

Energy

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The Laws of Thermodynamics

The first law of thermodynamics states that during the moving or transfer of a medium from one place to another, energy does not change. Instead, the energy is transferred from one form to another with the same effect. The second law of thermodynamics affirms that as energy is transferred, there is an accountable loss that is used to describe the usefulness of the power as some of it gets destroyed and used up in the process (Watson, 2014).

The Laws of Thermodynamics as Pertains Energy Use, Conversion, and Efficiency

The realization that there is a possibility that energy is lost in the course of being transferred from one medium to another is the basis for the understanding of energy in the perspective of conversion and efficiency when using up energy. When using energy, it is transferred and gets converted into a different form. As some of its gets lost, there is the trend in that there is an associated energy loss (Watson, 2014). The percentage loss of energy is used to describe the efficiency of the machine. In the process of using energy, therefore, there is a need to ensure that the loss factor is taken into consideration and if possible, it should be avoided by using better methods that would lead to a minimal loss.

Advantages and Disadvantage of Selected Energy Sources.

Fossil fuel is an example of a widely accessed energy sources that includes oil, natural gas, and coal. The benefits of fossil fuel energy are that they are readily available in the earth's crust and can thus be drilled easily. Furthermore, it can be a source of revenue to a county that produces it in large quantities. However, the challenge of using this form of energy is that it is subject to depletion (Procon.org, 2016). The use of fossil fuels is also associated with pollution which could lead to the buildup to global warming.

Nuclear energy offers the advantage of being cheaper compared to the use of fossil fuels and is more environment-friendly than coal and natural gas (Procon.org, 2016). However, the fact that it is associated with radioactive material greatly impairs the widespread use of nuclear power. A further adverse effect of nuclear energy is that it is expensive to use this form of energy and is thus compared to coal and other energies (Procon.org, 2016).

Solar energy offers the benefit of being an energy source that is cost effective as it is cheaper and is also readily available as it is obtained from the sun. The negative aspect of using solar, however, is that unreliable as it does not operate to its maximum potential in most cases (Procon.org, 2016). A further weakness highlighted regarding solar energy is that it is not equally distributed in many parts of the world and can only be accessed sometimes by a few individuals.

Wind power is currently regarded as the future of energy provision from the finding that it is not only cost effective for many households, but it is also environment-friendly. The advantage in the perspective of being a health hazard is made in comparison to other forms of energy such as fossil fuels (Procon.org, 2016). The negative elements of wind energy are that it is unsuitable for the industrial age for not only being intermittent but also expensive to install a full system. Further charges involving the transportation of energy from the generation site to the areas where it is needed constitute the disadvantages of windpower.

Water energy offers the advantage of being readily available as it is obtained from water and is also easy to transport to distant areas as seen in many centralized economies. The negative aspect of hydroelectric power is that it associated with poor energetics and is expensive (Procon.org, 2016).

Biofuel is readily available for plant usage and are obtained naturally, and are also a more energy-friendly alternative. However, this type of energy is associated with ethical concerns from the use of plants to produce ethanol. Further challenges related to biofuels is that their use could cause a sharp rise in the prices of grains and other related foods (Procon.org, 2016).

The Energy Policy Act of 2005

One of the provisions of the policy act enacted in 2005 is the element of tax incentives where it is outlined that there exist tax credits for equipment that are energy efficient including new homes that use up 50 percent less energy (Nadel, Prindle, & Brooks, 2006, p. 210). This provision allows for establishment and manufacturer of goods that are more energy saving and through this, the rest of the energy can be challenged for other uses hence enabling the U.S. to meet its energy objectives.

The other energy provision that is relevant is the need for public awareness campaigns aimed at creating awareness on the efforts that the citizen can use in ensuring there is a productive use of energy (Nadel et al., 2006, p. 211). The goals of ensuring that users are informed on the methods needed to save energy and the benefits it has will enable the U.S. to attain energy sustainability because the saved energy could be directed to other areas. Thus through the provisions of the energy policy act of 2005, the U.S. is on the brink on attaining its goals of energy use.

References

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