

Quiz No : 04

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➤ Topic 2

Question

Did you know that, &

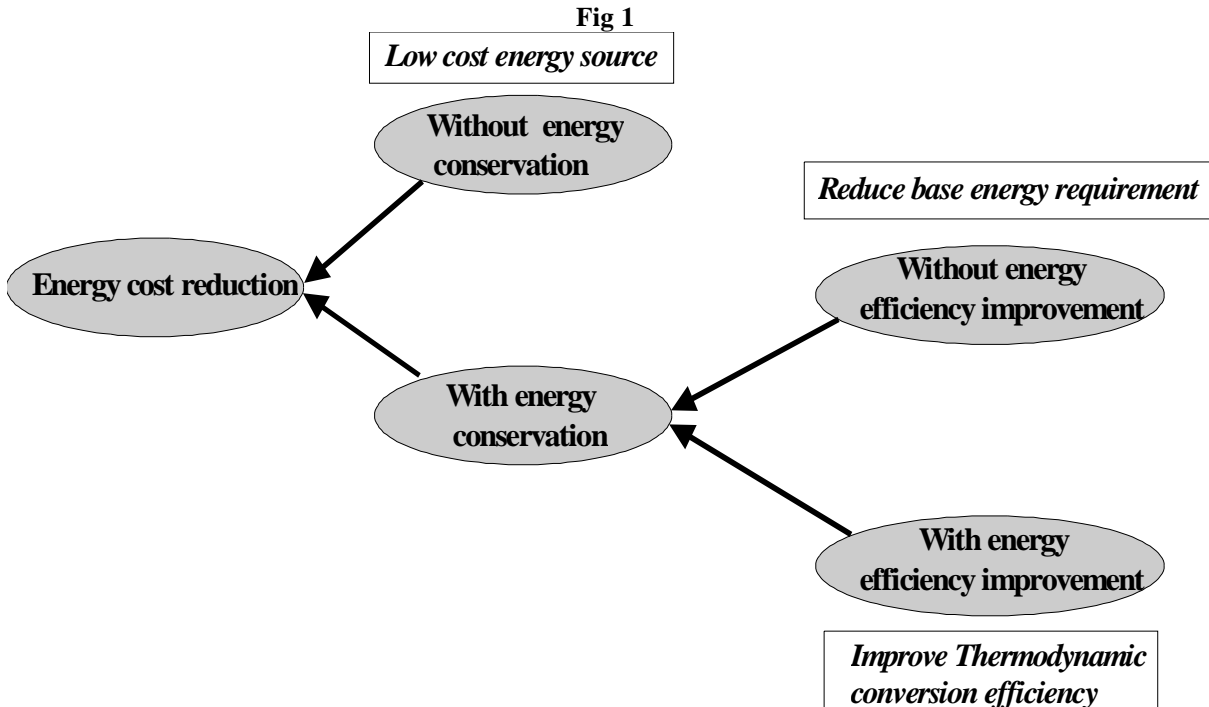
The meaning of energy conservation, energy efficiency as well as energy cost reduction are different but related concepts.

Can you tell us, &

By examples that :

- ✧ One may reduce energy cost but at the same time increase energy consumption
- ✧ One may conserve energy without improving energy efficiency
- ✧ One may conserve energy and improve energy efficiency
- ✧ One may conserve energy, improve energy efficiency and reduce energy costs

Explanation



Thus, while

- (1) Energy cost can be reduced without energy conservation,
- (2) Energy can be conserved without energy efficiency improvement, and
- (3&4) Energy efficiency improvement will always lead to energy conservation and energy cost reduction.

(1) Energy cost can be reduced without energy conservation

- ◆ Lower cost energy source.
- ◆ *Example*
 - ★ Coal fired plant compared to Diesel Generator plant for power generation

(2) Energy can be conserved without energy efficiency improvement

- ◆ Reduce base energy requirement
- ◆ *Example*
 - ★ Reduce Lumens in the work area
 - ★ Reduce Pumping energy without improving pump efficiency by increasing delta T of cooling tower
 - ★ Reduce Jig/Fixture weight in heat treatment to reduce the requirement of heat input.

(3&4) Energy efficiency improvement will always lead to energy conservation and energy cost reduction

- ◆ Improve thermodynamic conversion efficiency (Useful heat/Energy input ratio)
- ◆ *Example*
 - ★ By waste reduction – Excess air control, Proper insulation
 - ★ By improved conversion – Engine tuning, Reduce unburnt, High efficiency motor
 - ★ By optimisation – Production rate, Process control, Co-generation
 - ★ By heat recovery – WHRB, Air preheater, Economiser.