

A Small Amount of Energy 101

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The original articles were written in spanish. The ones at this section are being translated by the writer but might not capture all the original semantics.

Deciding on the topic of this column was complicated, since I consider myself cautious and selective when I want to educate myself or others.

It looks that the issue of energy is a fashion these days and there is a considerable amount of information and very complete and competent articles. However, I continued to analyze many things until I understood that “ENERGY is definitely fashionable,” because it matters to us, because it has been the protagonist in draining the pockets of my beloved Puerto Rico, and because without it, we simply cannot live.

By transforming it, we affect ourselves positively or negatively and, in the same way, our great Planet Earth. So, let's define energy in a simple way and not suitable for didactics on the subject, as the capacity of matter to do work or to make something change, whether through movement, chemical reaction, temperature, etc.

At just 12 years old, when I was in the seventh grade, I decided that I wanted to be an engineer. I remember like today when at a science fair at my René Marqués School in Carolina, I brought

around 10 scale cars, all from my collection that I still keep. I presented different aspects of body design and explained how that influenced the aerodynamics of the cars and, consequently, the consumption of gasoline. Obviously, at my academic level at that time, and perhaps with some “blunders” that the judges did not want to disclose, I remember feeling proud of my participation, and I learned a lot with the project.

About six years later, as a freshman student at the Mayagüez Campus of the University of Puerto Rico, I remember that a professor told me: “Energy is neither created nor destroyed, it is only transformed.” Probably, you who are reading me have also heard this and, although confusing, it is true. But since I do not intend to bore you with thermodynamic principles, let's add some meat to this writing.

When you fill up the gas tank in your car, apart from remembering the “cruditas taxes” in PR, you also remember how to reinvent yourself to make it last longer. To mention just a few, between that tank, the engine, the transmission, and the tires, there is a transformation of energy into different types, which has the purpose of moving your car, and you. This transformation uses many electrical and mechanical elements.

Gasoline is a fossil fuel that is originated from petroleum. And fossil fuel is one formed naturally many years ago, from organic compounds such as animals and plants. Since these cannot be replaced quickly, they are classified as non-renewable. Likewise, when used and burned, in most cases, they negatively affect our environment.

In line with these approaches, I then move on to some points that I consider practical and pertinent:

1. Educate yourself based on your scenario, for example, on transportation. Let's assume that you drive your car an average of 250 miles per week and that it has a rating of 17 MPG

(miles per gallon of gasoline). If you can change your car for one that rates at 25 MPG, and assuming a gasoline cost of \$1/liter, which is equivalent to \$3.78/gallon, you would be saving around \$80 per month. Similarly, you can evaluate an electric or hybrid car. I recognize that the costs are still not so accessible for a large part of Puerto Ricans, but they bring many benefits in recurring expenses and in our environmental surroundings.

2. Evaluate photovoltaic system options in your residence or business. As with electric car technology, this is not yet accessible to many citizens, but there are already different alternatives that, guided by a professional in the field, both in engineering and finance, could be viable for many.

3. Simplify what I define as "energy habits". It is not only about starting to "change" equipment, cars, technologies, but also starting to develop a better environmental awareness and energy behavior. Just turning off a light, having several people in the same vehicle, or turning ON just one air conditioner when enjoying a good movie with the family, translates into preserving life in the short, medium, and long term, and, in the same way, helps your wallet.

4. Plant a tree, walk, recycle, reuse, compost, open windows, think about how to help the environment every day, and implement it. I am grateful for the philosophy of Maria Montessori, which you might think has nothing to do with energy, but believe me, it is directly related.

I dedicate this, my first article, to Morocho and Margot. Morocho told me something that I have never forgotten: "Knowledge is never a waste." I believe a lot in education and that is why I urge you to continue educating yourselves on this subject. It is very relevant at this time; and every person, at any level, can educate themselves for the better.



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