

ENERGY MANAGEMENT SOLUTION FOR PUMPING STATION AND INDUSTRIES

Mrs.M. Arumuga Babu¹,V.Pushpa²,K.Saranya³,M.Manjula⁴

¹Assistant Professor /Head of the Department of Electrical and Electronics Engineering, Tejaa Shakthi Institute of Technology for Women, Coimbatore, Tamilnadu, India

^{2,3,4}Students, Department of Electrical and Electronics Engineering, Tejaa Shakthi Institute of Technology for Women, Coimbatore, Tamilnadu, India

ABSTRACT

There is more energy losses in today's world. Due to this our future generation will be suffered. Most of the energy losses take place in industry only. Due to this the energy tariff and investments are also increased in it. The energy losses can be minimized by energy auditing techniques. By this technique we can minimize the energy losses. Even tariff and investments can also be minimized. Our project is based on energy auditing techniques only. We have chosen two main places in which the energy losses takes place more in it. By energy management solutions the energy losses in industry and in pumping stations can be minimized. We have taken the water pumping station of Tamilnadu government water supply system in Manalmedu, Trichy district and manufacturing industries of GES solutions private limited, Gandhipuram, Coimbatore for energy management solution and we have given a solution for them to conserve energy for their future years.

KEY WORDS: Energy Losses, Tariff, Investments.

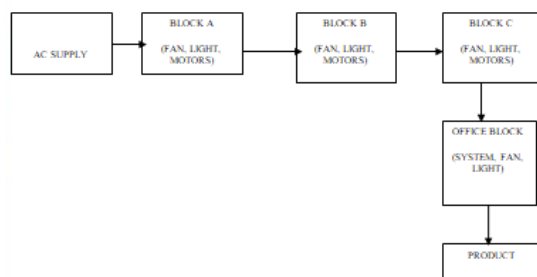
INTRODUCTION

This project vision is to make Pumping Station and Industries to reduce energy losses. It is fact that both the places huge amount of energy and it is also very obvious that they waste quite a sizable quantity of energy. In both the places the energy bill keeps around INR 25 -32 lakhs per year. This amount is huge this naturally attracts attention when we understand that quite a lot of energy is being wasted, which in turn would mean that huge amount investments is wasted. For generating 1 unit (1 KWh) of electricity, 250 g of coal, 49 to 120 litres of water is used. For instance, the industry has recommended the substation for 98 KW but they are using more than 98 KW i.e., 112 KW. Due to this there is a large amount of grid failure takes place. More amount of energy losses takes place. In pumping station more amount of leakage

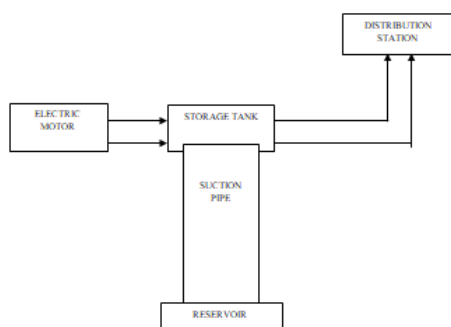
takes place due to variable pumps used in it. Because of these leakages the proper amount of water is not supplied to the consumers. Due to this the consumer suffers. Making the pumping station and the industries energy efficient will not only help the investors reduce its expenses but also helps us fulfil our moral responsibility of not wasting this precious energy, which is scarcely available to rest of the people of the country.

BLOCK DIAGRAMS

INDUSTRY



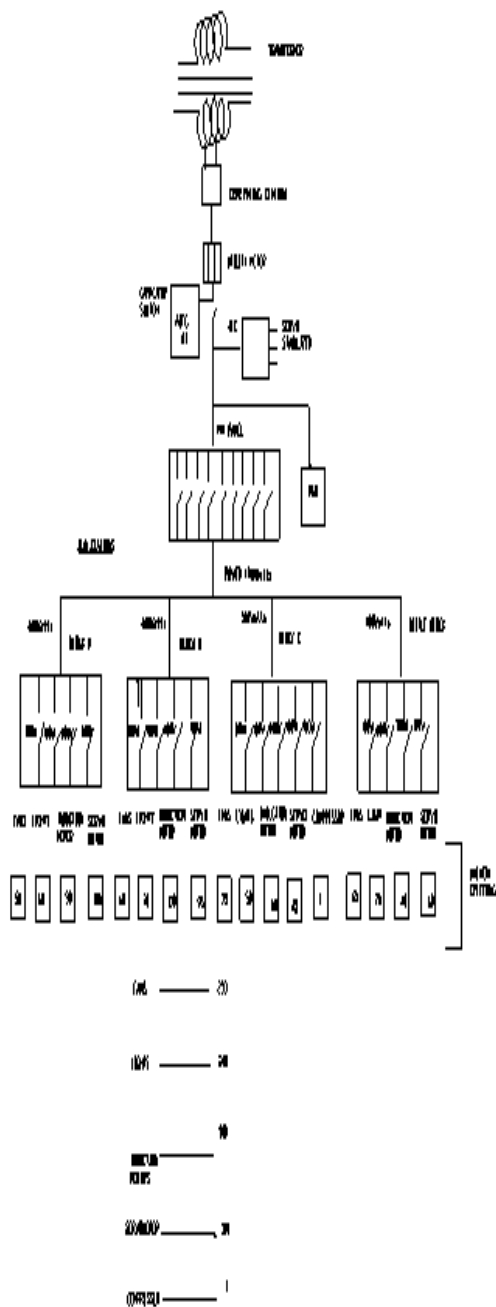
PUMPING STATION



PROPOSED SYSTEM

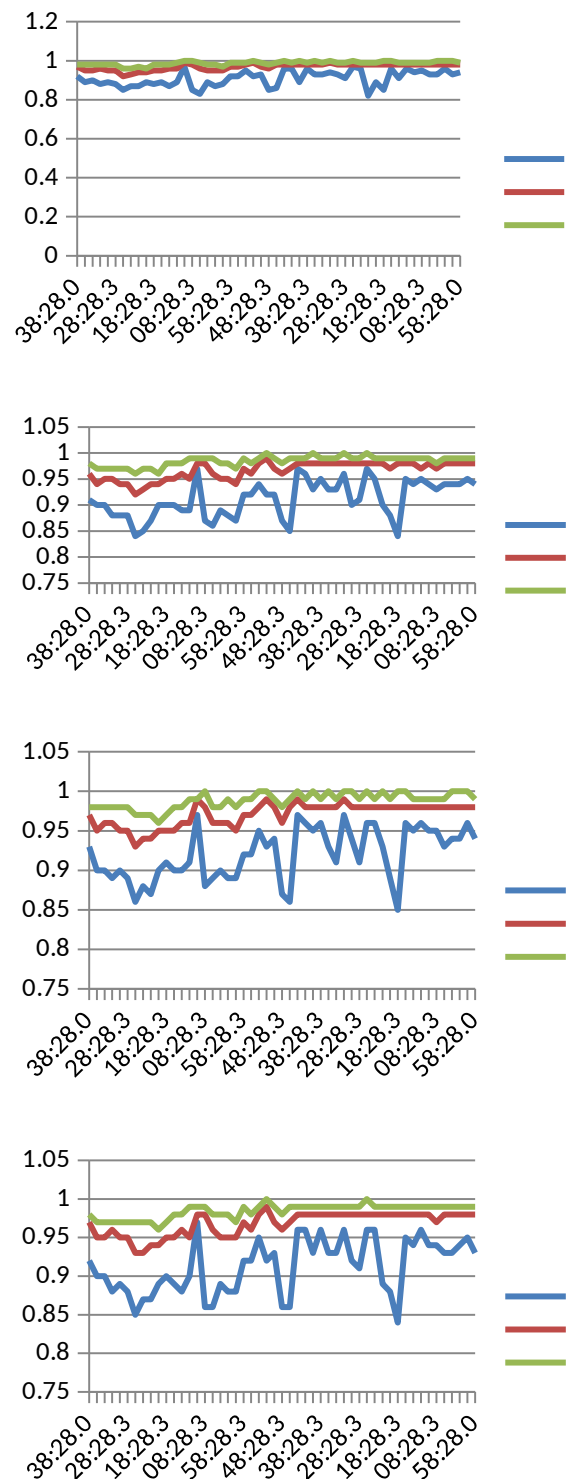
In the existing system of the pumping station there is more of leakage due to variable pumps used in it. Due to this water is not distributed properly to the consumers. So we have given a suggestion to replace synchronous pumps so that the water will be distributed to the consumers in proper manner and in right time. In industry they use fluorescent lights and fan without regulator in it. They have asked the substation for 98KW but they are presently using 128KW. Due to this energy is wasted more in it and the power failure will be occurred in the grid. So that we suggested the industry to use regulators for fan and by light energy saver the voltage can be minimized and the energy losses can be controlled in it. In this energy auditing technique using many auditing equipments such as, piezo electric sensor, Ultra sonic vibrator sensor and Thermal image graph. When compared to the existing system there is a change in proposed system.

SINGLE LINE DIAGRAM FOR INDUSTRIES

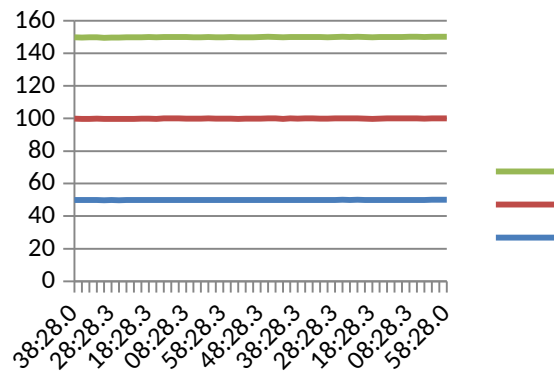


RESULT

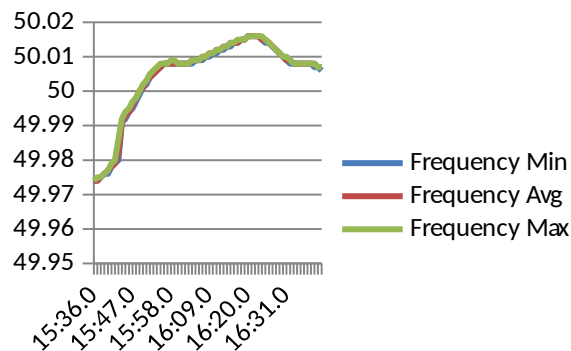
Industry (power factor)



(Frequency)



Pumping station (Frequency)



CONCLUSION

Thus we conclude our project that the energy auditing is done to conserve energy for future generation. This technique is used everywhere to reduce energy consumption. The energy conserved in recent trends is about 50%. If this technique is implemented in every places where the energy losses are more it

can be controlled to the energy which they have suggested to the substations.

REFERENCES

- Building energy audit for pearl harbor-
dr.brown,dr.dixon,wdchavala,jr.mi
dela rosa-sep 2010
- WRC project: CP348A PUMPS –
OPTIMISATION AND
REPLACEMENT 2009
- Rao, G.R.N, Sharma, K.V. Energy
conservation opportunities in
municipal water supply systems: a
case study, Resources, Energy and
Development, 9(1), 2012, pp. 35-
48.



Mr.M.ARUMUGA BABU M.E, Ph.D.

B.E (EEE)-2002(St. Xavier Engineering college of Engineering)

M.E (POWER SYSTEMS)-2004(Arulmegu Karasalingam college of Engineering)

Ph.d-Pursuing (Anna University) Coimbatore.



M.MANJULA

B.E (EEE)-Pursuing (Tejaa Shakthi Institute of Technology For Women)

Coimbatore



V.PUSHPA

B.E (EEE)-Pursuing (Tejaa Shakthi Institute of Technology For Women)

Coimbatore



K.SARANYA

B.E (EEE)-Pursuing (Tejaa Shakthi Institute of Technology For Women)

Coimbatore