

# COIMBATORE CITY MUNICIPAL CORPORATION

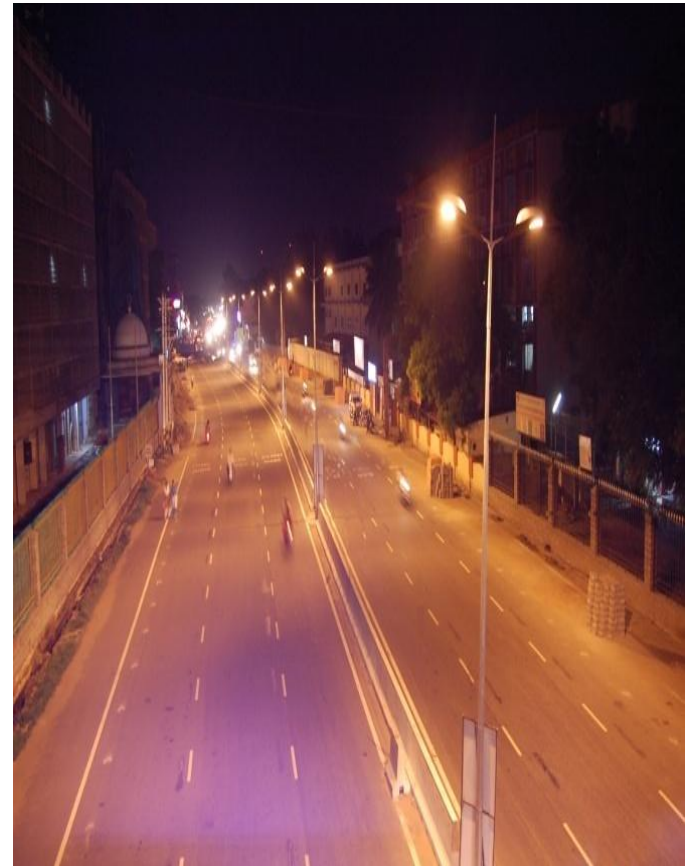


Nomination for National Energy Conservation Award-2013

# Annexure

# Street lighting system

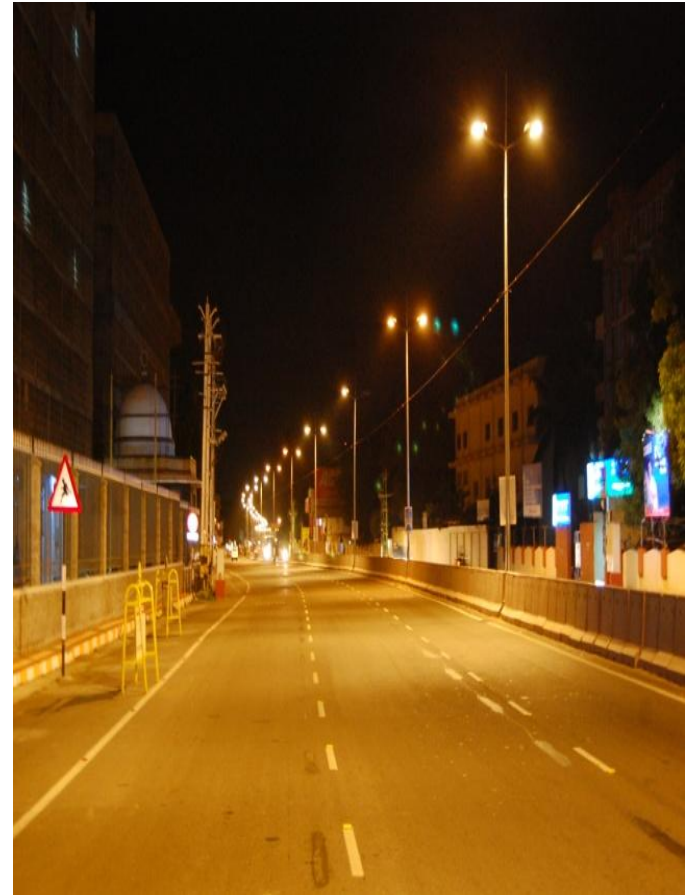
The Coimbatore Corporation takes a qualified pride in stating that the corporation is maintaining 65411 street lights with the defined norms of 30 meters streetlight pole intervals. The Corporation privatized the operation and Maintenance (O& M) of streetlights in all the five zones. Since then the O & M contract has been given through open tender for every 3 years duration. A separate monitoring center for streetlights has been established by the Corporation in the Corporation's Engineering section and it is maintained by the Contractor. Every earnest effort has been taken by the Corporation to ensure burning of more than 98% of streetlights subject to the condition that the non burning lights should be made to burn within 48 hours. This Corporation happens to be the forerunner in this respect.



## Energy Saving Project

The project was implemented in the BOT model /PPP model so that the entire financial risk was on the ESCO / Contractor. The project period has been fixed as 5 years and the Corporation shares 95 % of the savings to the ESCO.

The Energy Saving is being done through Dimming of streetlights during off-break hours after Commercial establishments close down. For this purpose, during the Energy Audit, the roads were classified into 4 categories – A1, A2, B1 and B2. For A1 roads and commercially – active roads, the dimming is done after 11 pm. for all other roads, the dimming is done after 10pm. Presently, 140 service connections are being dimmed at 11pm and the remaining 2460 service connections are being dimmed at 10pm by this way the energy consumption is reduced considerably.



The electricity Bill before the implementation of the Energy Saving project was Rs.8,20,00,000/- per year. After the implementation of the project, there has been average saving of 32 % (79,51,512 units of electricity) amounting to the tune of Rs.2, 62,40,000/- per year .We have achieved an average energy demand reduction of 2 MW. For the first time in the whole of Tamil Nadu, Coimbatore Corporation has been implementing the project effectively.

The Energy saving project in street lighting is eligible for carbon credits as we are reducing the Carbon Emissions. For claiming the Carbon credits the ESCO was made responsible for getting the various approvals.

The newly added areas of the Corporation, 19446 tube lights are proposed to be replaced by LED lamps. In respect of the remaining Lamps necessary energy saving gadgets will be fixed and this project has been proposed at a project cost of Rs. 21.00 Crores. Regarding this the Investment grade audit is being done in the added areas. So based on the audit report the LED lights will be installed soon

In addition, apart from the above the Corporation has implemented Solar Street lights numbering 712 at a cost of Rs.187.00 Lakhs in the slum areas.

# Replacing conventional lighting system into LED lights

The Corporation has started replacing the existing conventional tube lights, sodium vapour lamps and CFL lights into LED lights . This drastic change has been necessitated as a result of energy audit which highlighted the heavy expenditure being incurred because of the use of the conventional light system. On the whole, there is a perceivable about 30% savings in the operational and maintenance cost of 210kw.



# Implementation of street lightings by solar system

Hitherto, the Corporation has all along been dependent upon usually electric power for street lightings . After duly finding out the ways and means to reduce power consumption, street lighting maintenance by solar energy has now been adopted in the various locations of the city. In all, the corporation has installed 712 solar street lights at a cost of Rs.1.87 Crores. Thus, the corporation has made a constructive beginning to achieve the objective of many solar street lights for street light maintenance in the long run which will certainly contribute energy savings as well as providing cleaner environment. When compared with initial capital cost in providing street light by way making deposits to the TANGEDCO and other connected heavy expenses, this solar lighting system will certainly prove to be a boon to the corporation.



# Energy Efficient Lighting in Coimbatore's New Bus Terminal

The Coimbatore Municipal Corporation has constructed a new bus terminal at the Mettupalayam Road in the city, connecting to the popular hill stations of Ooty and Coonoor. This bus stand is expected to be a major travel point for tourists. The original energy load was estimated at 79 kW. Based on a proposal by ICLEI South Asia, the CMC reworked out the lighting and cooling plan to incorporate energy efficient fittings. This project serves as a high profile demonstration project of the importance of addressing a building's operational energy usage.

- ❖ The energy efficient lighting at the new bus terminal is achieving the targeted energy savings.
- ❖ An introduction of energy efficient lighting and cooling fixtures.
- ❖ A reduction in the building's energy demand load by addressing the challenge of 'over-design'.
- ❖ A reduction in emissions through reduced energy consumption.
- ❖ Annual energy reduction is 13,600 KHz.
- ❖ Annual Co2 emission reduction is 585 Tonnes.

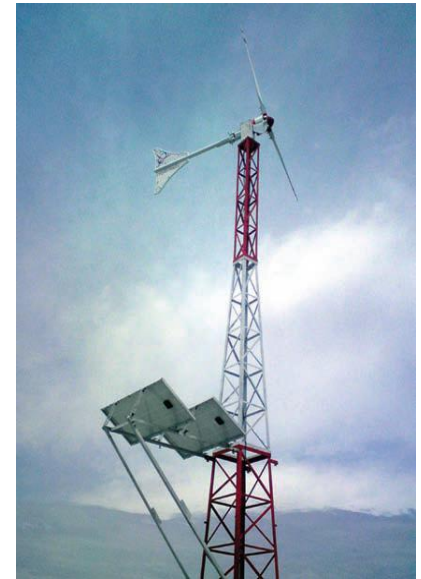




# Wind-Solar PV hybrid system in new bus stand

A hybrid wind and solar photo-voltaic energy system was installed at the Coimbatore Mettupalayam bus stand Meant to serve as a demonstration model for a hybrid system, displaying the combined benefits of both solar PV and wind energy, the system provides the primary back up to the bus terminal. its carried out for 3.5 power ( 3kW wind generator and 0.5 solar PV Panel)

- ❖ The hybrid energy project hopes to achieve the following targets in Coimbatore:
- ❖ To establish the hybrid energy system as a primary back-up power source for the bus stand.
- ❖ To promote the usage and importance of hybrid energy in the city.
- ❖ To pioneer the way for introducing hybrid energy usage at the local level and serving as a high profile demonstration project.
- ❖ The co-benefits of this project were observed as:
- ❖ Spreading awareness about hybrid energy technologies especially due to high visibility of the installation.
- ❖ Scaling up the installation by attracting attention of energy investors Energy and emissions reductions in the bus stand.



# Solar hot water system in coimbatore Corporation buildings

The solar water heating system has now been provided in the maternity centre / chivies and schools. This heating system is based on the principle of thermosyphon process and free circulation.

The following advantages have been derived because of this system.

- ❖ Reduction in the peak load.
- ❖ Global warming is eliminated .
- ❖ Higher efficiency in high temperature.
- ❖ Minimum space and highly economical.
- ❖ No maintenance involved.
- ❖ Durability assured.



# Energy efficiency project for corporation at JNNURM building

Furthering the agenda of addressing efficient energy usage and consumption in the building sector in Coimbatore, specifically in corporation-owned buildings, an energy saver was installed in the CMC's new JNNURM building in order to demonstrate the effect of an energy saver or energy management system to further reduce real-time energy consumption within a building. The installation was completed and has achieved savings of approximately 15% in the building's energy consumption.



- ❖ The project aims at to cut energy consumption in buildings via an electrical power saving device known as the Power Saver 1030 System.
- ❖ The purpose of the project activity is:
  - ❖ To cut down power consumption by the device's 'Load Optimizing Function.'
  - ❖ To save energy bills and obtain a corresponding emission reduction by reduced power usage.



# Solar energy conservation through implementation of solar power plant in the coimbatore city municipal corporation

The Coimbatore Corporation has recently opened Amma Unavagam Outlets in all zones of the Corporation. As a measure of economy to the maximum extent, the corporation has gone in for use of solar energy at these outlets to bring down cost of their maintenance to a considerable extent and also as a part of implementation of the green evolution. To begin with, solar power plants with a capacity of 2 kW have been installed at Amma Unavagam Outlets. People have been thronging at these outlets and there is therefore ample opportunity for them to be aware of the usefulness of the solar energy.

It is formed that 70% of power consumption is reduced and a monetary saving about Rs.1500 is ensured in respect of single outlet by way of the above arrangement. Furthermore, this system ensures uninterrupted power supply to the Amma Unavagam, thereby relieving the inconvenience of the power interruption.



# Solar concentrating cooking system

The Corporation has further chosen to install concentrated solar cooker at the corporation schools this as resulted in the following advantages.

- ❖ The cookers are completely relieved of firewood smoke.
- ❖ Environmental pollution is arrested.
- ❖ Cost of fuel is considerably reduced.
- ❖ School premises are kept clean free from pollution.



# Deep bore wells

In order to fulfil the water needs of a growing population, bore wells have been used in Coimbatore for a many years now in order to augment the drinking water supply. The Coimbatore Corporation itself owns over 700 such bore wells. These bore wells contribute substantially to the city's energy consumption. Due to this very reason, a tube well pilot audit was undertaken to ascertain the condition and state of the city's 700 tube wells and their potential in assessing this imbalance.

## The main benefits and outcomes of the pilot study are:

- ❖ 30% energy saving potential observed per bore well .
- ❖ Emission reductions estimated to be 2500 Tones / Year through citywide implementation of audit recommendations .
- ❖ Enabling an increased availability of water to the city through implementation of audit recommendations .
- ❖ The case for increased availability of water to the city was established.
- ❖ Annual Energy Reduction. as per project is 4084 kWh.
- ❖ Annual Co<sub>2</sub> emission reduction 3.5 Tones /Bore well / year.



# Gasifier crematorium

In order to bring down the O & M cost, considerably because of use of electric power at a crematoria, Gasifier system has been introduced in 3 crematoria namely (i) Thudialur, (ii) Najundapuram (ii) Singanallur. This system completely eliminates air and environmental pollution. In addition, the use of electric power is completely ruled out.

