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Let us assume :

- 1) 20 Rs is fuel cost per 10,000 Kcal.
- 2) 100 kg / hr is fuel consumption
- 3) calorific value of fuel = 10000 Kcal /kg
- 3) old efficiency = 32.0%
- 4) new efficiency = 33.3%.

Cost before implementation of energy efficiency : $100 \text{ kg/hr} \times 20 \text{ Rs} / 10000 \text{ kcal} \times 10000 \text{ Kcal} / \text{kg} = 2000 \text{ Rs} / \text{hr}$

Efficiency is generally measured as $\text{output} / \text{input} = 32 \% \text{ (old)}$

$= 33.3 \% \text{ (new)}$

output being same ratio of old to new efficiency is

$(\text{output} / \text{old input}) / (\text{output} / \text{new input}) = \text{new input} / \text{old input} = 32 / 33.3 .$

old input is assumed to be 100 kg/hr

Hence new input is $\text{old input} \times 32/33.3 = 100 \text{ kg} / \text{hr} \times 32 / 33.3 = 96.096 \text{ kg} / \text{hr} .$

Cost after implementation of energy efficiency measures is $96.096 \text{ kg/ hr} \times \text{Rs } 20 / 10000 \text{ Kcal} \times 10000 \text{ Kcal} / \text{kg} = 1921.92 \text{ Rs/ hr} .$

$\% \text{ savings} = 2000 - 1921.92 / 2000 = 3.9 \%$

which is equal to (1) of below listed equations :