Literature Review on Industrial Load Controller and Its Management

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Abstract— At present extra load on the industry has become a normal situation to meet increasing demand of production for these industries are made to run for excess hours which lead to usage of excess power. There is specific limit of power usage under which industry has to work and for this purpose maximum demand controller is installed for controlling the power usage in industry.

Keywords: Load management, Load Controller, Load Priority Techniques, Industry Smart Meter

I. INTRODUCTION

The major problem in the current scenario is power cuts to commercial consumers. The conventional solution to this problem is either to increasing the generation to match the load or curtail the load i.e. Load shedding. But increasing generation is not always economically fusible for power plant. Hence industry owner has to install maximum demand controller for controlling power usage. In this device maximum power usage limit is set in device for a month and it will monitor this power usage thought the months and at end of month generally 24th, 25th day industry exceed its power usage limit and this device causes tripping of industry.

The industry which is having their own power backups can continue their work and rest has to hear a loss.

II. LITERATURE REVIEWS

This paper purposes that an energy is one of the most important and essential source of life for the mankind. Among all types of sources, Electrical energy is basis for development in any society and nation. In India substantial and sustained economic growth is creating enormous demand for electric energy. To meet the demand, many electrical power generating plants were installed, yet the gap between demand and supply has been continuously growing. A way to overcome this problem in the present scenario is to utilize the existing sources as optimally as possible, limiting the wastage in the usage of electric energy. In this paper, an attempt is made to propose a methodology to solve this critical problem through load management during peak hour, in case of domestic loads. This will help in bringing the supply within the range of demand; in such a way that the consumer and the utility will be benefit simultaneously. The paper also presents the application of DSM techniques to domestic loads, where the power consumption can be optimized during peak hours; hence the reliability of the power supply can be increased. The proposed maximum demand limiter is a part of demand side Management. The results are presented to show the effectiveness of the proposed method for load management.

This paper purposes that an industrial revolution in India last a 25 years has resulted in paradigm shift of residential population from rural to urban. Thus urbanization and industrialization have resulted in unprecedented increase in electricity demand. A direct consequence of this increased demand is the immense pressure that is build up on national electricity grid due to excessive load. This effect is more pronounce especially during peak demand periods. It becomes mandatory to reduce this pressure that is build up on national electrical grid due to excessive load. This effect is more pronounced especially during peak demand period. It becomes mandatory to reduce this pressure on grid in order to have reliable and continuous supply. one solution to this problem would be the construction of additional power generating facilities , but this solution is not economic as the installation is very costly as well as more power generating facilities will be threat to the environment. This solution thus has to be eliminated. A more feasible solution to this problem would be an instrument like maximum demand controller which can monitor the heavy load demand during peak hours. This paper proposed a controller which is easy in construction and various tests carried out on it resulted in many advantages like reduced electricity bill on recurring basic, improved load factor, and economy to the industrial user.

Power is measured in instantaneous quantities, while energy is the integral of power over time. For example, a 100 W bulb absorb 100 w of power. If operated for one hour, that light bulb absorb 100 w- hours of energy. Maximum demand is the maximum instantaneous power consumed over a specified window of time. In the case of that 100 w bulb, as it is switched on and off, the instantaneous demand goes from zero to 100 w to zero to 100 w to zero, etc. not very interesting. But if that bulb is operated in parallel with switch instantaneous between 100 w and 200 w. and the maximum demand of the combination will be 200 w. now the way this is applied is that electric distribution utilities often include demand as one of the factors used to determine the bill the consumer receives . In addition to measuring integrated energy consumption over the billing period typically a month they also measure demand. Rather than measure truly instantaneous values, they actually measures energy over a short windows of times, and then divide the energy consumed during the interval by the length of the interval.

The purpose of this paper is to control the maximum demand controller without involvement of human activity i. e by using micro-controlling. The controller used in this case can be of different types and can belong to any of type of family. In this paper, we employ 8051 controller. the demand at every instant is calculated and is compared with the permissible maximum load demand value , and when the instantaneous maximum demand crosses the limits of permissible maximum load demand then the controller comes into picture and controls trip the load by the phenomena of load shedding based on the priority set by the user.

This paper purposes that electrical energy is a vital for featuring of any developing nation. To meet the growing demand, power generating plants of all types are being installed through the gap between the supply and the demand is continuously increasing, during due to the depletion of natural resources hence, rise in power demand the way to overcome the flaming problem is optimal utilization of available energy sources, limiting the demand during peak

hours. In this paper the methodology is proposed to solve burning problem with load management during peak hours, in case of domestics load aiming to reduce the gap between the demand and the supply, such that the both consumer and supplier get benefited simultaneously. The paper also present the application of load controller and DSM technique applied to domestics loads where the power consumption can be limited during peak hour and reliability of power can be increased by lowering the power cuts. The proposed method developed is the part of demand side management (DSM). The results are presented to show the effectiveness of the proposed method for load management.

This paper proposes that an electricity tariffs have a duty to provide to the consumer a charge which represents the true cost of the energy supplied. This is done in a variety of ways and with increasing sophistication in metering systems tariffs have become much more complicated as more detail of the cost of generation has been incorporated. The normal approach has been to use a maximum demand controller. These items of equipment range from very simple devices which aim to catch the 'rogue 'half hour to those which log the loads and have a range of possibilities for load shedding. The authors address the problems inherent in existing maximum demand controller and outline the use of forecasting algorithms and the advantages which may be gained by their incorporation in a novel controller.

This paper purposes that an energy more especially electrical energy remains the most vital topic in the current condition of the developing world. In India in order to meet the growing demand of this electrical energy number of generating stations are set up across the countries. The improper use of electricity and lack of accessibility is a barrier in bridging the gap between the generation and ever growing demand. Many industrial organization and various institutes draw the lots of power from the grid but fail to utilize it in an efficient and economical way. Many a times it is a case that this consumer's draw excess of power than there sanctioned demand and end up in paying high penalties to the seller. This paper considers an engineering college and its maximum demand are controlled using AT89c51 Microcontroller. A prototype is designed considering the various loads of the college and a priority wise load switching is carried out by the microcontroller in order to maintain the desired maximum demand.

III. CONCLUSION

In this project it is analyze that the proposed scheme will control and monitor the load requirement in industry.

It will trip load which is categorized as critical load (CL) and non-critical load (NCL) during peak period.

As per requirement of industry and other source micro controller can be programmed and desired o/p results can be obtained, which will save the penalty.

Hence this proposed system proves to be optimistic and will operate as per programmed in micro-controller and achieve given objective, also it will save the industry from getting penalty as well as disconnection of supply and hence will cause optimistic use of energy consumption which will help in reduction of monthly energy bill.

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