Energy Summary

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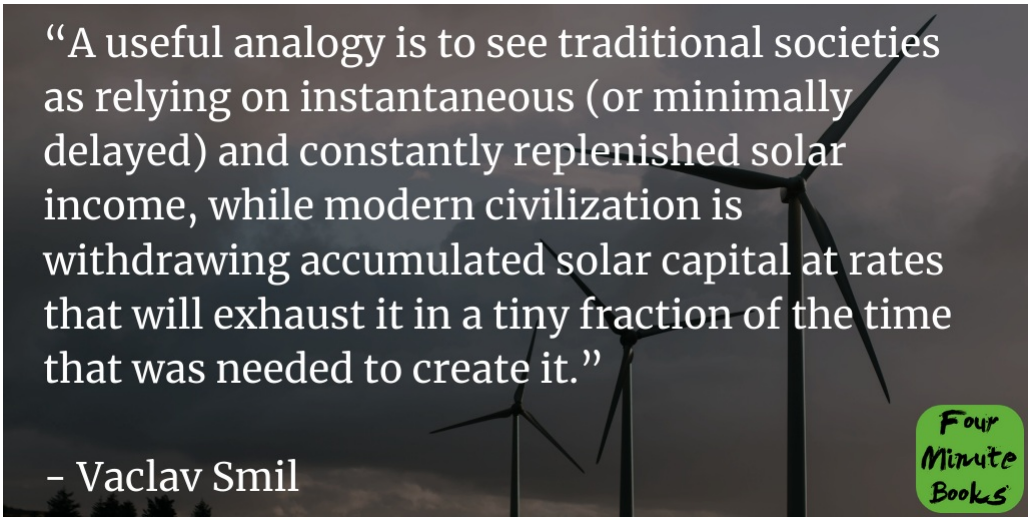
1-Sentence-Summary: *Energy makes you smarter by helping you understand where this important aspect of our lives comes from, how we've used it throughout history to get to where we are today, and why we need to be careful about how we consume it so that we can have a better future.*

Read in: 4 minutes

Favorite quote from the author:



If I say the word "energy," what comes to your mind? Is it the feeling you get after you've finished your morning coffee? Or possibly it's how you feel when you've just had a great night's sleep. Maybe you even consider your physics classes and certain equations come to mind.

Whatever the case, this scientific principle has played a vital role in our species' evolution as long as we've existed. We've harnessed energy by using tools, plowing fields with oxen, and more recently learning how to burn fossil fuels. Figuring out ways to use energy more efficiently has always been a core of mankind's progression.

Now, however, we're starting to face some grim realities of how we've been consuming energy for the last few years. It's time to understand this law of physics better and find healthier ways of keeping our world going. And this is exactly what Vaclav Smil teaches in his book *Energy: A Beginner's Guide*.

Here are the 3 most powerful lessons I've discovered from this book:

1. Energy means a lot of different things to humans but is important no matter how you choose to look at it.
2. Nothing on earth can survive without this precious resource.
3. We need to look to wind, solar, and especially nuclear energy if we want to reduce the negative consequences of our past energy uses.

Ready for an energizing discussion on this important piece of your life? Let's get right to it!

Lesson 1: We have a lot of different definitions of energy, all of which are important.

How we speak when referring to energy shows us that we're not certain what it actually means. We use phrases like "he really energized the audience with that speech," for example. Or if someone is training for a triathlon they might feel energized after a swim.

But did the speaker perform some sort of magic to put electricity into the crowd? And wouldn't that swim actually deplete your energy? It's clear that we use this word in lots of different ways to mean multiple different types of it.

The origin of energy is the Greek word *energeia*, which was created by Aristotle. In this first meaning, it referred to work, motion, or action. Now we think of it more in terms of performing work or having the power to make change happen.

We even consider something as simple as sitting and pondering our next business move to be this type of work. **Although we might think we're not moving, our bodies are still hard at work keeping us alive even while we're motionless.** In other words, we're still using energy!

According to the first law of thermodynamics, it's impossible to create or destroy energy. It only gets transferred from one thing to another. This shows us that the idea is more abstract than we might initially realize. It's more like a way of interpreting how energy is converted between different types.

If you rub your hands together, for example, they become warm. This is an example of changing kinetic energy into thermal energy.

Although energy is a complex idea, it's been an important part of our history. And more than we might think, as we're about to discover!

Lesson 2: This precious resource is a key component to the survival of everything on our planet.

Everything the light touches has to have energy to survive. Well, living things, at least. It doesn't matter if it's your power-hungry uncle or a lion on an African savanna. Without

energy, it will die. Let's dive deeper into how this works.

Going back to our idea about energy conversion, this is also what living things do to survive. Take plants, for example. They absorb sunlight through leaves and then convert that into a form of food for themselves. This is how they grow.

Humans and other animals also utilize energy exchanging processes to stay alive. The bacteria in your stomach helps your body break down complex organics, such as plant leaves, to get the energy that keeps you alive.

You can think of it being similar to the circle of life, actually.

But those organisms that are further away from the origin of energy-solar radiation-the harder it is for them to get energy because there isn't enough. This is why there are a lot more plants than animals and a lot more plant-eating animals than carnivores.

And not everything uses energy in the same way. Younger creatures use more than older ones, for example. And wolves physiology lets them run farther than cheetahs, which have a design that lets them use energy more rapidly.

Lesson 3: Our future is bright as long as we look to and begin using renewable sources of energy to sustain us.

While we can't accurately predict what's going to happen for our energy consumption, we do know where we need to go. As the demand for it grows, the need to handle it appropriately will increase also.

However, to keep up with everybody's current needs, we'll have to stick with fossil fuels. That's because more renewable types, like solar or wind, can't sustain all of the demands. But that doesn't mean that we need to deal with the negative impacts of fossil fuel consumption forever.

Nuclear energy is a top option for a healthier future for us and our planet. Although it's a hotly debated topic, it still remains the cleanest way forward.

Our nuclear mistakes of the past have taught us much to help us improve safety measures. But we still need to figure out feasible ways to protect nuclear plants against terrorist attacks. And there also remains the question of how we dispose of the waste from these facilities.

But more than anything else we just need people to accept that nuclear power is our best chance to fix our planet.

And that's not to say that better options than this might be developed in the future. We're a clever species, and if history has taught us anything it's that we can adapt to survive and thrive.

Energy Review

Wow, what an interesting book! *Energy* is definitely the type of science book that I like to read and I learned a lot from it. I had no idea there was so much to this hugely important aspect of our lives!

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Who would I recommend the Energy summary to?

The 56-year-old that denies climate change, the 25-year-old who likes to read about physics, and anybody that's curious to know what really makes the world go 'round.