

Energy Conservation And Reduction In Overall Energy Costs

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The fear of depleting energy levels is looming large and researchers all over the world are engaged in minimizing the use of conventional energy. With the advent of advanced technology, efforts are on to improve existing method of functioning or introduce an innovative approach to curb energy exhaustion.

Renewable energy is that source of energy which can be harnessed from natural resources. Among renewable energy processes, thermal energy storage plays a vital role. The methods of thermal energy storage are broadly physical and chemical. The physical processes utilize the sensible heat of materials.

When sensible heat of materials is used, the volume of equipment is comparatively larger than in the case where latent heat of material is used. The fact that, phase change process of solid to liquid and vice-versa involves large amount of enthalpy change per kilogram of material, without change in material temperature has been taken advantage in developing thermal energy storage systems.

For example, University of Cincinnati (UC) reuses exhaust steam from its research laboratories to generate electricity. Efforts are on to install a four-billion gallon thermal energy storage tank to chill water in view to provide chilling water for air-conditioning purposes and recapture waste heat generated from air-conditioning using a heat pump. The installation of closed loop cooling system is also underway which replaces the traditional city water previously used for cooling, thereby considerably reducing UC's use of local water supplies by nine million gallons.

Over the past five years, UC has consistently reduced energy usage by 3-5% per year.

It can thus be concluded that efficient energy-conservation techniques can substantially reduce costs and help sustain energy demand in the long run.

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