

Threshold

**How Energy Abundance
Will Transform Our World**

By

Tom Blee

To Frank

With heartfelt thanks for all you do.

You're making the world a better place.

Introduction

“The best laid schemes o’ mice an’ men often go awry”

Robert Burns’ oft-quoted admonition is applicable in a number of ways to the book you’re about to read. On the one hand, it applies to policy and industrial decisions that could have been made during the last half-century to avoid—or at least minimize—some of the most critical problems now faced by humanity. On a more personal level, it describes my semi-abandonment of a plan to publish this book only after certain critical nuclear technologies will be successfully demonstrated at scale. Until then, some skeptics (and cynics) will undoubtedly scoff at my vision of the near future as a pipe dream. I wanted to avoid the glib dismissal of advanced nuclear power systems as mere “paper reactors.” Once they’re up and running the point will be moot. But there is so much happening in the global energy picture these days that I don’t want to sit idly on the sidelines. I’d like to be able to share what I’ve learned from immersing myself in energy issues for over two decades, so I’ve decided to release the chapters as I write them. Hopefully, by the time the book is finished sometime in 2023, the projects will be farther along and at least show the strong likelihood of ultimate success in the very near future. Unfortunately it takes time for truly disruptive technologies to come to full fruition.

Global dilemmas, and their potential solutions, will continue to be impacted by policies relating to energy production and deployment. It would be helpful if media coverage of these issues were accurate and insightful so that people who lack a background in such fields, or who simply don’t have time to keep up, could be informed with actual data and hard facts. Unfortunately, that is not the case, and it’s not surprising. Many of these issues are complex, and few reporters who write occasional articles on energy topics have the background necessary to sort the wheat from the chaff.

As an author and hopeless optimist, I’m naturally inclined to launch into a description of a vision of the future that is bright with promise. But since I’m writing about energy, it’s impossible to ignore the global energy situation, especially at this time. As I write this in the fall of 2022, Europe is entering a scary winter due to an energy crisis that has many people questioning whether they’ll be able to even heat their homes this winter. People are quick to blame Vladimir Putin and the Russian war with Ukraine, which certainly exacerbated an already shaky energy situation. But the roots of the current energy dilemma go much further back than last February’s invasion. As an old Grain Belt Beer slogan used to say, it’s “been a long time a-brewin’.”

The often impassioned debates about renewables vs. nuclear can hardly be ignored in a book about the future of nuclear power, much as I’d prefer to just write about the latter. It can be instructive to take a look at how we got to this point though, something that we’ll examine at the beginning of the book. Following that orientation, we can consider some fairly straightforward reasoning about where the future of energy is headed without belaboring the many arguments that could themselves fill a book (and which have, indeed, filled several). The thrust of this tome is to illustrate the many promising aspects of the future of energy, and how the coming transformations promise a better world for both humanity and the environment.

I much prefer to avoid a polemic, but there can be no question that there are drastically different views on energy policies that can hopefully be discussed with unvarnished evidence and sound arguments. These issues are at the very base of many of our current dilemmas, including inflation, climate change, and technology choices that will either be supported or squelched by government policies.

I'll do my best to present and discuss these issues as accurately and ideology-free as possible. Of course, I'm aware of the dangers of motivated reasoning, and just as aware that presenting facts is no guarantee that they'll be accepted as true. As I launch this project, I can't help but remember this gem:

I still think my favorite thing that's ever happened to me on the internet is the time a guy said, "People change their minds when you show them facts." And I said, "Actually, studies show that's not true," and linked TWO sources, and he said, "Yeah, well I still think it works."

Chapter 1 Paving With Good Intentions

*Make me one with everything.
The Dalai Lama*

The unity of mankind in responding to global challenges, which one might envision when misinterpreting the holy man's order to the hot dog vendor, is but a tantalizing aspiration. When it comes to issues like climate change and global poverty, what we see instead is increasing balkanization among radically different belief systems. But it wasn't always this way. The post-war era of the Fifties was a time when there was a consensus reality shared by the majority of the American populace. The Sixties saw this start to fragment as the Baby Boomers (guilty as charged...TB, DOB 1951) came of age, leading to what was widely lamented as the "generation gap."

Science and engineering were considered highly respected fields in the years after World War II, but the hippie era saw an exploration and fascination with alternate realities, fed by the widespread use of mind-altering drugs and a concomitant interest in eastern religions and unorthodox (to the Western Christian mind) spiritual paradigms. Everything was suddenly open to question. Parents were wringing their hands (or sometimes, metaphorically, their kids' necks) as they saw them rejecting traditions and mainstream societal values and plunging into what they saw as raw hedonism. It's possible that the frequent duck-and-cover nuclear attack drills in grade schools during the Fifties had something to do with the attraction of a lifestyle that hewed to a philosophy of "Eat, drink, and be merry, for tomorrow we die." A sizable portion of young adults of that generation considered a rejection of conventional thinking—and conventional social aspirations—to be entirely logical, even necessary.

From the end of World War II until the mid-Sixties, the USA produced about 60% of the world's manufactured goods, largely because of the physical destruction of global competitors during the war. The economy was booming, technology was flourishing, residential and commercial construction were seemingly around every corner. Growth of all kinds seemed unstoppable and limitless.

But the kids who were raised in this era began to look a bit skeptically at society's assumptions as they aged out of their play clothes. It seemed that some rather serious down sides had been willfully ignored, like the impact of unregulated and often careless manufacturing on local environments. By the time the oft-cited case of the Cuyahoga River catching fire in 1969 came to pass, Lake Erie had already been declared dead due to human-caused pollution. Rachel Carson's *Silent Spring* in 1962 cast a spotlight on the widespread use of chemicals in the environment that she contended was leading some species to near extinction.

Many young adults who themselves had been raised in large Boomer families were shocked by the publication of Paul Ehrlich's *The Population Bomb* in 1968. The heedless growth and often

careless attitudes of the past couple decades began to look irresponsible, if not downright dangerous to humanity and our fellow creatures.

The 1973 publication of *Small is Beautiful* set the stage for a philosophical schism between those who favored abundant energy for all versus advocates of energy asceticism, a split that persists in today's often vociferous energy policy debates. *Small is Beautiful*, a collection of essays espousing the superiority of decentralized, locally autonomous technologies, contained a chapter on nuclear power that was absolutely alarmist, at a time when the promise of abundant energy for all was widely viewed as the future that splitting the atom would make possible.

The arguments against nuclear power in that essay dwelt on concerns about radiation and spent nuclear fuel that have been either solved or shown to be inaccurate in the ensuing years.¹ But if nuclear power were to be abandoned, then what?

Since planned demand for electricity cannot be satisfied without nuclear power, they consider mankind must develop societies which are less extravagant in their use of electricity and other forms of energy. Moreover, they see the need for this change of direction as immediate and urgent.²

The same year that *Small is Beautiful* hit the bookstands, 1973, was also the year that Amory Lovins published his first book on energy, *World Energy Strategies*. Amory was all in on energy minimalism (and still is) as he launched a career as a thought leader among the energy ascetics. A couple of quotes from this period are representative of that line of thinking:

“If you ask me, it'd be little short of disastrous for us to discover a source of clean, cheap, abundant energy *because of what we would do with it* [my italics]. We ought to be looking for energy sources that are adequate for our needs, but that won't give us the excesses of concentrated energy with which we could do mischief to the earth or to each other.”³

An even more drastic view of how people would abuse abundant energy to the detriment of society and the planet was voiced by the aforementioned author of *The Population Bomb*, Paul Ehrlich:

"In fact, giving society cheap abundant energy at this point would be the equivalent of giving an idiot child a machine gun."⁴

Ehrlich's book epitomized the era's alarm at the combined perceived threats of population and burgeoning growth:

Our position requires that we take immediate action at home and promote effective action worldwide. We must have population control at home, hopefully through changes in our value system, *but by compulsion if voluntary methods fail* [my italics]. Americans must

¹ Tom Blees, *Prescription for the Planet* (2008).

² Ernst Friedrich Schumacher, "Small Is Beautiful," (1973).

³ "The Plowboy Interview: Amory Lovins, Energy Analyst," *Mother Earth News* November 1977.

⁴ Paul Ehrlich, "Machine Guns and Idiot Children," *Not Man Apart* VOL. 5, No. 18 (1975).

also change their way of living so as to minimize their impact on the world's resources and environment.⁵

Aldous Huxley achieved posthumous popularity among the hippie generation partly due to his book *The Doors of Perception*, which described his experiences with the psychedelic drug mescaline. That book consequently generated interest in some of his other books, particularly *Brave New World*, *Brave New World Revisited*, and *Island*, the latter portraying a utopian vision of society that captured the imaginations of ever-searching baby boomers.

Huxley too was alarmed about population growth—presaging the alarm that Ehrlich and others would elucidate a decade later—when he published *Brave New World Revisited* in 1958:

“Birth control depends on the co-operation of an entire people. It must be practiced by countless individuals, from whom it demands more intelligence and will power than most of the world's teeming illiterates possess...”⁶

That patronizing tone was an echo of his discomfort with the idea that penicillin, DDT, and clean water would reduce the death rate around the world. In strained fairness to Huxley, it might be pointed out that the ideas of eugenics were widely popular when Huxley was writing. His elder brother Julian was actually named the president of the British Eugenics Society in 1959, the year after *BNW Revisited* was published. The much-revered John Muir, a founder of the Sierra Club, was likewise aligned with eugenicists,⁷ as were some of the founders of other environmental groups that followed it. As the famously quotable Lord Acton observed, “Few discoveries are more irritating than those which expose the pedigree of ideas.”

1972 saw the publication of *Limits to Growth - A Report For The Club Of Rome's Project On The Predicament Of Mankind*. It tied a Malthusian alarm of population growth to what the authors asserted were unsustainable consumption of resources. It was used to bolster arguments by the nascent environmental movement that growth had to be limited. A common assertion was that it would take multiple numbers of earths (seven or eight was the range often bandied about) to provide a “first world” standard of living to everyone on the planet.

This was an essential misreading of *Limits to Growth*, which had concluded:

If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity.⁸

That “If” at the beginning there is pulling a lot of weight. The book ultimately concluded that stabilizing the global population was crucial but clearly stated that human well-being *could* be

⁵ *The Population Bomb* (Sierra Club/Ballantine Books, 1968).

⁶ Aldous Huxley, *Brave New World Revisited* (Harper & Row, 1958).

⁷ Darryl Fears and Steven Mufson, “Liberal, Progressive — and Racist? The Sierra Club Faces Its White-Supremacist History.,” *Washington Post* 7/22/2020.

⁸ Club of Rome, *Limits to Growth* (Universe Books, 1972).

maintained and improved provided the right policies were enacted to deal with the other issues. This was right about the time that the Green Agricultural Revolution had begun to markedly increase global food production, and the Clean Air Act and other policies to reduce pollution were showing often dramatic results.

As for the seven or eight earths assertions, allow me to quote a relevant portion from my 2009 book, *Prescription for the Planet*, from the chapter discussing the total recycling possible with plasma converter technology, combined with the inexhaustible energy available from fast-spectrum nuclear reactors:

Admittedly, there is a finite limit to the earth's natural resources. Yet few vital materials are in such short supply as to warrant their hoarding. Most of what we possess which defines a comfortable lifestyle can be obtained from the most common and abundant materials on earth.

If you're sitting inside somewhere reading this, take a look around at your environment. If you're a typical resident of an industrialized country, nearly everything you see that provides the basic material comforts you enjoy is made of fabric, plastic, glass, metal, or wood. The metals are usually some form of steel or aluminum, neither of which is in short supply on our planet (aluminum is the most abundant metallic element in the Earth's crust). Ditto for glass, since silicon comprises about 25% of the crust. Wood is an entirely renewable resource, though admittedly those resources have been poorly managed in many cases. Fabrics and plastics can be made from natural fibers or, with plasma converters, from garbage or other waste products that are in limitless supply. Even the walls of your home are built of materials that are, in every case, readily available and easily obtainable. They could easily be built with blocks made from plasma converter slag, the walls insulated with rock wool from the same source. Energy and recycling of materials have always been the main underlying limitations. But we can clearly see that, in reality, our energy resources are limitless, and with plasma converters virtually everything that we want to reuse can be recovered. We need only make the right decisions about how to utilize our resources. There are more than enough for everyone.

What we are seeing here is the first glimpse of a post-scarcity world, long the province of science fiction. This is a world where the basic comforts of life and the provision of unlimited energy are available to everyone on the planet. Virtually all the substances utilized by the inhabitants of the world's most advanced societies to provide their creature comforts are plentiful enough to extend those comforts to humanity at large. While certain materials are inarguably in short supply, one would be hard-pressed to think of a single one that could be considered essential to a comfortable lifestyle. Unlimited energy and plasma recycling won't exactly land us in a Star Trek future, but in many respects the post-scarcity era is within our grasp.⁹

I would love to be able to report that now, as I write this fourteen years later, we're all benefitting from the technologies that I was writing about. We are *closer* to such goals, but certainly not where

⁹ Blees, *Prescription for the Planet*.

we could be by now. And some of the technologies we're rolling out now have issues with resource scarcity if we expect to deploy them at scale, a topic we'll discuss in later chapters. After *Prescription* was published, people would often refer to me as a futurist, a classification I'd not considered at the time. Now I've come to consider the slow uptake of revolutionary concepts as the curse of futurism. But it's important to keep pushing, to sketch out where we *can* go, and to engage the inevitable naysayers with sound arguments.

And there are naysayers in abundance. The anti-growth energy asceticism of the early environmentalism era seems to be on steroids in many places in today's world. When Thomas Malthus published *Essay on the Principle of Population* in 1798, his observations on the impact of population on the finite resources of the planet had at least a modicum of validity, though it could certainly be argued that it was a grotesque attempt to justify the exploitation of the British Empire. But by the time the neo-Malthusians began pontificating on the perils of runaway population in the latter half of the 20th century, the world had changed in ways that pulled the rug out from under Malthus. Nevertheless, Ehrlich and his friend John Holdren (who was Obama's chief science advisor) didn't hesitate to use the basic principle almost two centuries later to argue for reducing the earth's population:

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.¹⁰

One cannot argue with the logic there, of course. But while Thomas Malthus's perspective may have been reasonable in his day, the world was substantially different a couple of centuries later. For one thing, effective birth control had been developed. And even more importantly, in the early 20th century the ability to synthetically produce ammonia fertilizers transformed global agriculture. Added to that was the so-called Green Agricultural Revolution personified by Norman Borlaug in the middle of the twentieth century. New strains of high-yield pest-resistant wheat and other food crops multiplied yields substantially. By the time the Malthusian alarmists were sounding their apocalyptic warnings in the Sixties and Seventies, it looked very much like global hunger issues were no longer a matter of production constraints. Looking back at this time five decades hence, it's clear that the world is definitely capable of producing enough food for all until humanity's population boom levels off and starts to decline, as it already has in many countries.

Having come of age in the Seventies, I often took part in earnest conversations about the perceived population crisis. A nagging question inevitably arises when population alarmism rears its head: Who's going to have to die?

Malthus was unapologetically brutal about this question:

We should facilitate, instead of foolishly and vainly endeavoring to impede, the operations of nature in producing this mortality; and if we dread the too frequent visitation of the

¹⁰ John P. Holdren & Paul Ehrlich, *Global Ecology - Readings toward a Rational Strategy for Man* (New York: Harcourt Brace Jovanovich, 1971).

horrid form of famine, we should sedulously encourage the other forms of destruction, which we compel nature to use. Instead of recommending cleanliness to the poor, we should encourage contrary habits. In our towns we should make the streets narrower, crowd more people into the houses, and court the return of the plague. In the country, we should build our villages near stagnant pools, and particularly encourage settlements in all marshy and unwholesome situations. But above all, we should reprobate specific remedies for ravaging diseases; and those benevolent, but much mistaken men, who have thought they were doing a service to mankind by projecting schemes for the total extirpation of particular disorders.¹¹

It would be some comfort to think that such draconian notions have no foothold in modern civilized society, but it's all too easy to find modern-day corollaries only slightly less merciless. David Graeber, who played a major role in the Occupy Wall Street movement, stated it plainly:

We have become a plague upon ourselves and upon the Earth. It is cosmically unlikely that the developed world will choose to end its orgy of fossil energy consumption, and the Third World its suicidal consumption of landscape. Until such time as Homo Sapiens should decide to rejoin nature, some of us can only hope for the right virus to come along.¹²

I remember well the turbulent Seventies, when many young people were seriously questioning some of the most basic elements of their society and their upbringing. As many drifted away from the religions they were raised with—or began to abandon religion altogether—there was a lot of hand-wringing about the rise of secular humanism. Those concerns are still echoing in some circles today. But it's not so easy to simply abandon cultural belief systems that deal with one's very existence and which have been ingrained in one's psyche since infancy. Many boomers dabbled in mysticism or eastern religions, or an often amusing variety of belief systems—some ancient (like astrology), some created contemporaneously out of thin air, like Scientology.

Since this cultural upheaval was happening concurrently with a recognition of environmental degradation and a nascent environmental movement, many people began to replace their old religion with a sort of pantheism, a reverence for Mother Nature. James Lovelock, a British scientist and environmentalist, had articulated the Gaia Hypothesis in the Sixties, named after a Greek goddess that was the personification of Earth. Lovelock's idea was that the earth can be thought of as a self-regulating organism, but the goddess angle fit in nicely with the Mother Nature concept. Never mind that Lovelock didn't mean for that allusion to be taken literally.

If the new environmentalism was filling the bill as a new sort of religion, it wasn't a stretch to cast about for a devil or two. And there were so many candidates!

Industrialists were obvious culprits to those who were sounding the alarm about the all-too-obvious pollution issues. But the neo-Malthusians were so vocal that many came to regard humanity itself as a virus upon the earth, or a cancer attacking Mother Nature. Growth and development itself became anathema.

¹¹ Thomas Malthus, *Essay on Population* (London: John Murray, 1826).

¹² David Graeber, "Mother Nature as a Hothouse Flower : The End of Nature," *Los Angeles Times*, Oct 22, 1989 1989.

These attitudes have metastasized over the last half century and are still influencing politics and policies in many of the most advanced countries. Not only that, but anti-humanist activists meddle in the affairs of developing countries with sometimes disastrous results. International NGOs like Greenpeace tried to convince countries in southern Africa that were facing famine in 2003 to reject massive amounts of food aid shipped from the USA because it was GMO grain. Zambia refused it outright even as its citizenry starved. More recently, the ruling party in Sri Lanka was convinced to outlaw synthetic fertilizers, dictating “organic” farming practices for their whole country. That foolish capitulation to the meddling NGOs crashed the Sri Lankan agricultural sector and was probably the biggest factor in the overthrow of the government there in 2022.

One of the most consequential impacts of anti-humanist policies is the rejection of genetically modified organisms, or GMOs. Despite the overwhelming scientific consensus of their safety, thirty-eight countries—including most of the EU nations—don’t allow their farmers to grow GMO crops. This is in spite of the fact that GMO crops are often superior in disease and drought resistance, allowing for fewer pesticides, less fertilizer, and other characteristics that one would think a “friend of the earth” would celebrate. Yet the anti-humanist zealots persist, and as is too often the case, their delusions wreak havoc on some of the world’s most vulnerable people, as cited in Andrew McAfee’s excellent book, *More From Less*:

Forbidding GMOs is bad not only for the environment but also for people. This is probably easiest to see in the case of golden rice, a strain of rice genetically modified to produce beta-carotene, a precursor to vitamin A. Vitamin A is critically important for young children, yet many Asian and African infants weaned on rice gruel don’t get enough of it. UNICEF estimates that approximately half a million children become blind each year because of vitamin A deficiency, half of whom die within a year of losing their sight. In total, the deficiency is thought to cause more than a million deaths annually.

Golden rice, named for its color, has been available for years. It has been approved as safe by the US FDA, the food standards bodies in Australia and New Zealand, and Health Canada. It is patented, but free licenses are available to developing countries. However, many groups remain adamantly opposed to it. Greenpeace, for example, holds that releasing golden rice would be “environmentally irresponsible and could compromise food, nutrition and financial security.”¹³

Contrary to the concerns of many religious leaders, secular humanism is hardly a serious threat compared to the cult of anti-humanism, personified in the Green Party and the so-called environmentalist NGOs like Greenpeace and Friends of the Earth, many of which have massive funding. As I write this in September of 2022, Russia’s curtailment of natural gas supplies to western Europe has already led to the closure of ammonia fertilizer plants, steel plants, and other industries that simply can’t survive if they have to pay stratospheric prices for energy. Yet even in the face of this crisis as winter approaches, Germany’s insane shutdown of their perfectly good nuclear power plants is nearly complete. The Green Party has deeply embedded itself into Germany’s political system (and several other European countries’ coalitions) and are adamant

¹³ Andrew McAfee, *More from Less* (Scribner, 2019).

that one of their primary devils—nuclear power—will be eliminated. Yet even as they pursue a plan to eliminate the greatest source of carbon-free energy of all, they’re reopening coal-fired power plants in hopes of averting energy catastrophe. And those power plants are burning German lignite, the dirtiest form of coal. Any pretense of pursuing their agenda primarily because of concern about climate change is given the lie by the cognitive dissonance of these policies. Even in the face of these serious challenges, there is celebration amongst some of the anti-humanists that this is all a good thing, that high fossil fuel prices and deindustrialization are steps toward the societal devolution that animates them.

My main purpose in writing this book is not to argue and vilify, but to sketch out a vision of the near future that is both hopeful and realistically feasible. In my previous book I likewise tried to minimize criticism of those who espoused energy policies with which I disagreed. I still see little benefit to picking fights, especially since most of the people who subscribe to Green Energy Revolution ideas are earnest in their desire to make the world a better place. However, before proceeding to elucidate my vision of the near future, I’ll endeavor to clarify several fundamental inconsistencies espoused by them.

The problem is that the current predominant view of the Green Energy Revolution flies in the face of mountains of data and a basic understanding (or complete disregard) of engineering and arithmetic. As my late friend David MacKay wrote, “Please don’t get me wrong: I’m not trying to be pro-nuclear. I’m just pro-arithmetic.”¹⁴ Subsequent to the publication of his book, David served for five years as the chief science advisor for the UK’s Department of Energy & Climate Change. He was scrupulously attentive to actual data and analysis. I highly recommend that anyone interested in the subject of energy and climate read his excellent (and free, see footnote below) book, *Sustainable Energy – Without the Hot Air*.

It's abundantly clear that the “progressive” view of energy and environment today is overwhelmingly promoting the notion that if we just build enough wind turbines and solar panels (supplemented with hydroelectric power, biomass, and some as yet marginally applicable or undeveloped technologies) we’ll be able to power human civilization. This is the crux of the all-renewables line of thinking, and it’s evident in nearly every news story about energy and the environment. Yet the numbers just don’t crunch to support that line of thinking.

It's akin to the aforementioned agricultural fiasco in Sri Lanka and how that developed.

“While the proximate cause of Sri Lanka’s humanitarian crisis was a bungled attempt to manage its economic fallout from the global pandemic, at the bottom of the political problem was a math problem and at the bottom of the math problem was an ideological problem—or, more accurately, **a global ideological movement that is innumerate and unscientific by design, promoting fuzzy and poorly specified claims about the possibilities** of alternative food production methods and systems to obfuscate the relatively simple biophysical relationships that govern what goes in; what comes out; and the

¹⁴ David MacKay, *Sustainable Energy - without the Hot Air* (2009). Available free online at www.withouthotair.com/

economic, social, and political outcomes that any agricultural system can produce, whether on a regional, national, or global scale.”¹⁵

One could hardly do better in describing the dominant fantasy of an all-renewables world than in the words in bold type in that quote. The thing about fantasies, though, is that they’re very seductive, usually serving to fulfill a need not gratified in reality. When it comes to energy policy, the all-renewables fantasy has developed into a cult-like ideological delusion with untold millions of adherents.

The delusion is fed and elaborated upon by nearly every major so-called environmentalist organization, as well as by a number of activists and authors who probably know better but have a variety of rationalizations for going along with the crowd. I’ve searched for a handy term to refer to NGOs like Greenpeace, Friends of the Earth, 350.org, and the like that claim to care about the environment but that advocate nonsensical policies that are often directly counterproductive to improving the environment. It feels like a lie to refer to them as environmentalists. In my previous book I referred to them as environists, which I half-kiddingly described as environmentalists in whom the “mental” portion is selectively inoperative. Given the persistent, dogged refusal to recognize mountains of data that contradict their zealously promoted positions on energy policy, I still think that environism is an apt descriptor, which henceforth I’ll use in referring to such organizations.

The world is a complicated place, and getting more complicated all the time. So it’s entirely logical to defer to experts when it comes to many of the aspects of how we live our lives. We get advice from financial planners to handle our money, doctors to guide our health decisions, mechanics to fix our cars, etc. Many people look to ministers, priests, rabbis, imams, or a bewildering variety of other seeming experts for spiritual guidance. It’s not surprising that many people—including those who’ve rejected organized religion—look to environist organizations to guide them in living in such a way as to minimize their detrimental impacts on the planet.

Such organizations and those who promote their ideologies have become immensely wealthy and politically and socially powerful over the years. It’s easy to understand why their anti-growth, neo-Malthusian bent has found convenient demons to drive enthusiasm—and donations—to their causes. Greenpeace is a classic example of how such situations develop. Their initial causes were to stop whaling and atmospheric nuclear testing. Who could argue with that? Yet over the years, Greenpeace vastly expanded its menu of causes, which now include the elimination of both nuclear power and GMO crops. In these two areas their antipathy is echoed by the Green Party, which is still a fringe movement in the United States but which has metastasized deeply into the politics and policies of the European Union.

It’s important to understand our global situation and how we got here in order to understand how we can move ahead to a brighter tomorrow. One might be tempted to ask why we should care about what other people believe when it comes to such issues. As Thomas Jefferson wrote in his *Notes on the State of Virginia* in reference to the religious beliefs of others, “But it does me no

¹⁵ Ted Nordhaus & Saloni Shah, “In Sri Lanka, Organic Farming Went Catastrophically Wrong,” The Breakthrough Institute, <https://tinyurl.com/4jtz8cz2>.

injury for my neighbor to say there are twenty gods, or no god. It neither picks my pocket nor breaks my leg.”

Well, when it comes to beliefs about energy and the environment, and how to deal with global issues like climate change, environists are definitely picking my pocket—and yours. As for breaking legs, their policies are certainly also leading to damage to the health of millions. One need only look at the ludicrously misguided energy policies of Germany to illustrate the point. Their Green Party policymakers have ramped up the use of lignite while shutting down perfectly good nuclear power plants. Their continuing subsidies for the still-failing *Energiewende* transition to renewables have picked their citizens’ pockets of an estimated half a trillion dollars,¹⁶ and prematurely ended the lives of an estimated 1,100 people per year due to air pollution released by coal-burning power plants.¹⁷ And that’s without even considering the added greenhouse gas emissions that impact the rest of the planet.

While Germany stands out for energy lunacy, it’s not the only example. In the face of crippling increases in energy costs throughout Europe, Belgians took to the streets in late September 2022 to protest high energy bills. Polling indicated that 64% of Belgians were concerned that they might not be able to pay their energy bills.¹⁸ Yet just two days later—undeterred in the environist zeal to kill off nuclear power even in the face of an energy crisis—the 1,056 MWe Doel 3 nuclear power plant was shut down. And in February, in the middle of what could be a brutal winter in Europe due to stratospheric energy prices, they plan to shut down the similar-sized Tihange 2 reactor which has been the target of anti-nuclear activists. With nuclear supplying about half of Belgium’s electricity, retiring those two reactors knocks out about 17% of the country’s generating capacity, which is about twice as much generating capacity (and dispatchable, unlike wind and solar) as all their renewables combined. And just to be clear, almost two-thirds of their “renewables” are biomass, a much-misrepresented topic we’ll dig into in a future chapter.

Such premature shutdowns of reliable nuclear power plants in developed countries have caused additional carbon emissions of nearly 140 million metric tons of CO₂ equivalents per year, according to the Breakthrough Institute. That yearly carbon footprint is nearly equal to the combined annual emissions from 37 African countries with a total population of 455 million people.¹⁹

The Green Parties in some major EU countries have leveraged their minority position to the fullest, insisting on installing manifestly unqualified party members into pivotal energy policy positions in exchange for their support in building coalition governments. There they pursue their technological fetishism of wind and solar power that just doesn’t work from an engineering and scaling standpoint. But they’re not engineers anyway. When one looks at the CVs of most of these

¹⁶ Mark Nelson and Madison Czerwinski, "With Nuclear Instead of Renewables, California & Germany Would Already Have 100% Clean Electricity," *Environmental Progress*, <https://tinyurl.com/2p9ffs2h>.

¹⁷ Nathanael Johnson, "The Cost of Germany Turning Off Nuclear Power: Thousands of Lives," *Grist*, <https://tinyurl.com/bdxbzwya>.

¹⁸ Julianne Geiger, "Belgium to Shut Nuclear Reactor on Friday Amid Energy Crunch," *oilprice.com*, <https://tinyurl.com/bdhja28v>.

¹⁹ Guido Núñez-Mujica and Seaver Wang, "Nuclear Shutdowns Have Already Harmed the Planet," *The Breakthrough Institute*, <https://tinyurl.com/mvumnyek>.

now very important energy ministers, it's hard not to recall the adage, "If you hire a bunch of clowns, expect a circus." Alas, this circus is anything but amusing.

The bottom line of the energy ascetic environists can probably be represented quite well by a quote from Maurice Strong, who was a senior advisor to the late UN Secretary-General Kofi Annan:

"Isn't the only hope for the planet that the industrialized civilizations collapse? Isn't it our responsibility to bring that about?"

Well... no.

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