

8

FOSSIL FUELS, SUSTAINABILITY, AND THE FUTURE

IS OUR WAY OF LIFE SUSTAINABLE?

Exploring the evidence about mankind's use of fossil fuels so far, we have seen that the fossil fuel industry is far and away the world leader at producing cheap, plentiful, reliable energy and that that energy has radically increased our ability to create a flourishing society, a more livable climate, and greater environmental quality. On these fronts, so long as we are able to use fossil fuels, the evidence is overwhelming that life can get better and better across the board, as we use fossil fuel technology and other technologies to solve more problems—including those that fossil fuel technology and other technologies create.

One big question remains: What are the *long-term* prospects for this way of life? While today we are rich in fossil fuel resources and the wealth they help us create, what is in store for the future?

With so much consuming, can this way of life really last? Is it sustainable?

The answer is better than yes. Not only can our way of life last; it can keep getting better and better, as long as we don't adopt "sustainability" policies.

In chapter 3, we saw that the amount of unused fossil fuel raw material currently in the Earth exceeds by far the amount we've used in the entire history of civilization by many multiples and that the key issue is whether we have the technological ability and economic reason to turn that raw material into a resource.

For years, actually centuries, opponents of fossil fuels—and some supporters of fossil fuels—have said that using fossil fuels is unsustainable because we'll run out of them.

Instead, we keep *running into them*. The more we use, the more we create. Fossil fuel energy resources, we discussed, are *created*—by turning a nonresource raw material into a resource using human ingenuity. And there is plenty of raw material left.

In the last few years, the shale energy revolution has unlocked vast new oil and gas resources, making the "running out of fossil fuels" claim seem implausible for the foreseeable future. Many environmental leaders have therefore shifted from saying that we're running out of fossil fuels to saying that our abundance of fossil fuels is causing us to run out of *other* resources—arable land and water, most alarmingly, but also a whole host of other materials that are crucial for civilizations.

"Consuming three planets' worth of resources when in fact we have one is the environmental equivalent of childhood obesity—eating until you make yourself sick," says David Miliband, secretary of state for the environment, food, and rural affairs in the United Kingdom.¹ In response to criticisms of renewable energy plans as utopian and far-fetched, Bill McKibben says, "Perhaps it's the current scheme, with its requirement of endless growth in a finite world, that seems utopian and far-fetched."²

The theory behind these predictions is that Earth has a finite “carrying capacity,” an idea that was spread far and wide in the 1970s. Two of the leading exponents of this view were Paul Ehrlich and John Holdren. In their landmark book, *Global Ecology*, they wrote:

When a population of organisms grows in a finite environment, sooner or later it will encounter a resource limit. This phenomenon, described by ecologists as reaching the “carrying capacity” of the environment, applies to bacteria on a culture dish, to fruit flies in a jar of agar, and to buffalo on a prairie. It must also apply to man on this finite planet.³

These theories were not idle banter—they were used by many to call for drastic restrictions on fossil fuel use, much as we have today.

Ehrlich and Holdren announced, “A massive campaign must be launched to restore a high-quality environment in North America and to de-develop the United States.”⁴ This meant an attempt to reverse industrial development—by law: “This effort must be largely political.”⁵

These ideas were viewed highly enough that Holdren’s body of work, which stresses these themes over and over, gave him the prestige to become science adviser to President Barack Obama.

As we’ve discussed earlier, these predictions were wrong, but why, exactly, were they wrong? The most direct reason is that there are far more fossil fuel raw materials and far more human ingenuity to get them than Ehrlich and Holdren expected. But there is a deeper error here, an error at the root of the whole concept of sustainability. The error is a backward understanding of resources.

THE UNLIMITED POTENTIAL FOR RESOURCE CREATION AND HUMAN PROGRESS

The believers in a finite carrying capacity think of the Earth as something that “carries” us by dispensing a certain amount of resources. But if this was true, then why did the caveman have so few resources?

Those who believe in the ideal of human nonimpact tend to endow nature with godlike status, as an entity that nurtures us if only we will live in harmony with the other species and not demand so much for ourselves.

But nature gives us very few directly usable machine energy resources. Resources are not *taken* from nature, but *created* from nature. What applies to the raw materials of coal, oil, and gas also applies to every raw material in nature—they are all *potential* resources, with unlimited potential to be rendered valuable by the human mind.

Ultimately, a resource is just matter and energy transformed via human ingenuity to meet human needs. Well, the planet we live on is 100 percent matter and energy, 100 percent potential resource for energy and anything else we would want. To say we’ve only scratched the surface is to significantly understate how little of this planet’s potential we’ve unlocked. We already know that we have enough of a combination of fossil fuels and nuclear power to last thousands and thousands of years, and by then, hopefully, we’ll have fusion (a potential, far superior form of nuclear power) or even some hyperefficient form of solar power.

The amount of raw matter and energy on this planet is so incomprehensibly vast that it is nonsensical to speculate about running out of it. *Telling us that there is only so much matter and energy to create resources from is like telling us that there is only so much galaxy to visit for the first time. True, but irrelevant.*

Sustainability is not a clearly defined term. According to the United Nations, it has over a thousand interpretations, but the basic idea is “indefinitely repeatable.”⁶ For example, the idea of renewability, which is usually synonymous with sustainability in the realm of energy, is that the fuel source keeps replenishing itself over and over without the need to do anything different.

But why is this an ideal? In most realms, we accept and desire *constant change*. For example, you want the best phone with the best materials, regardless of whether those materials will be there in two hundred years and regardless of whether it would be more “renewable” to use two cups and a string.

Why should we want to use solar panels or windmills over and over (leaving aside the fact that they quickly deteriorate and thus require a continuous series of mass-mining projects) if they keep giving us expensive, unreliable energy? Why not use the best, the most *progressive* form of energy at any given time, recognizing that this will change as we advance and the best becomes better?

At the beginning of this book, we observed that human beings survive by using ingenuity to transform nature to meet their needs—i.e., to produce and consume resources. And we observed that the motive power of transformation, the amplifier of human ability, the resource behind every other resource, is energy—which, for the foreseeable future, means largely fossil fuel energy. There is no inherent limit to energy resources—we just need human ingenuity to be free to discover ways to turn unusable energy into usable energy. This opens up a thrilling possibility: the *endless potential for improving life through ever growing energy resources helping create ever growing resources of every kind*. This is the principle that explains the strong correlation between fossil fuel use and life expectancy, fossil fuel use and income, fossil fuel use and pretty much anything good: human ingenuity transforming potential resources into actual resources—including the most fundamental resource, energy.

Growth is not unsustainable. With freedom, including the freedom to produce energy, it is practically inevitable. We are not eating the last slice of pizza in the box or scraping the bottom of the barrel; we are standing on the tip of an endless iceberg.

This is a thrilling prospect for everyone in the world—and certainly for those who live in resource poverty. And if we keep creating resources, I think my future grandchildren will think of my generation of Americans in 2014 as having lived in resource poverty.

HOW USING FOSSIL FUELS ADVANCES FUTURE GENERATIONS

Let’s apply the idea of resource creation to the concerns that today’s activities are harming future generations, whom the opponents of fossil fuels often focus on.

I do not have children myself, so I know I cannot relate to the perspective on the future that parenthood gives you, but I think it’s important for me to try to. So when I think about these issues, I try to think about children I know, children of my close friends or family members, and ask myself how what I’m doing will affect them.

The other day, I was visiting two of my best friends, who have a two-year-old named Seth. I’ve been fortunate enough to see him about once a week from the time he was born—and it’s rare that seeing him is not a highlight of my week. If only we adults could pack as much learning and joy into our lives as a happy two-year-old. Lately, when I visit, I’ve been teaching him some rudimentary Brazilian jujitsu, because I love it and think it’s a great thing for a kid to learn, and I hope that he’ll pursue it later in life.

To anyone who has ever connected with even one child, the thought of knowingly taking actions to hurt his future is horrifying. We naturally want our children’s lives to be as good as, or better than, ours.

When I see Seth, I sometimes ask myself, *What will he be like in the future?*

Part of the answer to that question is wonderfully unknowable. What choices will he make? I don’t know, but I am excited to see.

Part of the answer to that question is within his parents’ control: How will his parents influence and educate him, for good or bad? There, I am happy to know that he is in good hands.

But part of the answer to that question is in the control of the rest of us. What choices will *we* make that define the world that he lives in? Will it be a world with more opportunities and fewer hardships

or more hardships and fewer opportunities? Will it be a world of progress—a world where he has more exciting career options, less chance of getting sick, more financial security, less chance of going to war, more opportunities to see the world, less suffering, and a cleaner, safer environment? Or will it be a world gone backward, where some or all of these factors get worse?

Everything I've learned about energy has led me to the conclusion that it will be a world of progress if we eagerly pursue more energy, especially fossil fuels, but it will be a world gone backward if we pursue less, out of fear of the environment and climate, which fossil fuels actually make better, not worse.

The basic principle espoused in this book is that we survive by transforming our environment to meet our needs. We maximize resources and we minimize risks. Energy use is the ultimate form of transformation—because it increases our ability to transform our environment to meet every other need, to maximize every resource and minimize every threat.

There is no limit to the amount of resources we can create or the number of problems we can solve—except for the amount of time we have, time being our most valuable resource (though it, too, can be expanded). The only other “limit” of sorts is our starting point—that is, what existing resources we have to work with and, even more important, what *knowledge* we have about resource creation.

What Seth needs is a world where people have created a lot of resources, which will make it easier for him and the others of his generation to create new ones, and a lot of knowledge of how to create resources. I am confident he will get this world, because that's exactly what my generation needed—and got.

Think about your generation. From the perspective of previous generations, you are a future generation. To the extent our grandparents, great-grandparents, and great-great-grandparents thought about what kind of world they would leave, they were thinking about us.

What actions of theirs—and generations before them—benefited us most?

One type of action that benefits everyone going forward is the formation of an important new idea—whether a scientific discovery, such as Newton's three laws of motion, or a technological achievement, such as Watt's efficient steam engine.

If we look at history, an incredibly disproportionate percentage of valuable ideas have come in the last several centuries, coinciding with fossil-fueled civilization. Why? Because such a productive civilization buys us time to think and discover, and then use that knowledge to become more productive, and buy more time to think and discover. We should be grateful to past generations for producing and consuming fossil fuels, rather than restricting them and trying to subsist on something inferior.

If we slow down our progress, including the generation of new ideas, by using inferior energy, we deserve nothing but contempt from future generations—for example, from those who die prematurely because a medical cure comes twenty years later than it needed to.

The production of energy increases the production of knowledge, and it is knowledge that enables one generation to begin where the last left off.

Besides our ideas and knowledge, another form of past action that benefits us is past wealth creation.

Imagine that we had all the knowledge we do today but we were placed in a precivilization environment. By popular accounts, this is a state “rich in natural resources.” Would we want to be there? Of course not, because those “resources” would not be genuine resources; they would be only potential resources, raw materials, and it would take a tremendous amount of time and effort to even start using them to create wealth.

The more resources that have been created in the past, the more prosperous societies have been, the more resources they leave behind for us to start with. How grateful am I to the man who first took a streak of rust from a rock and turned it into iron ore, instead of letting it sit there for me and my generation.

That process of resource creation provides the material for the next stage of resource creation. It means taking iron ore and turning it into something more valuable, steel, then taking that steel and turning it into something more valuable, a bunch of girders, then turning those into something much more valuable, a skyscraper, which becomes even more valuable as the workplace for thousands and thou-

sands of productive people, who increase the value of each of those workplaces by starting any number of productive enterprises, which ultimately go back to taking raw materials and making them more valuable through an ingenious combination of machine power, manpower, and superior methods.

Life can be great, indefinitely. Each of us must try to make the best of his life, by creating as much as he wants to benefit his life, and to take joy in the fact that his interests are harmonized with those of his fellow men and his children and his children's children, knowing that the greatest gift he can give to both himself and to the future is to be a creative human being who enjoys his life.

The final point to make about consumption and efficiency and waste is that the most valuable thing we have is our time. If we want to talk about a resource, if human life is our standard, then the most important resource we should be focused on is our time. Using fossil fuels buys us time. It buys us more life. It buys us more opportunities. It buys us more resources. Fossil fuels are an amazing tool with which to create this ultimate form of wealth, this supreme resource: time to use our minds and our bodies to enjoy our lives as much as possible.

Time, and the quality of the life we can enjoy in that time, is already less than it should be, and is threatened to become far, far less than it should be, because even though using fossil fuels is moral, our society does not know it. The voices guiding our society have convinced many of us that the energy of life is immoral and are calling for restrictions that, from all the evidence we have, would be a nightmare.