



# Residential House Solar Modelling through Electrical Energy Audit

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## ABSTRACT

Reducing electricity consumption in commercial buildings is important in addressing the growing concerns of global warming, atmospheric quality and energy security. Energy audit is a proven effective measure for energy savings through identification of energy management opportunities for improvement by means of buildings. The energy study of various sector of commercial, industrial and residential area indicates that 5 to 20% of the energy can be saved. The power auditing is done in a residential home and concluded with suitable recommendations on solar modeling with ETAP to cut off electricity bill reasonably. From our Energy audit we prove that we can save up to 2358 units yearly.

**KEYWORDS :** Energy Audit, Energy Management and Energy Saving.

## I. INTRODUCTION

This Energy is the ability to do work and work is the transfer of one form of energy. Energy exists in several forms such as heat, kinetic, light, electrical energy. The entire progress of a country is dependent only on Energy. Recent days, energy saving has become essential rather than electricity generation. If we think for potential cost saving in each of the components (energy, material, employees), energy would invariably emerge at the top, so efficient use of energy and its conservation is the least cost option in any strategy. The energy demand is increasing because of the increasing population in country hence; country is facing peak power and average electricity shortage of 12% and 7% respectively. To satisfy the energy needs of Tamil Nadu, TNEB has a total installed capacity of 20103MW [1] which include of all, State Government, Central Government, Independent

power producer and renewable power generation. To meet the ever increasing energy demand, TNEB has proposed a number of next generation projects to be constructed. The per capita consumption of Tamil Nadu is 1000 units. It was found from the survey that India is the world's fifth largest electricity generator but still there are many places in India which are in dark and they are very far away from the term "electricity". So it's the time for energy saving. It is possible only by effective Energy Audit and Energy management.

## II. DATA OBSERVATION

An energy audit is an inspection, survey and analysis of energy flows for energy conservation in a building, process to reduce the amount of energy input into the system without negatively affecting the output. It shows where the power consumption is more in the given system. It can also be called as

