

Mech World Eco @ Fortis

Following are some of the Points that we are working on to bring down their Electricity Cost which is used to Heat up the Water for Bathing, Washing, Cooking throughout the property etc.

The Current Scenario of Heating the Water in Hospital:- They Have Individual Geysers Connected in the Desired location (Rooms, Kitchens, wash room, Scrub room etc.). The Geyser Sizes vary from 3 Kw to 5 Kw of Heating Capacity. The Total KW rating of the Geyser considering the Individual Units is 484 Kw with total no. 162 as desired Locations.

Project Details:-

1) Energy Saving:-

a) Hot Water:- The Entire KW rating of the Property was very High i.e 484 Kw. This rating of the Electric Geysers were increasing the monthly Electricity Bills. To bring down the Consumption we would be installing Heat Pumps which would consume 1/3rd of the Electricity compared to Electric geysers but would give the same Heating Output. By doing this we would be bringing down their monthly Electricity Consumption.

b) Chilled Water:- Our Machine would be giving chilled water as a By-Product, which would be injected in the current Chiller Line reducing their chiller load. There is no additional Consumption of electricity apart from pumping power.

2) Maintenance:- It was seen that because of Individual geysers the Service and Maintenance part of the Property was always on toes. To bring down this effort, a Centralised Heating System was recommended. where in the Heating of water would be down at only one location and the same water would be supplied to all the locations using Supply Pumps and return Water.

3) ROI:- The Cost of the Project when compared to their current electricity cost had a marginal difference, giving least ROI.

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Project Example:-

Lets Consider a Property with 200 Rooms, and the amount of Hot Water required per day is considered as 150 Liters Per Room Per Day.

For the above scenario, a comparison of amount of energy required per day by different resources such as diesel boiler and electric geyser is shown in the below attached table.

INPUT	Quantity of hot water required in liters	30000
	Inlet Water temp.	28
	Out let water temp. Required	58
	COP	3.6

Efficiency (in %)		70		
Parameter	Heat Generator	Electric Geyser	Diesel	
Calorific value (kcal/kg)		860.00	10700.00	
Heat Required in kcal.	840000.00	840000.00	840000.00	
KWH HEATING REQUIREMENT	271.32	976.74		
Heat delivered per kg			7490.00	
Total fuel required in kg			112	
Cost/unit	13.00	13.00	60.00	
Total cost PER day	3527.13	12697.67	6728.97	
Saving per day		9170.54	3201.84	
Saving Per Month		275116.28	96055.21	

NOTE: The above saving is only for the Hot Water, the Chilled water is considered to be as By-Product.

From the Above table it is clear that the Amount of energy required for MWE's Heat Generator is 1/3 of the Electric Heater and that the Running cost of the Heat Generator is considerable enough to get the ROI.

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