Analysis on different energy conservation methods

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Abstract. Production and consumption of energy provide energy conservation. The purpose is to reserve conservation, environment safety, and price investments, but the consumers have large energy they need. "The chief aim is to reduce the losses in electrical arrangement and also electrical system should have proper protection tools for providing consistent power supply for continuous task. Currently, more manufacturing is progressive the money in clearance electrical bills. As such, eco-friendly sustainability alternative main advantage of removing unused energy usage during the production process. The paper provides the data on the shortcoming and remedial of energy conservation.

Keywords: Energy conservation, Peoples, LEDs, cost.

1. INTRODUCTION

All buildings interpretation for 39 percent of the United States total energy intake, but administrators may decline a single building's usage by 28 percent through violent preservation energies. But no only processes may destroy monthly usage expenses, linking many processes may lead to extensive savings in energy usage. A little change may easily lead to a 9-percent decrease in energy intake permitting conventional approximations. Different energy conservation tips are shown in fig. 1. Like Advancement to Energy Capable lamp like LEDs, Increase Roof Insulation to Reduction Heating and Cooling Costs, For Power Management Settings use Computer and Other Hardware's, Using Smart Fixtures for water management, Reliant Landscaping by use of water limit, Educate Office and house Tenants, Change and Maintain steam boilers, Review Programmable Thermostat, Decrease Small Energy Drains, Change Old Windows, Improve HVAC Systems to Decrease usage. By using the above methods we can conserve energy and the explanation given below.

1.1 Advancement to Energy Capable lamp like LEDs

Liable on the current lamps in working, energy-resourceful lamps may diminish energy depletion by 23 to 76 percent but durable four to 24 times extended than outdated lamps. Association these lamps with daylight controllers to save light stages constant inside the building and administrators may remove waste without any visible impression to the building's residents. Reconsidering night site lighting and making small declines may also diminish electricity intake. LED lamps have 11 times more lives in comparison to CFL. For the production of white light, LEDs use
A several phosphors system. The cost of Lamp depends on its efficiency, rated power, current, power factor, and life. LEDs are more economic [1].

1.2 Increase Roof Insulation to Reduction Heating and Cooling Costs
An organization's office block drops 19 percent of its heat by the roof. The roof's R-value may be increased by increasing more insulated may reduce losses and may recover the expenditure like tiny as two to five years. It may be developed more effective as it may be large compressed. Increasing fans to circulate warm air that touches the upper level of a building may also decline heating expenses. For decline heating expenses, we have to install more fans to circulate hot air that reaches the upper surface of an office block. Energy efficiency has an important role in roof insulation because in hot weather, solar energy is absorbed by roofs and in cold weather, it losses heat [2].

1.3 For Power Management Settings use Computer and Other Hardware's
Every workplace computer desktop trashes an approximate of electric consumption every year. Settings of Power system settings may set presentations to snooze when not required and switch off computers after office working duration. Energy efficiency may be a more important parameter when buying hardware all parts. For reduction of electricity intake, a different cooling system is required by server rooms. The main aim of power management is to design microprocessors. It aims to increase performance within budget [3].

1.4 Using Smart Fixtures for water management
Water is the main resource in the world. Nobody can live without water like plants and animals. It may diminish after many years after more use. Wastage of water occurs due to overflowing and bad quality of tanks and leakage of pipes. It is necessary to control water wastage. Water Sense toilets may reduce usage of water with every use of toilet. Fitting water-efficient taps installed with ON /OFF automatic sensors may reduce water intake. Fitting without tank water heaters in regions where rarely essential warm water may decrease the energy usage needed to save warm water by request [4].

1.5 Reliant Landscaping by use of water limit
For community development, urban gardens are green area gives food. For food production, water is required. Gardner’s may use limited water and this process creates the best soil quality like soil moisture maintenance and use less water according to climate changes. Landscapers may choose trees that increase suitable light, water, and soil situations, so it needs little water to bear them. A suitable plan may grow more trees by water areas and use an irrigation plan that gives the proper quantity of water to every area. Growing more deciduous trees may help dark the places during the summer [5].

1.6 Educate Office and house Tenants
We know that low-income households may use older and low-quality heaters, TV and fridge. We educate low-income people about the disadvantage of this older and low-quality equipment. Educate office and house tenants about energy usage may decrease energy intake by 12 percent. For example, convenient heaters may tilt the thermostat values on an all floor, liable on their location. Managers may teach how to tell a problem by temperature, so a floor-wide result may be sanctioned and all peoples always relaxed.75 percent of peoples want to work for a corporation that has an encouraging eco-friendly reputation [6].

1.7 Change and Maintain steam boilers
The low efficiency of the steam boiler is caused due to high excess water by 18% and loss of heat. It can be done by control on excess air and regulating the air in the combustion chamber. By this method, we can increase the saving by 16%. Cleaning and replacing steam boilers in buildings may decrease energy use. Automatic ON/OFF switch of steam boilers can also maintain energy conservation [7].
1.8 Review Programmable Thermostat

If we change heating and cooling both elements of the thermal chamber, and we change in the programming of some components. The temperature can be achieved. The thermostat and boiler may be recurrently reviewed setting for future use. For example, in the winter, a vacant building's temperature may be set to 54 degrees Fahrenheit [8].

1.9 Decrease Small Energy Drains

The covering of the main drainage of society may be used to decrease small energy drains such as covered canals. We have to make manure from liquid and solid waste material of society [9].

1.10 Change Old Windows

Old window is a main factor of heat loss. If we change old window into new window cause a saves energy. Indoor air quality may be change by we make a window open according to temperature climate [10-11].

1.11 Improve HVAC Systems to Decrease usage

HVAC systems consume 18% of the energy used by traditional buildings. Due to this, every season needs an audit of hot boilers and chillers to confirm they are working at peak efficiency. Make a record of HVAC performance and maintain it [10-11].

2. RESULT ANALYSIS

Different energy conservation of Shortcomings and remedial Tips are discussed in Table 1 by using different tips.

Table 1: Different energy conservation of Shortcomings and remedial Tips

| S.No | Shortcomings                                      | Remedial                                                                 |
|------|---------------------------------------------------|--------------------------------------------------------------------------|
| 1    | Use of traditional bulbs.                        | Combine these traditional bulbs with daylight controllers.               |
| 2    | Shortage of roof insulation                       | By adding fans to circulate warm air that reaches the top level of a building, it decreases heating costs. |
| 3    | Poor power management of office desktop computer  | Put display settings to sleep when computer not in use and shut down computers after working hours. |
| 4    | Poor management of water use                      | Use water sense toilets and urinals with every flush.                    |
| 5    | More water-dependent Landscaping                 | Planting more deciduous trees may help shade the building during the summer. |
| 6    | Lack of knowledge of people about energy conservation. | Educate people about energy conservation by using portable heaters.        |
|   |   |
|---|---|
| 7. | Building with larger boiler systems |
| 8. | Usage of more electricity |
| 9. | Large old window for poor indoor air quality. |
| 10. | More consumption of energy used in traditional building |
|   | Cleaning and replacing traps |
|   | Replacing bulbs with sign LED bulbs |
|   | Improve air indoor quality by replacing old windows. |
|   | Use HVAC systems to reduce consumption. |

### 3. CONCLUSION

We conclude that the enhancement of end-user energy conservation with planned roof insulation and LED bulbs with higher efficiency offer important results for energy conservation. We are also concluding that the starting investment is more provides energy conservation. We are also concluding that approx. 60% of yearly energy intake may be decreased with the above scheme.

### REFERENCES

[1] Khan N, Abas N 2011, Renewable and Sustainable Energy Reviews 15 296–309.
[2] Majed Abuseif and Zhonghua Gou 2018, Energies 11 1-22.
[3] Khaled M, Attia Mostafa A, El-Hosseini Hesham A Ali 2017, Ain Shams Engineering Journal, 8 445-456.
[4] Shiva Kumar K R, Gokul Manikanta T, Vinod P, Ramarao N, Girija S 2020, International Journal of Engineering Research & Technology (IJERT) 9.
[5] Brenda B. Lin, Monika H. Egerer, Heidi Liere, Shalene Jha & Stacy M. Philpott 2018, Scientific Reports 8.
[6] Trivess Moorea, Larissa Nicholls, Yolande Strengers, Cecily Maller, Ralph Hornc 2017, International Conference on Improving Residential Energy Efficiency IREE 121 300–307.
[7] Silvy Djayanti 2019, E3S Web of Conferences 125.
[8] Sergio Bustamante ID, Pablo Castro ID, Alberto Laso, Mario Manana ID and Alberto Arroyo 2017, Sustainability 9.
[9] Walaa Y. Nashar El 2017, Alexandria Engineering Journal 56 327-332.
[10] www.ijmer.com
[11] blog.senseware.com