

Q&A: What Is Energy Combination And Why It Matters



Energy combination is, in essence, the opposite of basic energy separation. Terms that are usually applied to nuclear fission but the basic principle applies to most forms of energy transformation.

Energy Transformation:

We are taught that energy transforms from one form to another. But in practice energy is transformed into many others, not just one singular transformation. The one form of energy is separated into two, three or four forms of energy.

For example, a single form of electrical energy forced through a resistive wire, such as a lightbulb filament, separates into two different forms of energy, namely light and heat. We are taught that the electrical energy is converted to usable energy and waste energy. However, if we view the waste energy as useful energy then it is now viewed as energy separation.

Energy Combination:

If energy was to transform without a combination of energies then uncontrolled energy transformations would cause mass disorder and catastrophic effects. To generate energy such as the electrical energy in the above example, usually two forms of energy are transformed. One is always reliant on the other to achieve the desired work.

An example is a conventional turbine generator used in most forms of power generation. The output energy is an accumulation of electron movement through magnetic fields. From that one sentence we conclude there are three forms of energy involved and combined within the generator, namely electrical energy, magnetic energy and kinetic energy. Not one of these energies can achieve the desired work without the other so a combination of three forms of energy is needed. The small amount of electrical energy is transformed to magnetic energy which in conjunction with the kinetic energy, produces a huge amount of electrical energy. The amount of output electrical energy is equal to the amount of the three combined energies but much greater than the input electrical energy.

Why It Matters:

Some may argue it's not the correct terminology and that traditional physics simply terms it 'energy conservation'. However this simple view narrows our thinking and shuts out innovation. For example modern technologies converts the once considered 'waste energy' into useful energy. Thinking outside the box and viewing energy transformation as energy combination helps to discover new ways of generating energy by combining two different forms of energy.

One such example is an emerging technology called Galvanic Enhanced Electrolysis. A means of generating hydrogen by combining electrical energy and chemical energy. Conventional electrolysis is not a chemical energy, its a chemical reaction. Chemical energy is a spontaneous reaction - a process which occurs without any external input to the system.

Similar to the turbine generator as illustrated above, the small amount of input electrical energy stimulates the chemical energy to increase ionic potential between electrolytic electrodes. Rather than an external hardware connection to a chemical energy (flashlight battery) the cell is a combination of the two sciences within the one single cell.

In this case, thinking outside the box enabled the inventors to 'think inside the box' and combine two types of electrochemical cells into one. Introducing a new way of generating energy not reliant on kinetic energy.

A method that is not reliant on kinetic energy from turbines is revolutionary and opens doors to so many game-changing energy solutions. Such innovative thinking has and will continue to transform our lives.

