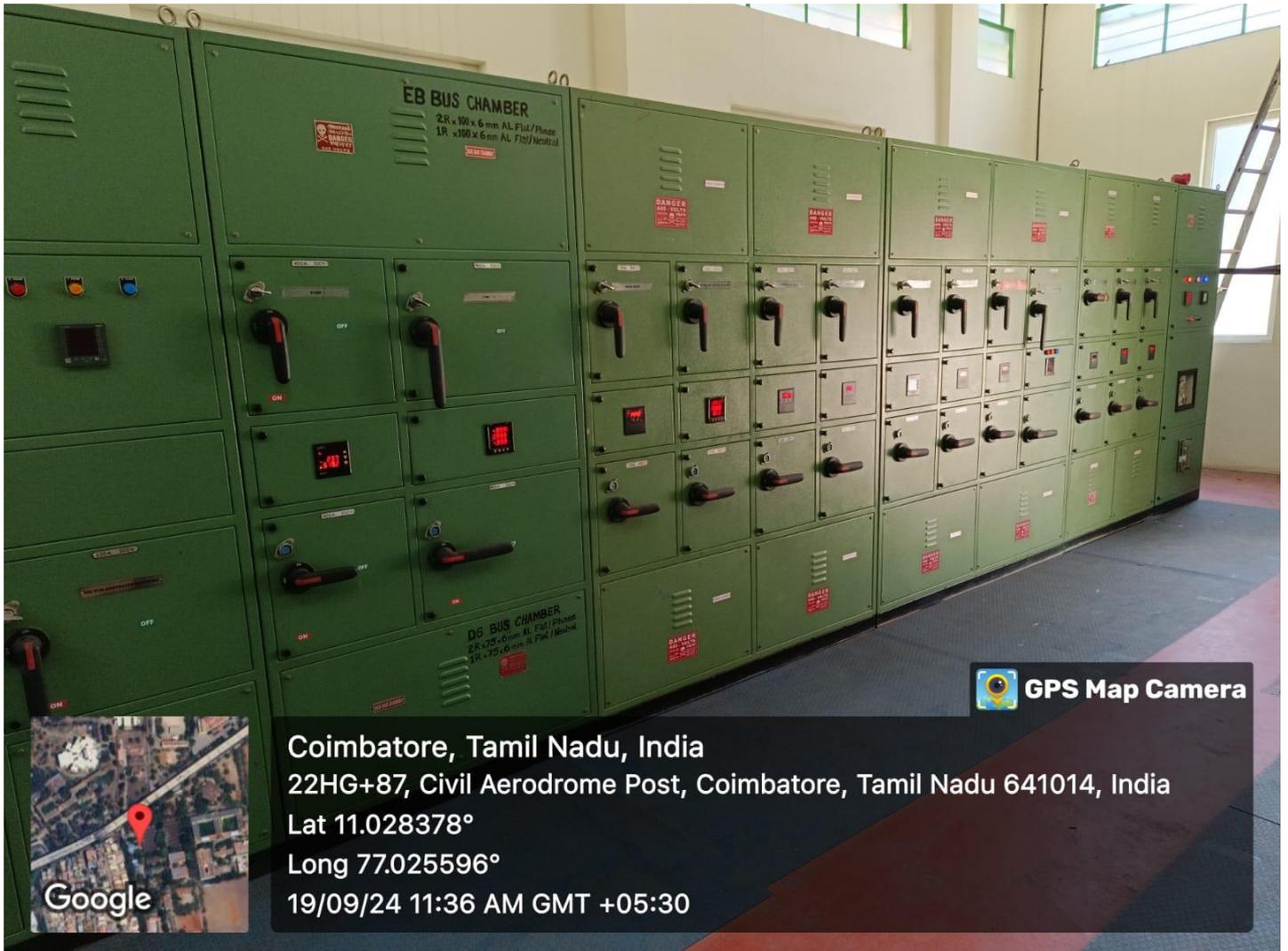
Average Utilization of Solar PV Energy @ CIT per day (During August 2023-January 2024)	813 kWh (16.78 % of Total energy)
Utilization of LED lamps @ CIT	43.0 kW
Average Utilization of Energy per day (Grid+SPV)	4845 kWh



500 kVA Outdoor Power Transformer



500 kVA Diesel Generator @ Power House



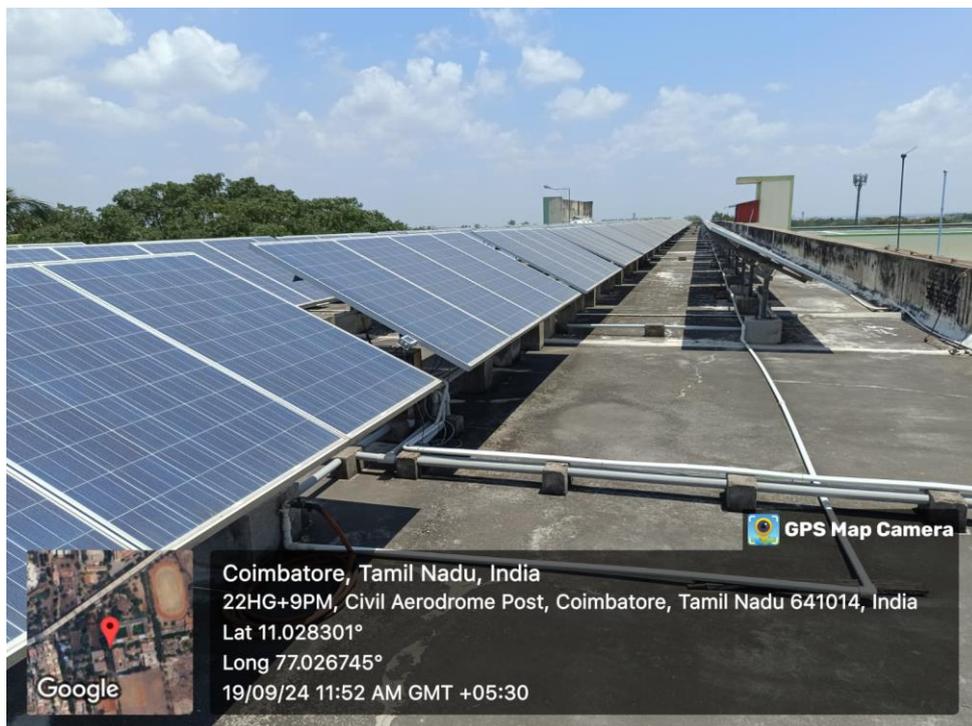
MV Panel @ Power House



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Sub Switch Board Panel @ Power House

120 kWp Solar PV Plant @ Main Building



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100 kWp Solar PV Plant @ IT Building

300 kVA Centralized UPS installed @ Power House

