Energy Efficiency and Entropy

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Abstract

This paper represents an intuitive approach to understanding Entropy.

We can thus associate entropy for all forms of energy based on a known form.

Boltzmann's Equation will allow us to determine chemical entropy for chemical energy and based on this we can determine the entropy for all forms of energy.

Energy Transfer Efficiency

Between any two forms of energy, the loss in energy due to efficiency is relatable to the gain in entropy of a system.

Because we know the exact value for the energy of both systems, this will allow us to calculate the associative entropy for an unknown system based on a known one.

$$\frac{\Delta E_2}{\Delta E_1} = \frac{\Delta S_{Decrease}}{\Delta S_{Increase}}$$

Energy Transfer Loss

$$\Delta E_{Loss} = \Delta E_1 - \Delta E_2$$

Net Entropy Increase

$$\Delta S_{Net} = \Delta S_{Increase} - \Delta S_{Decrease}$$

The Loss of Energy is proportional to the overall increase in entropy of a System.

$$\Delta E_{Loss} = k \cdot \Delta S_{Net}$$

Conclusion

Using these basic formulae, we can associate an equivalent entropy for all forms of Energy.