

Forget 'Reduce, Reuse, Recycle'

A new book suggests that the best way to save the planet is through abundance.

By [Derek Thompson](#) February 25, 2022



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Humanity's existential crisis is straightforward. The world is getting richer, richer people use more energy, and the planet's most popular sources of energy—such as coal, oil, and wood—are slowly cooking the biosphere.

Saul Griffith, an entrepreneur and MacArthur Grant recipient, has a solution that is similarly straightforward. We have to electrify everything that we do. And we have to power the electrification of modern life with zero-carbon

sources such as solar, wind, and nuclear. This clean-energy shift would not only power the world, but also disempower autocrats like Russia's Vladimir Putin, who uses his country's natural gas and coal exports to threaten his trading partners as he wages war against his neighbors.

So far, so simple. But it's the details that make his book [Electrify Everything](#) one of the most quietly revolutionary policy books I've ever read. Griffith is allergic to thinking small. He condemns the "1970s mentality" of energy efficiency, which says we can save the planet with a bit more recycling and a few more stainless-steel water bottles. Rather than guilt Americans over their living standards, he proposes that we can keep our luxurious lifestyles without destroying the planet if we all—governments, companies, and individuals—get a small number of big decisions just right.

I recently spoke with Griffith about his plan to electrify the world, his controversial idea to bribe fossil-fuel companies to go green, and why American gloom and [NIMBYism](#) are standing in the way of the [abundance agenda](#). This conversation has been edited for clarity and brevity.

Derek Thompson: What does "electrify everything" mean, and why is it such a crucial part of the fight against climate change?

Saul Griffith: "Electrify everything" quite literally means electrify everything we do. Electrify our vehicles. Electrify our homes, including the kitchen, the laundry, the basement, the attic, and the garage. Electrify our small businesses and commercial buildings. Electrify our industrial processes.

We then have to produce all of that electricity with zero emissions, which means solar, wind, hydroelectricity, geothermal, but also nuclear. We can use biofuels, too, but biomaterials aren't realistically going to power more than about 5 to 10 percent of the economy.

The reason to boil down climate action to that simple message is to make it concrete, make it simple, and to cut through the various distractions and smoke screens such as hydrogen and negative emissions. Very simply, the great majority of our emissions will be eliminated by electrifying everything. It also makes concrete the important decisions in a person's or consumer's or citizen's life: what you drive or ride, what powers the place that you live, what powers your appliances.

Thompson: Does electrifying everything require lots of brand-new technology? Or is this something we can do by simply deploying technology we've already invented?

Griffith: We have invented all of the things that are necessary. More inventions might make it cheaper or easier, but we do have everything we need already. Electric vehicles are widely now seen as equals to or better than internal-combustion-engine vehicles. Electric heat pumps now beat furnaces on cost and performance in nearly any environment. Electric cooking is cleaner, faster, cheaper, and easier than cooking with gas. Wind and solar are cheaper than natural gas and coal at feeding the grid. Batteries are dropping in cost every day. Rooftop solar can be cheaper than the cheapest grid-based electricity.

Thompson: I came away from your book seeing that the "electrify everything" plan has at least three discrete challenges, and maybe you can respond to each one. First, we need to add more energy capacity from clean sources such as solar and wind.

Griffith: Absolutely. If we continued to add new capacity at the rate that we have added solar, wind, hydro, and nuclear over the past few decades, the world would be able to completely power itself on zero-emission electricity by around 2037. If we kept up the exponential growth of more recent years,

we'd get there even faster. It tells you an overlooked piece of good news: We can do it.

Thompson: The second step is that we need lots of batteries to store energy.

Griffith: Without a doubt, a challenge in the future will be providing sufficient energy 24 hours a day, seven days a week, 365 days a year. Nuclear power probably can't solve all our problems, because of constraints around fuel supply and cooling water. Solar and wind are extremely reliable but not round-the-clock sources of energy. We can compensate for down periods with oversupply, demand response, long-distance transmission, or storage, which means batteries.

Oversupply means generating more wind or solar than you strictly need to meet demand in the winter months or late evenings. Demand response means being smart about when we use energy—heating your hot water when the sun is shining, even if you store it away for a late-night shower; pumping your swimming pool or cooling the refrigerator when the wind is blowing so you don't have to when the wind stops. Long-distance transmission helps because it is always windy somewhere. It is always sunny somewhere, though that might be halfway around the world, the point being that afternoon West Coast sunshine could be powering the rest of the U.S. through the evening peak. Midwest wind power, which picks up in the evening, can power California through the evening and the night. Storage is the other option, whether through batteries in your car or batteries on the side of your house or on the distribution network.

Thompson: Third, as you allude to above, we need long-distance transmission infrastructure to share energy, so that one coast's sunset powers the other coast's late-night TV. How do we develop that

infrastructure?

Griffith: The original Build Back Better bill had a good plan for getting more solar and wind on the grid. More than 80 percent of new generation capacity installed globally in 2021 was renewables, a demonstration of the inexorable trend. We need to go faster though, as electrifying the sectors that aren't electric yet—namely transportation, building heat, industry—is going to nearly triple demand for electricity even as it halves the total amount of energy we need.

Thompson: I just want to stop you here to emphasize a really crucial point: If we electrify the entire economy, from our cars to our heat, that's going to triple U.S. demand for electricity. If we all went electric tomorrow without building out that energy capacity, we'd have a lot of brownouts and dead Teslas in our garage. So we really, really need to start deploying solar and wind technology immediately. Is any country going as fast as needed?

Griffith: More than 30 percent of Australian homes now have rooftop solar, compared with only 3 percent in the U.S. To unlock the rooftop potential of solar in the U.S., we don't need more transmission technology. We need to optimize the U.S. regulatory environment to eliminate the soft costs—like permitting, inspection, customer acquisition, and overhead. These are the pedestrian things that are actually holding back that sector.

Thompson: So let's talk "soft costs." Today in the U.S.—and, I'm sure, around the world—green-energy NIMBYism rules. That is, even liberal states and towns are typically refusing to build solar and wind energy, for environmental or aesthetic reasons (or aesthetic reasons disguised as environmental reasons). How do we overcome this?

Griffith: There is no easy answer. There are different NIMBYs at play. There are "No wind turbines off my coastline!" NIMBYs. There are "No gas line

running through my backyard!" NIMBYs. There are "I don't like the look of solar cells!" NIMBYs. For those complaining about the view, I would remind them that a huge amount of land is already taken up by our energy-transmission systems. Millions of miles of dedicated coal rail lines and natural-gas pipelines are already strewn across the landscape. They only seem invisible because they've blended in over the past century.

Thompson: Okay, if there's no easy answer, what's the hard answer?

Griffith: I'm going to give you an answer that I've only been thinking about for a few weeks. I think the argument will be won on local economics. If you take a suburb with a thousand homes in it, those families might spend \$3.5 million a year on gasoline. When those families fill their car with gas, the money immediately leaves the community and goes to Texas or Saudi Arabia. But if the cars are run on electricity that comes from their own rooftops and houses, then no money is leaving the community. You can take that \$3.5 million and build new classrooms. That's really exciting to me.

Thompson: I've come to think that what I call the "abundance agenda" needs both an economic argument—that is, "How do these policies *help me?*"—and a values argument—that is, "What do these policies *say about me?*" I wonder if the local energy reforms you're talking about might appeal to people's values of local control and community.

Griffith: Electricity literally is the network that connects every home. You are connected to everybody through this thing in your community. And it really might be the opportunity for community renewal that America needs. It might be the thing that binds us back together again. Because it saves us money and has a damn good chance of being bipartisan.

Thompson: I'm concerned that the world is turning away from nuclear power at the very moment we most desperately and obviously need nuclear

power to make the clean-energy math work. It'd be one thing if only California was turning away from nuclear with the closure of the Diablo Canyon plant. But so is Germany. So is Japan. Why is this happening around the world, and what is your outlook on nuclear's future?

Griffith: If you take the six biggest countries by land area—Russia, Canada, the U.S., China, Brazil, Australia—only one of those countries could provide all of its energy with solar and wind using less than 1 percent of its land area. That would be Australia, because it's giant and has so few people. But if you tried to give everybody in China an American lifestyle, fully electrified with renewables, you'd need 10 percent of the land covered with wind turbines and solar cells. In America, you'd need about 2 percent of the land. My view is that any country that needs more than 1 percent of its land dedicated to renewables *has* to keep nuclear on the table. People have to realize that they can't have Western lifestyles without nuclear power in a country as dense as Switzerland.

Thompson: We need nuclear power. It's safe. So why are we so afraid of it?

Griffith: Not everybody is so afraid of it. On my last two trips before COVID, I went to Kenya and Dubai to speak to the energy ministers. They're buying nuclear-power plants from Russia, Korea, and China. And the U.S. wasn't always so afraid. In 1972, there were predictions that America would be using about five times as much energy as we use today and half of it would come from nuclear. America was going to go nuclear in a big way until Three Mile Island. I blame [Ronald] Reagan. I blame Hollywood. I blame NIMBYism and an obsession with home values in America. I blame the media too. I just moved back to Australia and it's really amazing what it's like to be away from the American-media ecosystem. It's hard to put into words.

[David Frum: The West's nuclear mistake](#)

Thompson: You have a very radical plan for getting oil and gas companies on board with your strategy to transition to a clean-tech future. You want to treat these companies as “friends” rather than enemies. Tell me about this plan.

Griffith: It’s popular on the left to seek to punish the fossil-fuel industry. But I don’t think that strategy gets us very far. I think the best strategy is to engage the fossil-fuel industry, which we know has the skills and capacities we need for renewable energy. I think we should buy them out. I think governments should pay these companies *trillions* of dollars to buy back the land and the fossil fuels underneath it. [*Editor’s note: In his book, Griffith proposes a \$9 trillion plan to do just that, “and perhaps even make an international collection of national parks for perpetuity.”*] That would give them the capital they’ll need to build the clean-energy economy we need. We could afford this. For a fraction of Build Back Better, you could pay everybody in the West Virginia coal industry for 20 years. That might be the best way to accelerate the renewable future.

Thompson: Let’s talk about what individuals can do. You write that Americans need to stop imagining that a large number of small-bore decisions will save the planet. Rather than focus on many decisions that won’t make much of a difference, we should focus on a few decisions that make a huge difference—such as buying electric vehicles, electric heat pumps, and rooftop solar panels. What’s the benefit of thinking “fewer and bigger” rather than “more and smaller”?

Griffith: There are a few decisions that really matter: where you choose to live, how you power your home, and what you drive. That’s really what matters. So I think about this on a 10-year time horizon, which matches the urgency we need. I say the next time you buy a water heater, the next time you buy a car, in the next 10 years, make it electric. If Americans make a

small number of decisions well, we can solve climate change together.

Thompson: I was fascinated by your observation that the U.S. is stuck in a way of thinking about the environment, dating back to the 1970s energy crisis, which is all about doing more with less: "Reduce, Reuse, Recycle!" But you believe that to win the political battle for a cleaner planet, we need an energy mindset focused on plenty, which says "If we build the right infrastructure today, your future will be awesome." Why is it so hard for some people to embrace an ethos of abundance rather than scarcity?

Griffith: I think it comes down to the fact that we have not had any positive messages about what a clean-energy future looks like. We have to bridge the imagination gap. There has been so little mass media, or books, or movies with illustrations of what this kind of success looks like. So it's easy to fall back on the one narrative we have, which is "Reduce, Reuse, Recycle."

I think people want change, but they want change to look like the lives they already have. Last year, my son had to design and build a model of a sustainable home for a sixth-grade finals assignment. My son is like me, a free-thinking weirdo. He said, "Dad, let's have humans in free-floating cities so that the animals and the fish can have the land." So I did the math on how many Hindenburgs we'd need to float a city over the land, and we built this crazy cardboard model. The next day I dropped the kid off at school and saw that all his classmates had an architectural model that looked like it was made in a professional firm with 30 to 40 hours of effort put into it, each one a spectacular rendition of exactly the homes you already see in the suburbs—except the homes had a Tesla in the driveway, solar cells on the roof, and a chicken coop. So with some conviction based on this totally unscientific study of my own neighborhood, I can say that 59 out of 60 concerned families believe the future should look like today, but with solar cells, Teslas, and a chicken coop. People want change, but they want the future to look

pretty close to what they already have.

Thompson: How do you feel about today's eco-doom on the left? I feel like I know a lot of people—politicians, writers, academics, scientists—who seem to have given in to climate despair. There are widespread reports now of young people forgoing having children because they're so depressed about climate change that they don't want to raise a child who lives to see its worst effects. What do you make of this kind of despair?

[Read: A world without children](#)

Griffith: Sometimes I agree with them. Sometimes I think there isn't much reason for optimism, so I'm sympathetic to people reading the media and not feeling hopeful. But where does despair or depression fit into the five stages of grief? It's the second-to-last stage, right? So maybe we're just in the penultimate stage of climate grief, before we roll up our sleeves and save the world.