

Mantralaya, Mumbai.

Mantralaya is a administrative office of the Government of Maharashtra built in 1954- 55. having 3512 kw of total connected electrical load.

Even though Energy Conservation Act is to be implemented from March – 2007, The Chief Secretary, Government of Maharashtra has issued the orders to achieve 20% energy saving in Government Building throughout the state. Under the valuable guidance of the Chief Engineer (Electrical) & the Superintending Engineer (Electrical), energy conservation programme is implemented in Mantralaya since 2001 till date.

In view of energy conservation, different works such as replacement of 40w tubes by 28w E+ energy efficient tubes, replacement of GLS lamp by CFL, installation of APFC panels, Hot & cold water system, 3VF drives for lifts etc are executed in Mantralaya over the period of 2001 to 2005.

In the year 2004 – 05, following projects are executed to achieve the target of energy conservation.

1) Replacement of Conventional 40w tube fitting by 28w E+ energy efficient fittings :-

In the year 04-05, 3450 Nos of conventional tubes fittings are replaced by 28w E+ energy efficient tube fittings at the initial investment of Rs. 28.3 lakh. This is resulted in 84.78kw electrical load reduction & saving of Rs.14.65 lakh/ year. It means that pay back period is only 1.93

The other advantage of E+ fittings is that it eliminates the fire risk due to choke short – circuit.

2) Replacement of conventional 60w bulb by 26w CFL fittings :-

In the year 2004-05, total 810 Nos of 60w GLS bulbs are replaced by 26w CFL fittings in various minister & secretary chambers at Mantralaya. This lead to 27.54kw connected electrical load reduction at the investment of Rs.15.6 lakh. The saving expected in electrical bill is Rs.4.76 lakh /year. Giving payback in 3.27 yrs.

The reduced heat load on air- conditioning system/ machine is other advantage of this project.

3) Replacement of mono- block pump by submercible pumps :-

At Mantralaya, there were 7 Nos of 15HP mono-block water pumps to fill up the over-head water tank.

These pumps are replaced by 7 Nos of 12.5HP submercible pumps at the cost of Rs. 4.24 lakh. The resulted connected electrical load reduction is of 9.3kw which will lead to saving of Rs. 0.65 lakh/year. So the pay back period will be 6.52 yrs. This is bit higher. But the existing pumps were more than 20 years old (designated life 10yrs) & frequent breakdowns were causing inconvenience in the water supply. Hence replacement is carried out.

The details of connected electrical load, energy consumption, annual electricity bill amount of Mantralaya during 2001-2005 are as following.

Sr.N o.	Year	Connected Load	Energy cost units	Annual Elect Bill	Energy cost/ sq mtr	Energy consumption/ sq. mtr.
1	2001-02	3527.66	3690428	26073604	439.76	62.24
2	2002-03	3537.94	3893722	26322666	443.96	65.00
3	2003-04	3596.05	4119282	24841552	418.98	69.48
4	2004-05	3511.51	3796790	22572908	380.72	64.04

Due to energy conservation programme implemented during 2001-2005, 224.26kw a connected electrical load is reduced. But this is compensated by the additional 208kw/ connected load of newly constructed Minister chambers on 7th floor & A/C load. Even though there is reduction in connected load, energy consumption in Kwh/year is more because of operational load increase. But there is reduction in annual bill amount due to P.F. surcharge discount.

In Mantralaya, Rs. 114.52 lakh is the expenditure incurred for various energy conservation projects, which is resulted in saving Rs. 37.8 lakh per year in annual electricity bills.