

KINDLY CONSERVE ENERGY NOW PLEASE!

CONSERVATION TIPS TO THE INDUSTRY: -

Now the industry is getting only Rationed Electricity. This makes us to use the Electricity Rationally and we want to maximize the use of sanctioned KVA & KW given to us, by reducing the losses. Priority to the industry now is to run our existing equipment efficiently and next comes the thinking of energy efficient equipment later.

- By energy conservation in the industry, we try to recover the losses which go as waste. By Energy Measurement, we draw a line between Avoidable and Unavoidable Losses and plan to minimize same. So Measurement is the first step to Conserve Energy.
- The cost of generation of 1 MW power is Many Crores of Rupees and takes longer years to generate. The cost of 1 MW power conservation is only less than Rs. 1 Crore. If Conservation done in morning of the day, the same evening the industry can reap the rewards of its conservation efforts. First step is to reduce the defects inside your system and automatically the Conservation happens to you.
- Electrical Distribution - Now the priority to the industry is to concentrate more on KVA than KW and we need to do first achieve PF around 0.8 + at load end motors using capacitors. To assess the electrical distribution losses, PF at the load end is the best practical tool.

ELECTRIC MOTOR SAVINGS: -

A conventional or standard motor say up to 10 HP size, running at 50 % loading operates around 70 % efficiency only; where as the EE motor at 50 % loading will operate at 85 % efficiency, pls look for difference in efficiency 15 %.

- Check you give right volt inputs to motor and that you operate your motor at an efficient loading around 75 %. Sizing your motor is the first step & then condition lubricate the motor. To save further, switch over to Energy Efficient motor & if possible Inverter duty type.
- Hence you have to see that your motor is matched to load now. The industry can visualize the motor is not like 1000 watts bulb which draw always only 1 KW during its usage, but 1 KW motor consumes power to suit to its load from 300 watts to 1300 watts.
- Why the motor manufacturer gives so many fins on motor body is to dissipate the heat. The heat is a symptom of loss and if allowed to stay there itself, energy loss is more. So Motor with clear & clean fins along with good blowing of air from its fan on its fins reduce losses and its skin temperature is just 20°C above the ambient. First let us clear the symptoms of visible loss in your running motor.
- The industry always thinks that we are losing on higher HP motors at high load factors. This is a Myth. If we sum up the losses on hundreds of our lower HP motors, this will be very much higher. Please concentrate on your motors up to 10 HP motor where your loss/hour is around 2 KWH or units. Generally speaking we look for the Efficiency of any machine at its optimum loading levels. We study motor no-load power consumption and this helps us to know if motor serves the industry or is a liability.

METERING A MOTOR HELPS YOU TO KNOW YOUR MOTOR WORKS BETTER OR NOT!

- Nowadays, branded 3 phase 4 wire panel meter to measure motor power, costs around Rs.2000 + Our rational & logical thinking is to invest in Motor & Meter before running above motor. This Rs.2000 /- investment is a tool to assess how much you are losing in your 10 HP motor like say Rs.4000/- per month due to difference in efficiency say from 75 to 90 %

- In the market, your clamp on power multi function meter costs only Rs.9000 + now. When EB is charging the industry in KVA, KW, PF then we should be in a position to measure the above power parameters of individual equipments & account for total EB consumption.
- **PREDICTIVE ENERGY LOSS BY HOT SPOTS:-**
- The symptom of distribution losses at the Electrical Incoming and at the load end is the HOT SPOTS only measured by low cost Thermal gun & high cost Imaging. The non-contact Thermal Infrared gun costing Rs.3000 + only measures thermal parameters like abnormal temperature say like temp difference at Drive end to Non-drive end of motor / machines etc this speedy assessment is a quick tool to diagnose all abnormal Hot spots and warns you about the impending breakdowns priorly.
- **DOMESTIC CONSUMPTION**
- The domestic consumer, who is a non-AC user, can very well insulate from the EB tariff hike. Considering 600 units in 2 months, actually we don't consume more than 10 units per day. Even the same 10 units per day can be brought down by the following practical electricity consumption awareness routines by the individual family.
- **SOLAR WATER HEATER:-**
- But we have to be rational in using Electricity the high grade energy to be used only in High grade application in industry & domestic and not in low grade heating like boiler etc. One 100 liter solar water heater saves 1800 units / year. We can save around 150 units per month in our Electricity bill and this is an appreciable savings to us & more to the nation. Of late, ETC model heater is efficient.
- You too, can avoid burning 1800 Kgs of coal / year (that is 150 KGs of coal per month) for your domestic / commercial EB units consumption. If you visualize this extra 5 KG of coal per day is burnt for you towards your water heater, we all can definitely avoid the same.
- **STORAGE ELECTRIC WATER HEATER: -**
- Also, we have to set our Electric storage water heaters at 47°C that is 10° C plus our body temperature (instead of 60°C set) Warm water is better to health than hot water in long run & 20 % power savings.
- First, buy today one Spare Heating element for just Rs.200/- and swap it to the existing element and do this exercise twice a year and you will find 10 % savings in heating in time & power. Now you have the time & effort later to can clean the removed element leisurely not in a hurry, thoroughly and effectively. Dip & rinse for hours in the solvent and brush clean the scales with suitable detergent etc
- **LIGHTING: -**
- Lighting is a Soft load in Electrical distribution. It needs steady 200 to 210 volts only to give steady lighting levels always compared to a motor which is a heavy load and needs 230 volts. Use a Servo Stabilizer for safety & 15 % power saving to avoid frequent failure of your tube lights. Safe Lighting in unmanned areas in industry & in commercial segment definitely needs Stabilizer.
- In commercial segment, avoid neon sign boards. Use white LED sign boards and consume only one tenth of neon power. Show case to others that you are already into CONSERVE MODE with your LED Displays! Think of buying Emergency torchlight, Standby lights using LED based. They consume only one third of the power and give back up for long hours. You know now, Traffic signals now glow better with LED lights, take one tenth of neon power and count down timer reduces pollution at road signals, if we switch off vehicles!

- **TELEVISION:-**

- You see now, that the world is changing over from the old CRT tubes (100 watts power) to the efficient LCD TV (35 watts only). In our existing TV, always switch off at Remote first, then at TV power button and lastly at the Main switch. When switching on please do this from Main switch to TV to remote. This is safe for the TV while switching on & off. Always keep a CFL lighting minimum when viewing TV.
- **Switch off the standby power.** That is to avoid keeping TV always ON at mains thro out the day. Plan your TV viewing hours to suit to your routines & not TV programs to control your daily schedules often. So after viewing, it is better to switch off up to mains if the time gap to switch on is more than 1 hour.

- **CEILING FANS: -**

- Check the air breeze from the fan is felt on the floor or at the walls and escaping out thro windows. Are we getting blast of air or gentle & smooth air breeze? If air is breezing thro us, it comforts us by evaporative cooling and it is healthy too. A heavy noisy fan is unsafe to work under due to noise pollution and Electronic regulator retrofit can aggravate the noise more! Either service the fan, replace the old bush with new bearings to reduce power & sound. Other wise please go in for 5 star 50 watt fans.
- The ceiling fan is comforting the man by two ways namely by Evaporative Cooling and by Air Circulation. To achieve both the functions, the fan has to breathe in. But we can increase our comfort levels by better circulation first and next by evaporative cooling from the fan by increasing the down rod size from 10 inches to 18 or 24 inches for 10 feet height building, 2 feet and above if the height of building is 11 feet and above. Visualize our old buildings with 14 feet ceiling height is always cool.
- Use Step type switching (instead of knob type is failure and obsolete) Electronic fan Regulator and Save 30 % power. The old box type regulator only regulates the air breeze but the fan is consuming full power only. You will find the side wall above the fan regulator gone grey due to hot air escapes! This is the symptom of manual regulator failure and replace today with Electronic type.

AIR CONDITONERS: -

- One of the main reasons for EB crisis today is due to poor supply and excess demand in summer months of year. Apart from drop in efficiency in generation at EB, the excess demand is due to rise of Air conditioner loads. Please reduce your comfort levels with less Air conditioner usage time and simultaneously use fans etc using evaporative cooling. Positive cross ventilation is important to improve indoor air quality in your premises. You are aware now that power crisis subsides in winter months.
- Our body temperature is 37°C we have to set our Air Conditioners at is 10* minus our body temp. 27°C (instead of 22* C setting now). Cool air breeze is better to health than Cold blast. & 15 % power savings. Please don't keep you too Cool and make surroundings from warm to Hot. Live with the Surroundings.
- In India, the present trend is that, two out of three AC unit sold is a Split AC. The outdoor unit operating in the shade will consume around 10% less electricity than the same one operating in the sun. The high side of the split or the back side of window AC can be provided with cost effective Asbestos shelter. AC efficiency improves and it can be seen by fitting the AC machine Run hour meter.
- Clean the air-conditioner filter every week or month depending on usage. Clean the fins once in a month. A dirty air filter reduces airflow and may damage the unit. Clean filters enable the unit to cool down quickly and use less energy. Dirty filter makes you sick too.
- Today buy a spare Air filter @ Rs.100/- and keep it ready as active standby. Now you have the time & effort later to can clean the removed filter leisurely not in a hurry, thoroughly and effectively. You can keep it ready and insert the same whenever required.

- Using ceiling or room fan allows you to set the AC thermostat higher because the air movement will cool the room. AC without room fan will make the cooled air throw at one area and hot pockets in other areas in the room are not medically good to us.

KITCHEN LPG GAS STOVE: -

- Clean your LPG burner and stove, to have bright blue flame instead of yellow color. Use Wide bottomed vessel above burner so that flame is at bottom only & not at its sides. The idea is that any vessel you use should fully cover the burner flame at the bottom. So narrow vessel can be used to match small burner flame. This saves LPG and fastens cooking time.
- Today you buy a spare burner head for Rs.50/- only and swap this with your existing burner every week or month depending on usage. Now you have the time & effort later, to clean the removed burner leisurely not in a hurry, thoroughly and effectively. Later to dip & rinse for an hour in the solvent and brush clean the scales with suitable detergent etc. and keep it ready to reuse. This can give savings in your LPG up to 10 % and more and your cooking time is less now! Burner head is a consumable as the symptom of flame color changes from Full bright blue to blue with orange tinge or yellow color etc.

FRIDGE: -

- The only appliance working 24 hours in a day is our fridge. With daily power cuts, it is safer to fix a Time delay model voltage Stabilizer (preferable with voltmeter) and high low voltage cut-out options, to the fridge. The fridge will need not daily face high voltages during resumption after power cuts. This applies to sophisticated electronic gadgets, lighting in domestic & commercial areas.
- Give rest to your fridge 1 hour in the morning by switching off. Whole night it has worked and ice up to 6 mm builds up in Freezer. Now this 1 hour rest is power saving, no icing in freezer & fridge is efficient. Change the settings in thermostat for summer & winter.

BEE 5 STAR RATINGS TO HELP YOU: -

What all we discussed above, is that to run the existing appliance efficiently. When we are sure that our appliance is inefficient, it is time to change to the BEE 5 star rated gadget like tube light, fridge, AC, water heater, pump, motor etc. This gives excellent savings compared to the existing consumption. The rating details are explained on the equipment itself.

- The BEE 5 star rated fan at full speed takes only 50 watts. Compare this to the fans we used till date and they consumed 80 to 100 watts for the same air output. The 10 year old fridge consumed 3 units per day where as 5 star fridge consumes only 1 unit a day now!
- Thinking & Acting on Conservation Measures catalyzes our social responsibility, caring for others and sacrificing our selfish comforts. When we are safe and healthy, conservation prevails. If safety fails, conservation fails and Pollution starts. So comfort your machine to get more savings from the machine, measure the consumption & optimize production and pave for sustainable environment.
 - **S.ASHOK, BEE certified Energy Auditor/Coimbatore/ Mail - Call - 94437 20220;**
 - **Pls. visit site www.energymeasuretosave.com for practical energy saving tips.**

Sharing knowledge to SAVE OUR ENERGY !

Conserving Energy is OUR Collective Responsibility, for a Better Tomorrow!