

WHY FEED EXCESS ENERGY INPUTS TO THE INDUSTRY? LET US LEARN FROM OUR HOME!

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The industry finds it hard practically, to achieve zero & low cost energy saving which are low hanging fruits now. They can apply the condition monitored practices, what they practice at home, to the industry to achieve Energy savings instantly. The **following trivial daily domestic routines which we tend to ignore, we can concentrate first to achieve domestic savings. This is easy to implement, and the findings can be seen immediately in water, energy, material and time savings.**

The same daily domestic tiny routines can be horizontally deployed in the industry. Please do it now at home and check the inventory of piling up consumables like bearings, lubrication oil & grease, brush etc cleaning / cutting / abrasive tools and you will be shocked to find the ignored energy loss till date, relief today that you had spotted the same and delight tomorrow that you are running the process with more productivity with less energy & consumables consumption.



Old and New SCRUBBER WITH Soap

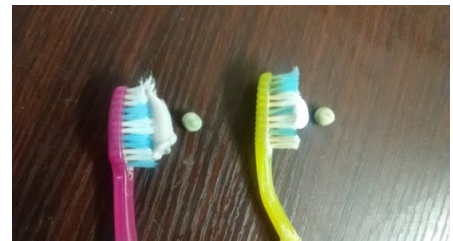
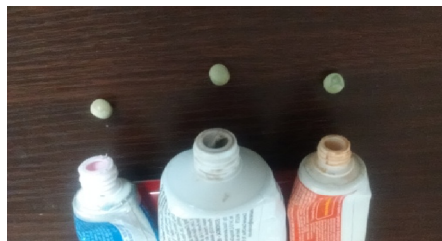


New and Old SHAVING BRUSH



New and Old TOOTH BRUSH.

1. The old scrubber used in my kitchen consumed one dish-wash soap lasted for 10 days to clean the vessels. Whereas the new scrubber consumed the same dish wash soap lasted 14 days. The time taken to clean the vessels is less with new scrubber and the cleaning was more efficient, with less force demanded from hands, consumed less water since less soap chemical is consumed. The soap is just touched with new scrubber to wash the vessel whereas we had to grab with old scrubber, more soap to clean the same vessel. **Soap, water, time, hand force wasted more with old worn-out toothless scrubber.**
2. The old shaving brush consumed more shaving cream, more water, more irritation to my face compared to the new shaving brush did the same job softly on the face skin, consumed less soap and hence less water for rinsing. (It is better to use cup for rinsing & flushing instead of wasting continuous tap water). **Soap cream, water, time, wasted here, more.**
3. The old tooth brush with bent weak bristles, blunt & harsh in action on tooth, hand gave more force to brush to scrub the tooth, making it weak, consuming more tooth paste. Still the tooth brushing effect was poor, visualized after brushing. **Clinical Research proves that a new brush can remove upto 30 % more plaque than a three month old brush. That's why Dentists recommend us to change our brush once in 3 months. How many of us change our brush after many months now? This simple analogy need to be followed by our industry. Tooth paste, excess pressure thro hands, water, and time wasted, more.**



Handy bath soap is user-friendly. Paste OEM can have various sized mouths. But tooth brush needs Pea size not inch size.

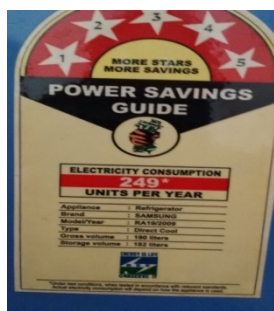
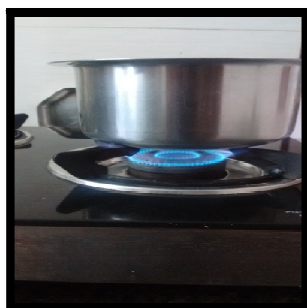
4. Our bath soaps come in big and small sizes. But the orange soap size only fits the palm of the hand and this is convenient to the user and economical in usage. The big green soap is difficult to grip by hands, and soaping action is inconvenient. Instead of soaping the body, we want to take care not to drop the soap while bathing! **Soap, water wasted, more in this.**
5. The tooth paste Manufacturers come out with different mouth sizes on the head of tooth paste tube. But we need to use is only quarter inch size tooth paste or Pea size for effective brushing of teeth. Tooth Paste & water wasted, more here. One inch paste in tooth brush wastes the paste more, and does not clean the teeth effectively. Whereas quarter inch size / pea sized tooth paste in brush is effective for zig-zag brushing. **Tooth Paste & water wasted, more here.**
6. Next in the LPG savings in kitchen, the house wife wisely thinks to use small cooker say 3 liter size for less members compared to the existing 5 Liter size pressure cooker. The content was less for big cooker and hence she uses small cooker now. This cooking in the 3 liter cooker gave 20 % savings in time and hence 20 % savings in LPG for the given and same cooked food. So

she is using the cooker on need based planning. When the members are more, it is 5 liter and when members are less or for the night lighter dinner, she makes use of the 3 Liter size cooker and saves LPG and time. For a nucleus family of two members, even 1.5 liter cooker is sufficient, time, LPG and money saving too! Pressure cooking done in few minutes only.



COOKING IN RIGHT SIZED COOKER SAVES TIME & LPG. LPG TWO STAGE REGULATOR GIVES SAFETY AGAINST LPG LEAKS & SAVINGS.

7. The LPG domestic stove needs only 300 mm WC (30 milli Bar) LPG pressure to enter into the stove. The high LPG pressure in Bars in the cylinder is coarsely regulated to 30 milliBar in one shot by the existing pressure regulator. Here the fig shows one more Multi function Pressure regulator is retrofitted above regulator. This 2 stage LPG regulator can Finely Regulate LPG pressure in stages to achieve steady 30 Milli Bar. Because of excess flow trip function built-in this new regulator, this retrofit device gives LPG safety against leakage and savings due to steady Finely Regulated pressure. This is LPG safety and saving.



FLAME WASTED IN VESSEL SIDES / FRIDGE NEEDS ONLY 200 TO 220 VOLTS ONLY / PUT BACK PEELED OFF BIT BACK TO Empty MILK COVER.

8. PCRA LPG saving guides the house wife practically to save LPG in kitchen. One improvised point is that the LPG flames must be contained well inside the vessel bottom center. It is not only the visible flames but also the invisible fumes seen at the vessel sides, leads to wasted heat of LPG burnt fumes. So it is better to use broad vessel above 10 inches size and as well LPG knob is kept near to SIM position so that heat given is bottom centered only that can spread to bottom only.
9. The 5 Star rated fridge compressor voltage rating is 200 to 220 volts where as what we get from EB distribution is that it is always 250 volts + thro out night in normal town & city distribution areas. Leave alone the fridge all the lights, fans and other appliances need around 220 volts only. So it is energy saving also to prefix Automatic Voltage Stabilizer at the house incoming circuit, instead of cursing the EB daily over high / low voltages and avoiding premature failures, breakdowns etc. The stabilizer OEMs also can reduce their Buck setting from 270 to 250 volts so that during lean & night hours, their stabilizer will buck voltage to give around 220 volts output always. **This will give savings & safety to gadgets.**
10. When we cant' take our Municipality water directly for drinking & cooking, similarly we cant' use EB power directly as their distribution transformer gives us High and Low voltages in their networks. So Stabilizer is a Must Retrofit in between EB and house circuit. Rich homes have gone for Servo controlled voltage stabilizer at their house incoming to receive 220 Volts + /- 1 % to safeguard their gadgets. Whereas, **the standard automatic voltage stabilizer + Time Delay Option giving output of 220 volts, (say from 210 to 240 volts) can be fitted mandatorily by all the domestic sections of society.**
11. **It is high time, the domestic consumer switches over from his decade-old fridges which consumed up to 3 EB units per day; and now see the 5 Star rated this fridge which consumes less than 1 EB unit per day.** Changing to 5 Star from old version is the need of the hour to reduce house EB bills, because the fridge only runs & consumes always as 24 hrs x 365 days.
12. Daily in the morning, the house wife opens the milk sachet cover with scissors and often ignores the peeled off small triangular plastic cover bit. Sticking to the scissors, this bit finds place, after in any location like; inside the same milk, any other cooking vessel, and dust bin or drainage points. Wherever this plastic bit stays alone, this chokes the passage. So, advise your wife to take this peeled off plastic bit and put back inside the same empty milk cover, so that it goes together while going to garbage bin. **This is what we have to practice in industry to segregate waste and unite them in parts / areas to be discarded, one of the 5 S program implementation, but often ignored in home & choking drains in house & streets.**

Thanks to the Domestic Energy Conscious Inputs from my wife & my daughter!

INDUSTRY TO OBSERVE THIS DAILY ROUTINES, PUT INTO ECON PRACTICES:-

1. **First step is to Optimize & reduce the utility input energy parameters to match to that of process. When machines can afford to run at lower energy inputs, then why should we feed excess energy inputs to the machines & process now?**
2. The industry can concentrate on their daily machinery in production & utility, process running practices and improve upon the workings, with less energy in the form of Electricity, water, chemicals, tools efficiency, diesel, & LPG consumption.
3. **For which, it needs the Management Initiative to Conservation, Technical Awareness of the staff & Employees regarding their energy consumption and the People Culture say both Staff & Employees' daily routines prioritizing the conservation.**
4. In EB distribution wise to the industry, it is enough that lighting circuits are operated at just 200 Volts + (and not at 230 to 250 volts) and their machine motors are operated at around 400 Volts (and not at 420 to 440 volts now) because the equipment OEM has already overdesigned motor specs and it runs not at Full Loading but at an Optimized Loading only.
5. Let us fix early Servo stabilizers for lighting loads as they need only 360 Volts say 210 volts/ phase to avoid lighting failures.
6. For any equipment or process, first define the energy inputs like electricity KW, water in liters, and compressed air in CFM.
7. What is stated by the OEM and what are we giving now? Talk to the OEM about the scope of reducing the energy inputs to their equipments and achieve the same process output? You have to interact with the machine OEM even after few years.
8. **5 Star rated domestic gadgets are accepted & appreciated by millions of citizens.** But the same switching to 5 Star rated energy efficiency motors, pumps, fans etc to be given priority. The industry loses daily energy loss heavily by the very inefficient machines, and poor operating practices. If not possible now, to buy 5 Star rated machines, please try to improve **the existing machine workings by changing its wetted parts, better lubrication and comforting machines to deliver more.**
9. If the case of pumps, replacing the internals, i.e. wetted parts to suit to the best operating point will give energy savings.
10. **The Farmer has changed over to Rigid PVC pipes to irrigate his fields.** The industry has not changed over the utility water piping from MS / GI to the Rigid PVC / PPR pipes to reduce the pipeline friction and improve the process flow rates.
11. **The industry must understand that Energy Saving is not possible in a process or equipment system if the same has any defects. First clear off the defects and then only aim for energy saving. This is possible in Healthy system workings only.**
12. This can be applied to any motor in the industry rewind more than three times. **The rewind motor is like a Button-less vehicle tyre. Having run thousands of KM now, the vehicle consumes excess fuel. So you retread now and replace later.**
13. Lubrication – Greasing & Regreasing interval can be improved upon using Polyurea thickened Lithium complex grease like speciality greasing. This doubles the regreasing interval, improves the productivity, reduced KWH.
14. **For example, Textile mill reports 8 % power saving in replacing their 8 years old set of Tin Roller Bearings in their main Ring frame motor KW. This motor consumes 1000 units per day, and 80 units per day saved by investing Rs.50,000/- on the new bearing set or even overhauling & speciality greasing too will reduce power. Simple Pay Back in Three Months Only.**
15. The motor machine linkage belts can be replaced from Vee Belts to Raw cogged Belts today, as this improves belt transmission efficiency, less belt weight, belt replacement time doubled now, and energy savings as well.
16. Compressed Air experts suggest header pressure of 5 to 6 Bar is effective to run the process, but many industries are operating at 6 to 8 Bar working pressures. Optimizing the Input compressed Air Pressure to machines & process can be achieved after discussing with the machine OEMs. The pneumatic Actuation cylinder sizing can be changed in consultation with the OEM, to match to industry's daily pressure requirements. OEM is also responsible such high pressure settings.
17. Like the right sized cooker to put to use, the industry instead of going for 2 Ton Boiler, they planned well ahead and gone for 4 Ton Boiler and the loading is less than 40 %. Here it is better now to swap (pays back attractively) with even an old 2 Ton boiler from others or a new 2 Ton boiler **so that the industry is paying huge amounts daily to their boiler fuel bills**
18. We come across the same industry plans in the long run to buy 380 KVA DG set where as the present load is only 100 KVA max. If the DG is going to run fully, it is better to swap to 160 KVA DG set to ensure efficient loading of 60 to 80 %
19. The industry and commercial kitchens can give optimized & reduced LPG pressure at kitchen and not allow flame to fully surround the vessel sides, which does not give quick heating but consumes more LPG only and heating up surroundings.
20. **First conduct Thermal Imaging Study to assess the equipment and process Hot Spots. And plan to improve the condition based lubrication, so as to remove the hot spots and here energy saving will automatically get achieved.**

DOMESTIC ROUTINES give Directions to Industry Practices:-

What prompted me to write about these trivial daily routine domestic activities in the home? Charity begins at Home only. The good habits begin at home only and this conservation may be it is Material for process, utility or even consumable, Chemical, Water, Time, Money, and Electricity, LPG, Diesel etc. everything is energy related, we all agree. The cost of manufacture of the above materials already had consumed energy elsewhere. **So let us first conserve daily at home; which will prompt, motivate and provoke us and others surrounding us to conserve Today & NOW. Let us all, collectively conserve now, Showcase to others, and consistently educate others, to be Energy Conscious in the Society.**

For more Energy Saving tips & details, Pls visit the website [www: energymeasuretosave.com](http://www.energymeasuretosave.com)