Chapter 25 –The American Dream

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The Root of All Evil, The Rich Get Richer, Where Does Our Money Go?, The Cronies, The Big Con, Whose Paying For All This?, The Green Payout, What Good Looks Like, Paying the True Price, Boycott by Divestment, Summary, References

The Root of All Evil

Let's face it. Money is at the bottom of everything. It buys everything we need. It buys everything we don't need. It pays for our homes. It pays our utility bills. It buys our cars. Or a bus pass. Or an Uber ride. Or a plane ticket. We need money to survive. We need money for security. Insurance to protect all that stuff we bought. In case there's a fire. Or a flood. Money has paid for all the fossil fuels that are well on the way to ruining our planet. It pays the ultra-rich so they can afford to spew thousands of times more CO_2e than the rest of us. And if we continue down this path, money will destroy our planet in the end. This is why we are going to have to rethink our current economic system of capitalism that relies on constant monetary growth. We have to change because we can't continue to constantly increase our consumption of the raw materials and fossil fuels from our planet. This is a huge deal that's been kicked around for at least the past century among progressive thinkers in developed countries across the globe. How do we handle money? How do we redefine our monetary system, and what do we do about capitalism, that's completely defined by perpetual monetary growth? It's complicated. But, it doesn't have to be painful. Or impossible. If we're sensible about it.

> "We have an economy that needs to grow, whether or not it makes us thrive. We need an economy that makes us thrive, whether or not it grows." Kate Raworth

> "Capitalism is straight up behaving like a suicide machine." – Bill McKibben

Sadly, it turns out that we humans tend to view success in terms of growing wealth, everybody from the poorest to the richest wants more, and the main way we tend to accommodate that is by trying to make more money. That means providing more products or services, which requires more resources and more customers. This is a disincentive from an economic standpoint to do what we really need to do in order to save our species, which includes reducing population and consumerism. We are taking ourselves out with our own attitude. We are our own worst enemy. For car companies to grow they need to make more cars, for energy companies to grow they must provide more energy, for Walmart to grow they need to keep building more stores and selling more stuff. To sell more stuff we need to both convince people that they need more stuff, and then we need to pull the material and energy resources together to make the stuff. And on and on and on and when does it stop.

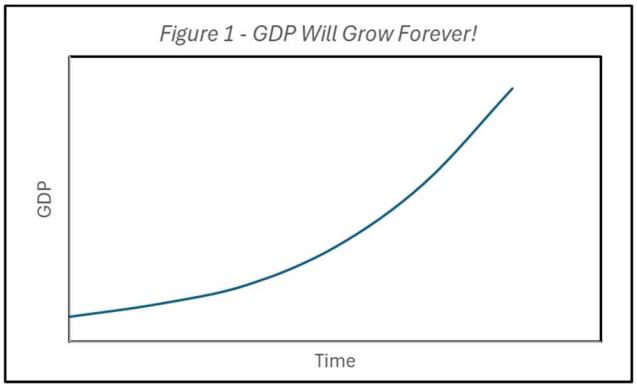


Figure 1 - GDP Will Grow Forever!

Figure 1 shows the ubiquitous growth curve, according to our current model of capitalist economic growth with no end in sight.

One theory suggests that economic growth, rooted in a misunderstanding of the Bible that was supercharged by the Enlightenment and the industrial revolution, has become our overarching story.[1] Westward expansion was driven by philosophy dating back to Roman times, with mining, exploration and development taking preference over all other uses of the land because they represent the "highest economic use".[2] There was no concern whatsoever for land or people, and certainly not for wildlife. The goal of the U.S. government from the beginning has been mainly to empower corporations to extract the riches of the land. This historically meant creating towns where every person depended on industry for a job, and to make sure the states depended on income from the industry. This philosophy was the same for all extractive industries, including mining, oil drilling, coal and uranium mining.

The basic problem is that, while this philosophy may have been good in the past, it no longer works for us. Why? Well, um, because we're now extracting resources faster than the planet can replace them, to the tune of 170%, as mentioned in Chapter 4. And, because our capital economy is based on continuous growth, this in turn means that our capital economy isn't sustainable in the long term. Basically, we can't keep doing what we've been doing, which is defining and pursuing growth in terms of perpetually increasing wealth. Earth, it turns out, is not a perpetual motion machine. Earth has limits. So, we're going to have to figure out how to redefine what success is and what it looks like, in terms that help us get back in balance with our planet.

And, when economists dare bring up this issue, and propose the extremely sensible concept of balancing our resources within the limits set by nature, or any sort of limits defined by our planet's limited resources, instead of constantly pursuing economic growth, it leads to infighting. This has been going on for the past 50 years, again, since the first Earth Day, and the argument among pro-growth advocates, which is most everybody, is always the same. Economic growth has lifted billions of people out of poverty across the globe. Which is all fine and dandy, but we continue to have extreme levels of poverty and misery on our planet after 50 years of saying that. And, our constantly increasing consumption and emissions has caused at least 40.5 million people to be forced to flee their homes in 2020 alone, in just one year, the highest in a decade. About 10 million were due to local conflict or violence, and the rest were mainly the result of weather-related disasters. And, all this displacement comes with a cost, to the tune of $20.5 billion in 2020.[3] Does it sound like people are doing better with our continuous growth capitalist economic system? I don't know about you, but this feels like failure to me.

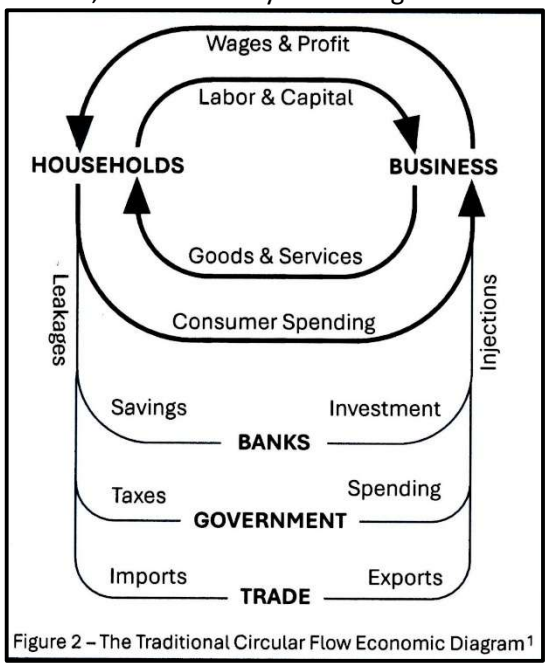


Figure 2 – The Traditional Circular Flow Economic Diagram[1]

Figure 2 shows the current largely accepted circular flow diagram, which has defined the macroeconomy for the past 70 years, and continues to provide a national accounting framework that is used globally to this day.[1] It's basically all about money, with household spending and business earnings at its core, with absolutely nothing about limited resources. In this

outdated model, if household spending starts to fall, it could lead to recession, which would be averted by government kicking in and spending (by the way, with our tax dollars) to prop things up until consumers start spending again. Hmm.

Conventional economics and GDP focuses on paid labor, when a lot more unpaid labor actually happens, that is not accounted for. For example, a stay-at-home mom does the equivalent of $120k/year and a working mom $70k/year when she's not at work. Hilary and I grow and process a significant amount of our own food, we prepare most of our meals from raw ingredients, avoiding the single-stream packaging, and we do all our own housekeeping and most maintenance. A lot of retired people care for their grandchildren. If we had to pay someone to do all this, it would be a fairly significant outlay, if you think about it.

Figure 3 illustrates what Kate Raworth envisions as a more purposeful and sustainable economic model, that accounts for earth's limited resources and our impacts on the planet and its biodiversity.[1] It's a more realistic economic model that allows everyone to lead a dignified life that satisfies basic needs without ruining the planet. The inner edge is the "social foundation" that provides these basic needs, while the outer edge defines the limits that the earth can provide, or the "ecological ceiling". The doughnut in between our needs and earth's resources is a "safe and just space for humanity", where a "regenerative and distributive economy exists". How cool is that? Great thinkers like Kate give me hope for the future.

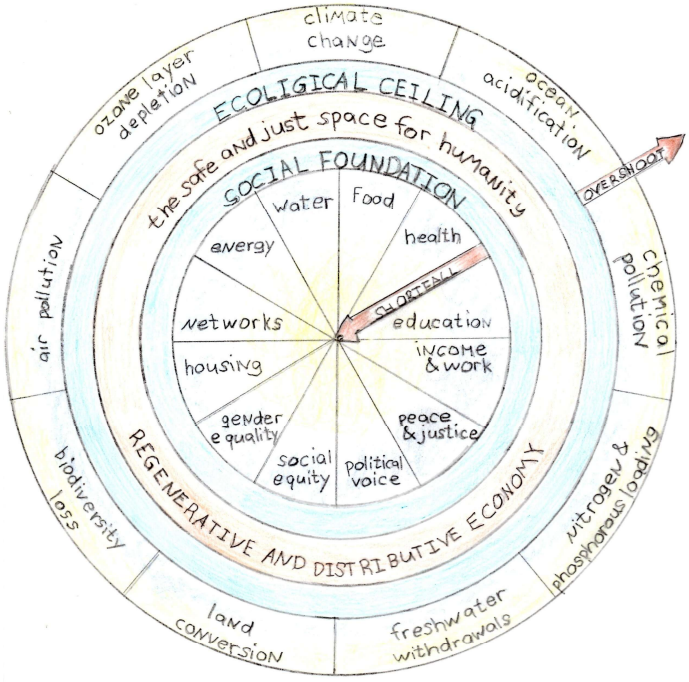


Figure 1 – Doughnut Economic Model[1]

To really turn our planet around, we absolutely must give up on economic growth, and measure success in ways to that are actually good for humanity and the planet in the long term. There are a lot of great ideas out there, and Raworth's is just a sample of what can be done. One thing is certain: we can't keep overconsuming our planet's biocapacity by 170% and expect to leave anything decent for future humanity. It's just flat-ass not physically possible. The concept of a free market economy is a farce anyway. I mean, is a market really free with subsidies, campaign donations, unequal distribution of wealth, and exploitation and domination of other species and the weak?

It turns out that "De-growth" is perfectly compatible with high levels of human development. It's entirely possible to shrink our resource consumption while increasing things that actually matter, such as human happiness, well-being, education, health and longevity.[4] Yet most professionals still insist that we need growth to pull people out of poverty. Even the UN can't let go of the necessity of

growth. The UN's Sustainable Development Goals (SDG's) call for sustainable patterns of production and consumption, but the core of the program depends on the old model of indefinite economic growth that caused our ecological crisis in the first place. That would be continuously increasing levels of extraction, production and consumption. It even calls for 7% GDP growth per year in the least developed countries. While some GDP growth may still be necessary in poorer countries, for the world as a whole the only option is intentional de-growth and a rapid shift to a level of economic activity that we can maintain in ecological equilibrium with our planet. At this point, it seems fair to say that our current economic system is failing the environment with too many managers and executives incentivized to put short-term economic gains ahead of longer-term environmental goals.

If we continue to grow, we'll be left with a hot unlivable planet, and destruction of population will be relatively sudden and ugly as we plummet to extinction along with the other species in the web of life on this planet. Waiting will only result in a collapse of industry that will be worse than if we make gradual changes in a sensible and proactive manner. And embrace degrowth.

The Rich Get Richer

It's long been known that economic inequality is unhealthy for society at all levels. Countries with large income gaps between rich and poor have poor environmental ethics and low biodiversity. They also tend to have more teenage pregnancy, mental illness, drug use, obesity, prisoners, school dropouts, community breakdown and lower life expectancy.[5] It turns out that income equality is even more important than national wealth when it comes to social welfare and happiness. It doesn't matter if a country is rich or poor, if income inequality is low, people are happier. When large corporations dominate the economics and squeeze out the number and diversity of small and medium local businesses, we consumers lose our choices, and our dollars leave our community to pay for the rich to get richer. And richer. And richer.

"The rich get richer and the poor get poorer" – The Mathew Effect, The Bible

Globally, wealth disparity is absurd and getting worse. The wealthiest 10% now own 76% of global wealth, take 52% of income and account for 48% of global carbon emissions. The poorest 50% have only 2% of the wealth and 8.5% of income, and account for 12% of emissions.[6] A deeper analysis reveals that the combined wealth of the world's 2,153 (0.000026% of global population) wealthiest people exceeds that of 4.6 billion people (58% of global population).[7] Looking at this insanity another way, the wealth of the one percent richest people in the world amounts to $110 trillion, which is 65 times the total wealth of the bottom half.[8]

In the U.S., the wealthiest 1% get 20% of the income overall.[9] In the past 40 years, economists estimate that between 1981 and 2021, more than $50 trillion dollars moved from the bottom 90% of Americans to the top 1%.[10] In 2025, the Wall Street Journal reports that the top 0.1% of U.S. households reached 23.3 trillion, while the bottom 50% hold $4.2 trillion.[11] This has been driven by supply-side economics, a conservative philosophy that really began to take hold during the Reagan administration. However, instead of the promised benefits of lowered prices and

Supply-side economics is a macroeconomic theory postulating that economic growth can be most effectively fostered by lowering taxes, decreasing regulation, and allowing free trade. According to supply-side economics theory, consumers will benefit from greater supply of goods and services at lower prices, and employment will increase.[12]

higher employment through deregulation of major industries, all this philosophy has done is transfer insane amounts of money from basic working people to a few really greedy individuals, who are now running apeshit crazy over the rest of us while trashing our planet. And, we're making it easy for them by buying our stuff from them.

Originally, regulation of big corp and taxes was presented to the public as "hampering economic liberty", and to get rid of that would secure "our God-given individual rights to live freely," that hints at religious rule, but in reality focuses on standing against "government control of the economy".[13] The problem is that this ideology, which certainly has resulted in freedom for the ultra-rich, has done the opposite for the rest of us, as we deal with oppression, higher prices, fascism and a small group of ultra-rich extremists taking over our country and our economy, while spewing far more than their share of carbon emissions that are ruining the planet. I don't know about you, but it doesn't look like letting big corp run wild and unrestrained is really all that great for us or for the planet. Basically, we're letting them gouge the shit out of us, trash the planet with their wastes and toxins, and use their ill-gotten gains to live an extremely privileged lifestyle that they don't deserve. At least, that's my take.

The Golden Rule

"The one with the gold makes the rules."

One way to measure the income gap between rich and poor is a ratio called the top/bottom ratio, which is simply the highest incomes compared to the lowest incomes. This works for countries, regions and companies, with the highest ratios indicating a more unfair distribution.[8]

- King County, Washington - Average income of top 1%: $2,303,961, Average Income of Bottom 99%: $78,736. Top/bottom ratio: 29.3.
- Santa Fe County, NM - Average income of top 1%: $1,225,228, bottom 99%: $49,688, top/bottom ratio: 25.3.
- Teton County, WY – top 1%: $22,508,018, bottom 99%: $158,290, top/bottom: 142.2.
- U.S.A. – top 1%: $88,000,000, bottom 99%: $1,000,000, top/bottom: 88.

In the U.S., the top to bottom ratio that represents the gap between the wealthy and the rest of us is extreme, so it's no wonder that the environment is going by the wayside. To be fair, it's pretty much this way across the globe, with a few notable exceptions. So, if a ratio of 88 is extreme, then what should it be? And, what's the problem with extreme wealth anyway? Other than the concept that greed seems to beget more greed and yet more need for control over us low commoners in order to maintain the wealth? Which is a problem in its own right.

When it comes to our environment, the one that we all share on the planet that we all share, is that the extremely wealthy are spewing far more warming CO_2e than the rest of us. Why? Because they can. Because they can afford to. You have to wonder how any one of us, no matter how wealthy, can manage to emit so much carbon. I did. I figured, hell, we all eat about the same, we live in some sort of dwelling which is typically much bigger if you're rich, we have to get to work somehow, even the wealthy probably don't drive much further than the average citizen. They can collect art and fancy cars and afford hundred thousand dollar fashion and furniture and jewelry and such, so they can show off to their friends. Join those exclusive country clubs and such. But none if this seemed likely to cause more than 5 to 10 times the carbon emissions than the rest of us.

I'd be wrong. By a long shot. The problem is, I'm not wealthy, so I don't think the same. I have what I need and am happy with what I have. But with the ultra-rich, it's never enough. Take the Walton

family, heirs to the Walmart fortune. They own at least three superyachts worth $500 million that emit about 2,000 times the annual emissions of a single American.[14,15] And then there's Jeff Bezos of Amazon and Whole Foods, raking in $18 billion annually, with his share of yachts, at least four private jets that he flies all over the world in, multiple mansions and that $50 million wedding. Don't you just love getting gouged so you can help pay for the next leer jet? And the extra CO_2 emissions?

And to think that I feel guilty about that one trip to Argentina. Hmmm. We also have the oil industry slimebags, like Darren Woods, CEO of Exxon-Mobil, who in 2022 was named one of the US' top "climate villains" by The Guardian after "Exxon lobbyists were captured on video revealing the company's efforts to obstruct climate legislation in Congress." In 2021, Woods denied that Exxon had covered up its own research about Big Oil's contribution to the climate crisis. And the list goes on, but we'll stop here.[16] You get the picture. It's easy enough to look up salaries of CEO's of publicly held companies, and then research the facts on line. Just don't forget to end the query with "-ai" to avoid using 20 times as much data center energy as necessary.

In the past 30 years, most workers in high-income countries have seen their wages barely increase or even decrease while executive pay has expanded astronomically.[17] Corporations are now making extreme profits at the expense of average American families. In the two-year period from July 2020 through July 2022, inflation increased by 14%, while corporate profits increased by 75%, which is five times that amount. Take the cost of chicken. Tyson doubled their profits in one year, from 2021 to 2022, causing the price of chicken to increase, and when they were caught, they were ordered to pay hundreds of millions of dollars in penalties for illegally conspiring to inflate chicken prices.

"The truth is we don't need more economic growth to improve people's lives. We can accomplish our social goals right now, without any growth at all, simply by sharing what we already have more fairly, and by investing in generous public goods. It turns out justice is the antidote to the growth imperative – and key to solving the climate crisis." Jason Hickel

PepsiCo's chief financial officer said in April 2023 that even though inflation was dropping, their prices would not. He said that consumers are fine with paying higher prices because their products are worth it.[18] So, the American public is literally so stupid that they think it's worth it to pay higher prices for deadly sugary drinks in single-use containers. When I think of it like that, perhaps we richly deserve to get gouged. And let's not forget that big pharm, well-known for gouging, isn't about to be left behind, with yet another drug from Biogen, aducanumab, for Alzheimer's, that doesn't actually do anything, but costs more than $1,200 per month.[19]

And then there are the junk fees, or extra costs that big corp likes to nitpick us with, that have nothing to do with their costs of goods or services, and everything to do with maximizing corporate profits. In other words, to satisfy their incredible capacity for greed. These would be annoying hidden fees for air travel, car rentals, credit cards, cable television, ticket sales, and such. For example, the airline industry collected more than $6.7 billion in 2022 for baggage fees. For my part, I've been using more cash for on-site sales, to avoid credit card fees as much as possible, as well as writing more checks for higher cost bills and items. For regular bills, I use ACH as much as possible, which is direct payments from my bank account. By the way, I actually bank with a credit union and not a bank, which assures a lot more responsibility with respect to sneaky hidden fees.

According to a study by the Center for American Progress, only 4% of the Big Five's $100 billion in combined profits in 2008 went to "renewable and alternative energy ventures." Instead, they

continue to pour their profits into shareholder pockets, outrageous executive pay, and new technologies designed to extract even dirtier and more dangerous fossil fuels.[20]

And, not only are the billionaires paying less than their fair share of taxes, they're taking advantage of subsidies from the federal government, in other words, the tax dollars we all pay, to increase their profits even more. The BLM grazing program, which I have already said I think should be obsoleted, was originally put together in the 1930's to contain rampant overgrazing that contributed to the dust bowl. However, now it serves operations that don't need the assistance by a long shot, like billionaire hobby ranchers and large corporations, including the likes of Rupert Murdoch, billionaire founder of Fox News. It only costs 15% as much to graze on public lands compared to private land, basically an 85% discount, at $1.35 per animal unit month, and these fees have remained constant since the late 1970's. On BLM land, about 2/3 of grazing is controlled by just 10% of the permit holders, the billionaires, and the remaining 1/3 is used by the other 90% of actual ranchers trying to make a living. On Forest Service land, the top 10% of permittees control 50% of grazing. In 2024, the Federal government spent at least $2.5 billion of our money on subsidy programs for grazing on public lands,[21] and most of it is spent helping billionaires get richer. I don't know about you, but I definitely don't appreciate my tax dollars getting used to increase billionaire's profits, on top of all the other ways they gouge us.

And it's not just grazing. Hundreds of billions of federal dollars have been handed over to industrial-scale farming of wheat, soy and rice over the past two decades. Meanwhile, small, diversified farms are left with the dregs. Commodity payments, which are subsidies designed to keep farms in business and produce a steady supply of staple crops, make up most of the taxpayer-funded agriculture aid. Nearly 80% of those payments have gone to the top 10% largest farms in the country, yet another way we support poisonous agriculture with our purchases and tax dollars at the same time.

"In America, the big get bigger and the small go out." Sonny Perdue, Secretary of Agriculture, 2017 - 2021

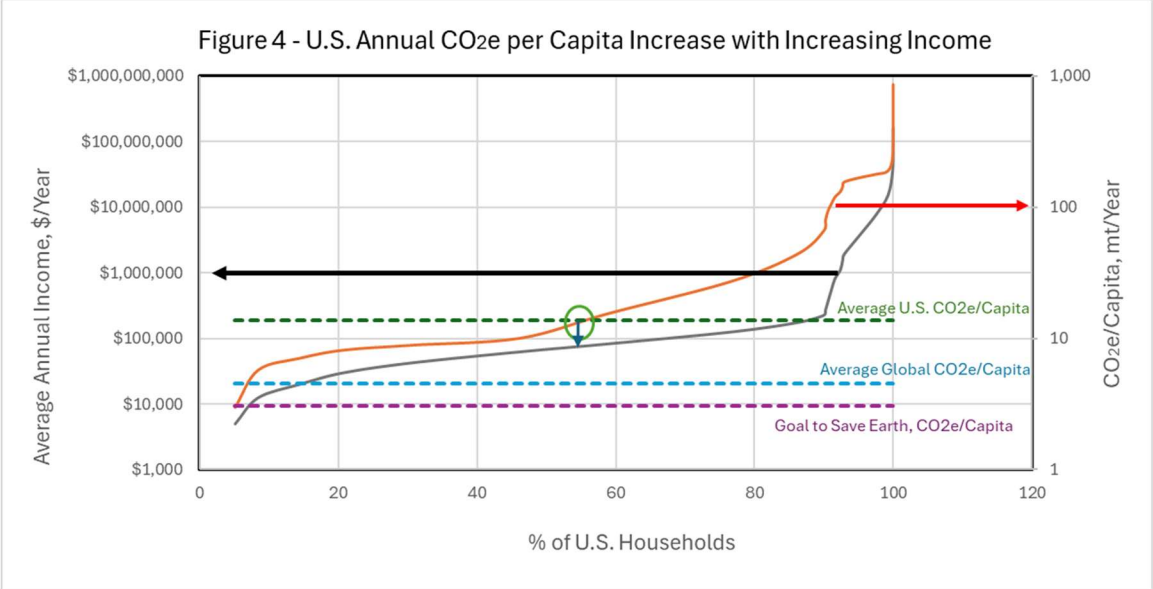
The consolidation of the industrial agricultural system has made corporations richer. It's also driven family farms out of business. In the 1950s, the U.S. had nearly 3 million farms smaller than 50 acres; now, there are fewer than 900,000. Today, the majority of U.S. cropland is on farms larger than 2,000 acres, and many of the remaining small farms produce little in food or sales.[22]

Now let's have a look at just what's going on with the extremely wealthy and their impact on our carbon footprint. Figure 4 shows annual income and CO_2e emissions against percentage of U.S. households. The left vertical axis is for the average annual income per year per household, and the right axis is the estimated annual carbon emissions. As annual income increases, carbon emissions increases. The average CO_2e per capita for the U.S. and for the world are shown for reference, as well as the estimated goal of approximately 3 mt/year from Chapter 3. The black line, which is for income on the left vertical axis, shows that 10% of U.S. households manage to scrape by on less than $15,000 per year. These same households emit less than 6 mt CO_2e/year, shown by the red line, which is for CO_2e emissions on the right vertical axis, which is a little more than the global average, and about half of the U.S. average. The simple truth is that they're poor, so they can't afford the cost of extra emissions.

The green circle marks the point at which the red line, which represents CO_2e/capita, crosses the dotted green line, which represents the average U.S. CO_2e/capita. The black line from that intersection in the center of the circle points directly down to the gray line, which represents the

average annual income at the average U.S. CO_2e /capita. This point shows two things. First, the average annual income for households that emit the U.S. average amount of CO_2e is about $72,500. Second, this point is at 52% of U.S. households, reading from the bottom horizontal axis.

Basically, the 52% of U.S. households that make $72,500 or less per year emit the U.S. average CO_2e/capita annually or less than the average. Which in turn means that the other 48% of households that make more than $72,500 per year emit the average CO_2e/capita or more than the average. Emissions per capita increases fairly quickly as income rises, up to hundreds of times more as income of the obscenely wealthy increases to thousands of times more than the average Joe.



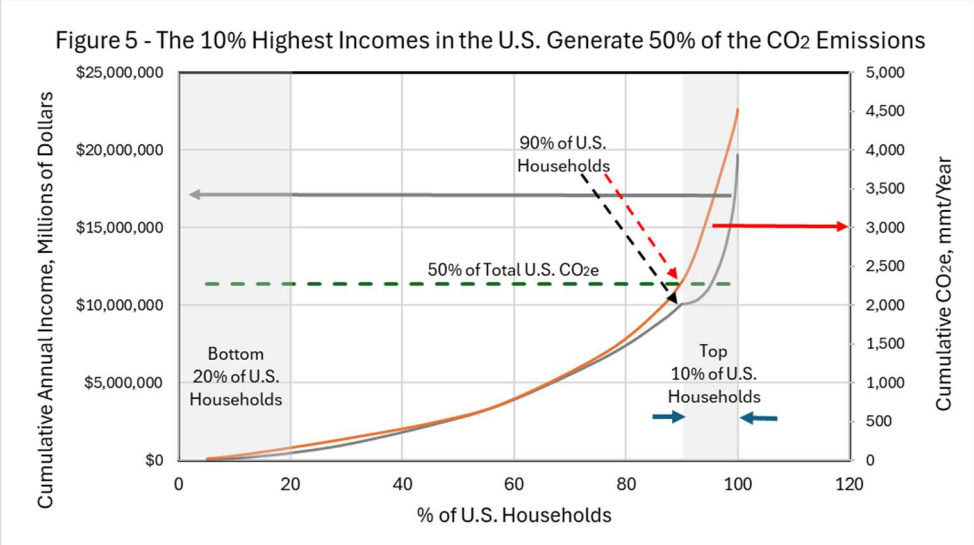
At 92% of U.S. households, we reach the $1 million income level, meaning that 92% of households make less than $1 million and 8% of households make more. At this point, CO_2e is a whopping 144 mt/household, or about twenty times the U.S. average. So 8% of our households emit more than twenty times the U.S. average. At the far right end of the graph, both the black income line and the red CO_2e emissions lines suddenly turn straight up. This accounts for the extremely wealthy in our country, the top 0.1% of U.S. households that bring in $35 million a year or more, including the highest paid billionaire in the country, Brad Jacobs, at a monstrous $190 million per year. Brad is the proud CEO of QXO Inc., a construction company. I wouldn't be surprised if he or his companies use a portion of their profits to pay for lobbying and campaign finance for candidates who are against population control; after all, without runaway population growth we definitely wouldn't need as much construction.

The top 0.1% of households, about 1 million in total, average over 500 mt per year of CO_2e each, accounting for about 500 mmt in total, or 10% of U.S. CO_2e emissions.

In Figure 5, the data is plotted a little differently to hopefully make my point a little more clear. The horizontal axis is still U.S. households, but the vertical axes are *cumulative* annual income and *cumulative* annual CO_2e emissions instead of *per capita* income and emissions. The difference is that instead of income and emissions per household, the data is summed up, to show what the entire population in increasing pay ranges makes and emits in a year. The lowest paid 20% of households bring

in a total of $500 billion and emits a total of 170 mmt of CO_2e, which is only 3.8% of the total CO_2e that our country emits. 90% of our households account for $10 trillion in total U.S. income, while emitting half of the total CO_2e. The top 10% of the households account for another $10 trillion of income, and the other half of our national emissions.

To my point, half of this country's income goes directly to 10% of the population, the 10% wealthiest people, who emit half the U.S. emissions with their extreme lifestyles that are paid for with their obscene salaries. And we're paying them to do it when we consume their products. Which is why I don't shop at Amazon or Whole Foods, preferring to get my groceries from local grocers like Leever's, Nude Foods and Lucky's. These are locally owned stores, and you can trust me when I say that their owners don't have their own Leer jets. In fact, Leever's and Nude Foods are employee-owned.



I don't know about you, but with this information I find it impossible to respect, admire, honor or envy the extremely wealthy when they are trashing the planet that we share at our expense. They are disgusting and greedy examples of humanity, and should be disdained, reviled, shunned and shamed, and treated like the vermin they are, much like how the extreme right is attempting to brainwash us into treating our treasured and precious diversity in our country. But that's just me. Instead, the concepts of diversity, equity and inclusion are being redacted from Federal documents as we speak. And here we are.

To be clear, the whole point of this section is the extreme corruption and gross overconsumption among the extremely wealthy, to the detriment of the rest of us, and in particular to our environment. To save our planet, we're going to have to figure out how to put a stop to this rot. When you see corporate executives whining about the high cost of responsibility when it comes to using renewable energy, controlling emissions and taking care of their waste, you can be sure it's a bunch of lies. And as consumers we can choose not to buy from them. Without customers buying their products, one can only assume this would eventually put a dent in their obscene profits, decrease the absurd top/bottom ratios in income, and increase social satisfaction and happiness in the long term. Oh, and severely reduce our collective carbon footprint.

Where Does Our Money Go?

Table 1 is an overview of the economic impact of cattle grazing on public lands in 2020. An AUM is an Animal Unit Month, which is a cow and calf grazing on public lands for a month. Basically, unless they're Cliven Bundy, a rancher pays $1.35 per AUM to graze a cow and calf on public land, and the costs to the Department of the Interior to manage the public grazing program run $10.00 per AUM.[21] Recalling our first grade math, this means that we taxpayers are putting up $8.65 per AUM to subsidize the ranchers to ruin our public land and decimate the wildlife thereupon with their cows, whether we happen to eat beef or not. Now, moving to 2nd grade math, we can multiply the actual number of AUM's of 11.78 million by $8.65 per AUM and we can see that we the taxpayers are getting screwed to the tune of $90 million per year for this particular form of environmental destruction and wildlife habitat loss. And, what's even more absurd, is that this stupid outdated grazing program only provides 1.6% of the actual beef produced in this country. The rest is produced on land that is actually owned and maintained by the ranchers. And, those ranchers actually pay $9.00 per AUM, more than six times as much as the public land grazers, to raise their cows on their own land, making their profit margin significantly tighter than those of the ranchers who are ruining our western ecosystems.

Table 1 – Economic Impact of Grazing Cattle on Public Lands

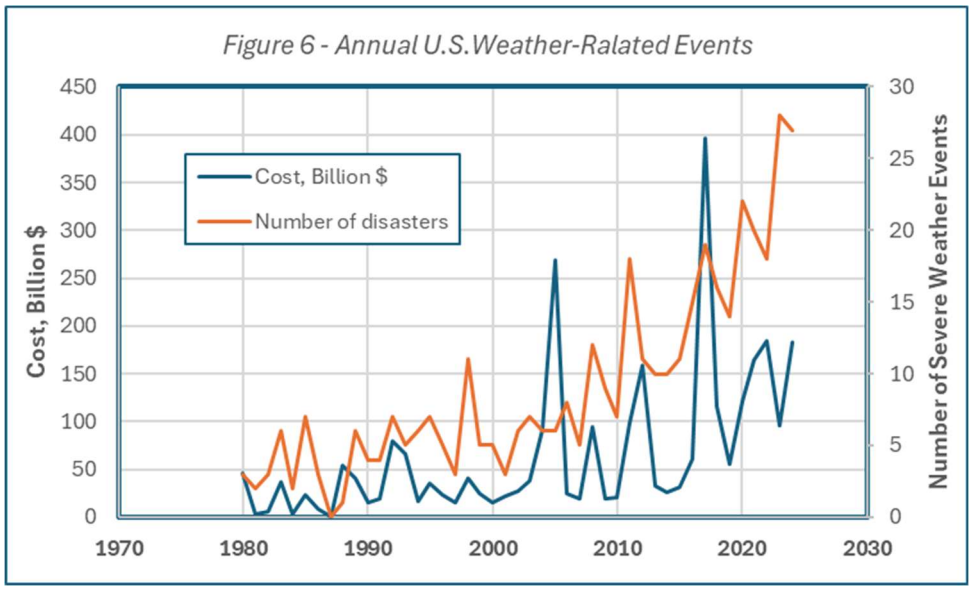
Description	Amount per Year
Cost to rancher to graze on public land	$1.35/AUM
Federal administration costs to manage public land cattle grazing	$10.00/AUM
Net cost to taxpayers	$8.65/AUM
Number of AUM's	11,780,000
Net cost to taxpayers	$90 million
Social cost of grazing cattle on public land	$35.50/AUM
Total social cost to taxpayers	$418 million

The final two rows in Table 1 show the social cost of grazing cattle on public lands, at $35.50 per AUM based on research by Oregon State University.[22] Against the same 11.78 million AUM's, this works out to $418 million in social costs, which is more than 4 times the amount of taxpayer dollars we're paying. These social costs include the impact of the methane from all those cows farting, as well as the methane and nitrous oxide from the manure deposition of all those cows. The resulting carbon emissions is then estimated to result in 186 premature human deaths, 52 million hours of lost labor from extreme heat, and 18,850 metric tons of crop losses each year. And this doesn't even include the costs to the ecosystems of reduced biodiversity, or the carbon stocks and loss of carbon sequestration of native plants compared to grazed-down cheat grass. Cows actually make up a whopping 86% of the grazers on public lands, having squeezed back the original wild native grazers to just 14% of their original numbers, making up a fair chunk of the biodiversity we've eliminated.[23] This is why I strongly recommend that we knock it off with the cows and let the wildlife take over all public lands in the west. This aligns with what Oregon State University recommends.

It turns out that in reality hunting and fishing in the U.S. contribute $145 billion to the economy annually, and wildlife watching another $250 billion, with about half our population participating.[24] That's about $400 billion, compared to a paltry $2 billion that public grazing in the west actually contributes to our economy in the form of total U.S. beef sales,[25] at a loss with our taxpayer dollars.

Think about this. If you were a business owner, would you operate under these kinds of losses, or would you eliminate the entire program and work on something that's actually profitable? I mean, wouldn't that just be common sense? Again, as consumers, we can say no by choosing only certified sustainable beef if we must eat cows, or we can transition to game meat, which is far more efficient. We can also eat far less beef, since it's bad for us to eat as much as we do anyway. If you're wondering what I mean by more efficient, I mean that wild game is far more efficient at utilizing natural forage, which in turn means they don't fart as much. They also graze more efficiently, so that the natural carbon sink of the natural landscape can recover and do what it's supposed to do, which is take up carbon. Finally, a typical argument against removing the cows from public lands is that they'll just go and fart somewhere else. I thought that originally, but it's not true. The cows raised on private property in the Midwest and eastern portions of the U.S., where there is far more precipitation, consume much more efficient forage, like grass hay and alfalfa, and they process it much more efficiently, so they actually don't fart as much. Also, they don't have to walk very far to find food because it's so much more plentiful, compared to the arid west, which plays huge in reduced food requirements which equates to even fewer farts. So there you go.

Figure 6 shows what the U.S. government, or once again us taxpayers, has been paying for weather-related disasters that have been increasing in the face of climate change.[26] Against a $5 trillion federal budget in 2024, you have to admit this is pretty significant, at around 5% of the total. This means basically that for every $100 we pay in taxes, $5 is going towards cleaning up the messes left by extreme weather all over the country. Again, we're all collectively spending this pretty much no matter what our individual carbon emissions are. The disasters include not only severe storms and hurricanes, it also includes drought, flooding, wildfires and severe storms. And we probly ain't seen nothin' yet. A recent study in *Science Advances* reports that the potential of a "megaflood" in California in the next four decades has doubled as climate change increases the risk of atmospheric rivers.[27] Such an event could cause over $1 trillion in losses as California's lowlands temporarily become a "vast inland sea".



And we're paying for a lot more than the disasters. We also subsidize the fossil fuel industry at $35 billion per year.[28] Which, at least during the Biden administration, was dwarfed by the subsidies of $360 billion for renewable energy, through the Inflation Reduction Act (IRA), in the form of tax rebates for those of us who chose to install renewable energy to reduce our fossil fuels. Obviously, the IRA

subsidies are a move in the right direction, to help us distance ourselves from fossil fuels, though under Trump this has been rolled back. All we can hope here is that there's enough momentum to keep pushing for renewables.

Globally, in 2022, handouts for fossil fuel corporations hit $1.3 trillion, the same year that Big Oil banked a record $4 trillion in profits.[29] This goes to show how much we're getting gouged when we consume fossil fuels for those obscene CEO salaries. By the way, the global societal and environmental costs of burning fossil fuels is estimated at $5 trillion annually.[30] That would be the costs of the impacts of burning fossil fuels, including traffic congestion, accidents, road damage, premature mortality from air pollution, forgone consumption tax revenue, and global warming. Since big oil is not required to pay these damages, their obscene profits is actually a loss of $1 trillion at the expense of the rest of us lower proletarian life forms and our planet. It's actually a decent case for taking advantage of whatever renewable energy opportunities we can, with or without subsidies, and the sooner the better. Ya think?

The Cronies

It's nearly impossible to separate economics and politics, because in the corporate oligarchy that has come to dominate our country, they're so intertwined. Yet, there is so much to say about each topic that I decided to do my best to discuss each separately. Between the campaign financing and the lobbying, big corp pays big to buy our politicians so that they get what they want. In the case of big oil, it's to stay in business in the face of the obvious need to move away from fossil fuels and towards renewable energy as quickly as possible. In the case of Tesla and other nasty polluters (the factories, not the actual cars), it's to keep the environmental protection laws as lenient as possible so they can save money and keep profits high while trashing our planet. Big pharm wants to keep gouging us. And on it goes. And, this is nothing new. The only thing that really changes with the times is the priorities. In the Civil War era, the southern wealthy wanted to be allowed to keep on exploiting humans for slave labor. One thing I do see in gigantic big corp campaign donations is that they typically seem to support evil, particularly when handed to conservative politicians who serve the oligarchy. With more liberal candidates, it's more to support issues that actually help the public and environment, which means there are a few overpaid CEO's who actually seem to care, or at least want to make their customers think they care, about something besides themselves.

Personally, I think we'd all be a lot freer in this country if big corp campaign donations were completely eliminated, or at least severely capped. I've donated personally to my share of campaigns, but in the past few cycles I haven't, for the simple reason that in the face of big corp donations, mine would be nothing, so why waste money that's far more precious to me than the big bucks that billionaires donate? So why bother? I mean, I give $100 to the Kamala Harris campaign, and then Musk gives $132 million to Trump at the 11th hour to make sure he wins? WTF. That's just ridiculous. And the worse thing is, that since I own a Tesla, I actually helped pay for that. What a bunch of horseshit. Do I sound angry at being deceived by a company that seemed to be responsible because they make products that reduce our cfp? Oh, I'm deceived alright. And embarrassed. And yes, angry. And I hope not to repeat that kind of error in the future. It's made me particularly fanatical about who I'll do business with. That's for sure. Though I'm not selling the Tesla that I already bought. That feels a bit futile, like closing the barn door after the horse already got out.

When we buy products from big corps, we not only support their businesses, we also support their political candidate choices, for better or worse, as well as any lobbying they do. On lobbying, I'm

not as uptight as campaign donations, because a lot of that is about education, influencing and advising of politicians, many of whom are already in office, with less focus on giving them money. Though I imagine bribes are involved, and probably coercion in some cases. Still, even though big corp pays big for lobbying, non-profits of all types, including sustainability organizations, also bring citizen's concerns to leadership through lobbying. So I feel like lobbying serves a valid purpose, and is an important way to get our voices in the picture.

Now, if elected officials were mainly funded by actual citizens, then wouldn't they be more likely to represent actual everyday citizens by passing socially and environmentally productive laws and by making sure to avoid passing laws and budgets that could fly in the face, as it were, of their donors?

In the 2024 election, extremely wealthy Republicans put up $140 million of their own money, combined with donations by other extremely wealthy Republicans, paid for by their customers, mainly for attack ads against Democrats, to get elected to Senate seats.[31] Of course, all this money, in addition to Musk's $132 million directly to Trump, are to support Trump's promise to reduce tax on the extremely wealthy, and let Musk trash all our social programs in order to free up $2 trillion dollars of our tax dollars to give to the rich instead of to programs that we voted for through our elected officials. Basically a reverse Robinhood. The ultrawealthy definitely like to stick together. The basic idea is to let big corp run wild and unregulated so they can freely amass wealth while freely trashing our planet.

And it's really sad, because the attack ads brainwashed ill-informed voters into believing that the economy was horrible under Biden, when in reality it was the best in the world, with remarkable recovery in the wake of Covid. Biden's policies were working great, enabling the U.S. to recover from the pandemic more quickly than any other country with a modern economy, sending unemployment to historic lows, and raising wages faster than inflation for the bottom 80% of Americans.[32]

Many of Trump's campaign donors have been appointed to high government offices, with no relevant experience. He commuted the sentence of private equity executive David Gentile, convicted in August 2024 of defrauding 10,000 investors in a $1.6 billion scheme that included securities and wire fraud. According to Kenneth P. Vogel of the New York Times, prosecutors said the victims were small business owners, teachers, nurses, farmers, and veterans: "hardworking, everyday people." "I lost my whole life savings," one victim wrote about his losses. "I am living from check to check."[33] And then there's the Dakota access pipeline, yet another crude oil pipeline, 1172 miles long, costing $3.78 billion that Trump fought hard for alongside his oil industry cronies, since it stood to net him personally $1.32 billion a year. Also, it helps perpetuate our use of oil to keep those profits up.

The Cronies That Paid to Play[34]

This is a list of those who wasted their customer's money demolishing the historic East Wing of the White House to put in a ballroom for Trump. Many of these names will be unfamiliar, but you can search on what companies they own, and choose whether or not to keep supporting this waste of money on unnecessary construction by buying their products or services. Chances are, you already have. At this point it will be about $400 million.

Altria Group Inc., Amazon, Apple, Booz Allen Hamilton Inc., Caterpillar Inc., Coinbase, Comcast Corporation, J. Pepe and Emilia Fanjul, Hard Rock International, Google, HP Inc., Lockheed Martin, Meta Platforms, Micron Technology, Microsoft, NextEra Energy Inc., Palantir Technologies Inc., Ripple, Reynolds American, T-Mobile, Tether America, Union Pacific Railroad, Adelson Family Foundation, Stefan E. Brodie, Betty Wold, Johnson Foundation, Charles and Marissa Cascarilla, Edward and Shari Glazer, Harold Hamm, Benjamin Leon Jr., The Lutnick Family, The Laura & Isaac Perlmutter Foundation, Stephen A. Schwarzman, Konstantin Sokolov, Kelly Loeffler and Jeff Sprecher, Paolo Tiramani, Cameron Winklevoss, and Tyler Winklevoss.

The pay to play list of White House ballroom donors includes Google, whose CEO thanked Trump for the resolution of an antitrust case, Palantir, which has lucrative contracts with ICE and Blackstone's Stephen Schwarzman, who would profit from Trump's regulatory rollbacks for private equity.[34]

So it turns out there's no real point in donating to a campaign, we can just buy stuff from the ultrarich so they can decide who will win or lose with their vast dollars that they accumulated after years of gouging us consumers. And at the end of the day, it turns out that it's generally best to not trust big corps, although there are a likely a few responsible entities out there that are getting harder to find. Unless you have time on your hands to do the research, it might be simpler to just stick with local businesses. So, are you going to buy more local? Or just keep supporting this insanity with every dollar you spend with Amazon? Or Tesla?

The Big Con

We have global monopolies in industrial agriculture and pesticides that are poisoning our planet and supplying less responsible grocery stores like Costco, Walmart, Safeway and others that carry primarily "conventional" food. Four giants, ADM, Bunge, Cargil and Louis Dreyfus control 75% of global grain, and six agrochemical companies control 75% of the world's fertilizer and pesticide market.[35]

From 2002 – 2010, a network of anonymous U.S. billionaires had donated nearly $120 million to groups casting doubt about the science behind climate change. This doubt campaign caused a conservative rebellion against Barack Obama's environmental agenda that ruined any potential of congress taking action on climate change.[36,37] Which explains why not much happened on climate in Obama's term. Obviously, these were mainly oil companies, including Exxon-Mobil. This is why it's on us to get ourselves off fossil fuels and onto renewables as soon as we can.

We've been brainwashed into thinking the Federal Reserve Board is trying to balance capital and interest for the good of the people, but that turns out to be completely wrong too. Actually, it's more about balancing our wants and needs as brainwashed spoiled Americans who think we need things that we don't (think spend spend spend) with corporate needs for continuous capital growth and the need for employees in the form of actual humans, to support that growth. Think about that.

In 1997, eight Nobel laureates had led of about 2700 fellow economists in declaring what all mainstream studies had found: Market-oriented policies to protect the climate by saving energy can increase the U.S. standard of living and even benefit the economy. They were largely ignored. This was mainly because a coal-led industrial lobby, the Global Climate Coalition, saturated the airwaves with ads that scared almost the entire U.S. press and the U.S. Senate into presuming that protecting the climate would be prohibitively costly.[40] Thanks a lot, assholes. It's no wonder that people don't get how much trouble we're really in, and how easy it is to fix it if we just do it.

Whose Paying for All This?

We the people are the ones paying for all this corruption and destruction. We pay for advertising, junk mail, lobbying and excessive campaign funding that bribes politicians to big corps

whims to keep them rich and the rest of us controlled, while trashing our planet. We also pay for the mitigation of global warming, flood control, sea level rise, extreme weather events and wildfires. Does that feel fair? And we're not even the ones using the most carbon with all our wants and needs. Even if we eat beef and consume solely conventionally grown food and drive a Hummer. It's the top 1% of the richest people on the planet who are spewing 50% of the carbon with their massive homes, private jets and extravagant lifestyles with lots and lots of stuff.

> "We've been cooking the books for a long time by leaving out the value of nature." Robert Costanza, Ecological Economist, *Science, 2005*

We pay the cost of all the advertising to cram shit we don't need or want in our faces whenever we buy the products. We are paying for the merchants of doubt who are paid by the money we spend with big corp to brainwash us. Now that you know, are you going to continue to support this dogma, or use your own common sense and think for yourself and change your purchasing choices to help rather than continue to push our planet in a direction of imminent destruction?

Have a look at Table 2, where I've gone through many of the things our dollars pay for when we buy products. I'm taking plain old unprocessed frozen corn as an example to show how the dollars fall out. For both products, we have a 16 oz plastic bag of frozen corn. I chose this particular product because we grow a lot of it in the U.S., and it has minimal processing associated with it, just shucked and frozen and thrown in a bag. The difference between the two products is that one is grown using conventional industrial agriculture practices, involving typical horrendous land practices, synthetic fertilizers and toxic pesticides. The other product is grown using organic methods, which is much easier on the land, and does not use any kinds of synthetic fertilizers or poisons to grow the food.

Table 2 – Our food costs a lot more than what we pay at the grocery store.

Product	Corn, Frozen, 16 oz bag, Conventional	Corn, Frozen, 16 oz bag, Organic
Cost, $ Each	$2.49	$3.99
Package, $ Each	$0.104	$0.104
Marketing, $/LB	$0.64	$0.82
Political Costs, $/LB (Campaign Donations and Lobbying)	$0.000157	$0.00000026
CEO Pay, $/LB	$0.0000166	$0.0000160
Natural Services, $/LB	$0.542	$0.234
Wildlife Services, $/LB	$0.230	$0
Subsidies, $/LB	$0.216	$0.216
Toxic Cleanup, $/LB	$0.00000021	$0
Disasters, $/LB	$0.0165	$0.0171
Home Insurance, $/LB	$0.0063	$0.0027
Healthcare, $/LB	$0	$0
Societal Costs, $/LB	$0.0528	$0.0228
Total Environmental and Marketing Costs, $/LB	$1.51	$1.12
Total Environmental and Marketing Costs, $ Each	$1.51	$1.12
Fully Loaded Cost, $ Each	$4.00	$5.11

The top row is the price the consumer pays for the product in the grocery store. These prices will of course vary across the country, and across different stores. For this comparison I used Safeway in

Denver, Colorado. The organic product, as usual, is priced higher, because there's more labor involved in growing organic, where labor to control pests replaces less expensive toxic pesticides. The cost of the packaging is the same for both products, a plastic bag, which is fairly cheap relative to product cost. Marketing for most products across the board is about 8% of the gross sales, so I simply used that factor for marketing.

Every product we buy (almost) pays for some level of political lobbying and campaign donations. These can be from industry organizations or from companies that have a stake in the industry. This information is easy to find on the internet.[38] In the case of conventional corn, it's industrial farming and food organizations. They also support toxic pesticides, and there's a fairly extensive political campaign to keep those in use, which adds to their lobbying and political donations, where organic farms don't support any of that. For organic farms, there are a couple of organic farm and climate organizations, and they spend far less money on lobbying.

The CEO (Chief Executive Officer) salary and bonuses are also easy to find on the internet,[39] for the most part. Of course, it's a tiny fraction of each purchase, but adds up to billions of dollars by the time it reaches the CEO level. The cost per LB that the consumer pays is similar for conventional corn versus organic corn, but for different reasons. For industrial corn, I took a weighted average of the largest corn producers in the U.S., for an average CEO income of $12 million, and then divided that by total conventional corn production in the U.S. of 330 million metric tonnes, converted to LBS, to get the average CEO salary spread across all the products. So every time we buy conventional corn, we pay a small tithe to the CEO, and it all adds up to $12 million. In the case of organic corn, these salaries weren't posted on the internet, because they're so low that nobody cares. The reason we pay about the same CEO tithe for organic corn as for conventional corn is because there is far less organic corn produced in the U.S., only 0.854% of the total corn. So, it turns out that most organic corn is grown on small farms where the farmer is the owner, and these farmers don't drive Cadillacs. I found a couple salaries in general and finally used $100,000 per year, which is probably on the high end. So, a smaller salary divided by a smaller amount of production leads to a similar number. An additional reality of corn is that about half of it is grown to feed livestock, so when we buy corn-fed meat we're actually paying a double tithe, considering the meat producers and the corn producers.

The next eight rows in Table 2 account for money that all of us pay for these products, whether we buy them or not. These are the environmental and ethical loadings on the products that the manufacturers choose to ignore, and do their best to make sure we don't know about. So that we don't know the extent to which we lower human commoners and our planet are getting taken for. Most of these are very specific amounts paid as taxpayers and some are the result of researchers and analysists all over the globe attempting to put a price or monetary value on the priceless, such as wildlife's contribution to earth's ecosystem and such.

- ***Natural Services*** accounts for the "Natural Capital" that human technologies can't replace economically, that nature provides for free.[40] This is actually a fairly verifiable number, because we can do many of these things, just not economically. The global total for these annual services is $36 trillion. Think about this. To put it in perspective, $36 trillion is about equal to the GDP of the U.S. We're destroying a lot of value when we choose industrial food over organic, and it adds up to a lot, with every product we buy. I used the carbon footprint for the different products to allocate this responsibility to each product. Organic corn is obviously lower than conventional because organic agriculture produces far lower emissions, as shown in

Chapter 17. Examples of Natural Services that we take for granted, yet have a value, are in the side box.

- ***Wildlife Services*** – A monetary value of wildlife services was a little hard to come by. I'm more concerned about the actual ecological services that the members of our intricate web of life provides to each other up and down the food chain, and between plants and animals and between the plants themselves, as well as between microbes and everything, some of which was described in Chapter 8. Most of the information I could find on the subject was mainly anthropogenic, like hunting, fishing, birdwatching, whale watching and other ecotourism examples that, while nice, don't really reflect the importance of wildlife to earth's ecosystem, and what we stand to lose without our global family members.

The value of the multibillion dollar outdoor sports and recreation industry is also cited, but to me that doesn't really represent the value of the wildlife to the planet, but more the stuff that we buy that must be manufactured at the expense of the planet, that we may or may not need, in order to optimally enjoy the great outdoors. It's also estimated that ecoservices contribute twice as much to human well-being as gdp, which may be true, but still doesn't specifically place a value on wildlife's contribution to earth's ecosystems.[41]

Natural Capital

Production of oxygen

Maintenance of biological and genetic diversity

Purification of water and air

Storage, cycling and global distribution of freshwater

Regulation of the chemical composition of the atmosphere

Maintenance of migration and nursery habitats for wildlife

Decomposition of organic wastes

Sequestration and detoxification of human and industrial waste

Natural pest and disease control by insects, birds, bats and other organisms

Production of genetic library for food, fibers, pharmaceuticals, and materials

Fixation of solar energy and conversion into raw materials

Management of soil erosion and sediment control

Flood prevention and regulation of runoff

Protection against harmful cosmic radiation

Regulation of the chemical composition of the oceans

Regulation of local and global climate

Formation of topsoil and maintenance of soil fertility

Production of grasslands, fertilizers, and food

Storage and recycling of nutrients

I finally settled on research that has put a price tag on the benefits provided by native plant ecosystems, figuring that without the wildlife, the ecosystems wouldn't be able to function properly. Globally, the value for all ecosystem services is estimated at a whopping $125 trillion. I estimated the value for the U.S. by factoring down for the U.S. land mass of 1.13% of global landmass, arriving at $706 billion for the U.S. I divided the $706 billion in half to account for the fact that we've only decimated about 50% of our wildlife so far, so that's the current level of harm from irresponsible toxic products at this point. I feel good about this number, because it's based on a gigantic amount of data from more than 1,300 studies from 2,000 sites across 140 countries in the past two decades, with more than 9,400 value estimates.[42] Hell, I figure it's gotta be more accurate than anything I could come up with on my own!

I allocated the price of losing our wildlife across the applicable many ways we kill in Table 1 of Chapter 7. I applied percentages to each of the ways we kill, with 25% applied to industrial agriculture, 25% applied to toxins that we dump on land or in water through pesticides, cleaning products and personal care products. For power plant electricity generated with coal and natural gas, I allocated the portion of our extraction industries, including fossil fuels and mining, which I have at 10%. Global warming is also at 10%.

Obviously, the many ways we kill can't be exactly categorized, because, for one thing, we don't know exactly how we're killing every single critter, and more than one factor could have been applied, kind of like somebody who dies and has both a heart condition and cancer. Or the roadkill moose that was opened up to find its organs were a bunch of mush because of constant exposure to toxins. Which was it? The truck or the toxins? However, I feel pretty comfortable with my high level estimates. I'm sure they're in the ball park, and they allow a decent summation that feels fair and doesn't double-dip on any single product. For the conventional corn, the loss of wildlife is a large part of the ecological burden because of the poisons and land-use practices of industrial farming, while organic farming doesn't burden the wildlife at all.

- ***Subsidies*** are taxpayer dollars that are budgeted to either help certain industries that may need it, or to make certain products seem less expensive than they actually are. In the case of corn, both conventional and organic corn benefit from a farm subsidy, which is basically insurance against crop failure due to weather or other catastrophic events. I'm actually all for this subsidy, because we all have to eat, and farming is a really risky business in which a bad weather year can wipe out a farmer's entire life savings.[43]

- ***Toxic Cleanup*** is taxpayer money set aside in the federal budget for cleaning up toxic waste sites, or superfund sites, as well as orphan oil wells, discussed above. It is part of the hidden costs of conventional corn because of the toxic pesticides and synthetic fertilizers made from refined fossil fuels. Organic corn doesn't use toxins or synthetic fertilizers, so there is no toxic cleanup cost.[43]

- ***Disasters*** include our taxpayer funding of all of the global warming impacts on industry and energy, including severe weather, flooding, drought, and wildfires, a total of $183 billion in 2024, and based on the disasters trend shown in Figure 6, this cost will continue to increase. The cost is allocated to products and energy based on their carbon emissions. In the case of corn, conventional corn has twice the carbon footprint of organic corn, so the disaster cost of industrial corn is twice as high as conventional corn.[43]

- ***Home Insurance*** costs have increased due to (you guessed it) global warming. The increases in disasters have caused homeowners insurance costs to increase by 50% in the past five years for impacted homes, running nearly $70 billion per year in the U.S. at this point. In some cases homeowners can't even get insurance. The impact on corn is based on CO_2e emissions, with conventional corn again running twice as high as organic corn.

- ***Health Care*** Costs are paid by individuals who are impacted by hormone disrupters that leach from plastic food containers[44] or by antibiotic resistance due to overuse of antibiotics in industrially produced cattle, including beef and milk.[45] These costs amount to about $300 billion

annually. Neither industrial nor organic corn are impacted, though there may be a small impact from the plastic bags. Generally any vegetables wouldn't have this cost.

- ***Societal*** Costs include all the costs society pays for the CO_2e emissions of burning fossil fuels, including things like time wasted in traffic congestion, accidents, road damage, premature mortality from air pollution, forgone consumption tax revenue, and global warming. In the U.S. this amounts to nearly $600 billion per year that we all pay. It is allocated to products based on the CO_2e of production, and is twice as high for industrial corn as for organic corn.

For industrial corn, the total environmental responsibility costs are $1.51/LB, bringing the total cost of the product up to $4.00/LB when added to the grocery store price of $2.49/LB, an increase of about 60%. For organic corn, the total environmental cost is $1.12, bringing the total cost of the product up to $5.11 from the original cost of $3.99/LB, an increase of about 20%. So, at the end of the day, even though organic corn costs 20% more in the grocery store compared to conventional corn, the environmental and societal impacts are lower by 35%. Also, the organic corn is more labor intensive, accounting for the higher grocery store price. The difference in environmental impact is because industrial corn harms the environment a lot more than organic corn and industrial agriculture is at the bottom of most of our wildlife destruction.

Table 3 – Products cost a lot more when the environmental costs are weighed in.

Product	Cost	Package, $ Each	Total Environmental and Marketing Costs	Fully Loaded Cost
Corn, Conventional, 16 oz bag	$2.49 each	$0.104	$1.51 each	$4.00 each
Corn, Organic, 16 oz bag	$3.99 each	$0.104	$1.12 each	$5.11 each
Milk, Conventional, 1 gal plastic jug	$3.66 each	$2.67	$14.32/LB ($114.56 each)	$118.22 each
Milk, Organic, 1 gal plastic jug	$12.49 each	$2.67	$7.71/LB ($61.70 each)	$74.19 each
Coca Cola, Conventional, 12 oz Plastic Bottle	$1.17 each	$0.83	$0.83/LB ($0.62 each)	$1.79 each
Local Cola, Organic, 12 oz glass bottle	$1.99 each	$1.69	$0.64/LB ($0.48 each)	$2.47 each
Dawn Dish Soap, Conventional, 16 oz plastic bottle	$5.49 each	$0.50	$87.71 each	$93.20 each
Aspire Castile Soap, Organic, 16 oz plastic bottle	$8.71 each	$0.50	$1.30 each	$10.01 each
Roundup, 8 gal plastic heavy duty jug	$26.00 each	$12.19	$89.15/LB ($713.20 each)	$739.20 each
Plastic Bottle, 16 oz	$0.51 each	N/A	$0.04 each	$0.55 each
Electricity, From Coal and Gas	$0.18/kWh	N/A	$2.41	$2.59/kWh
Electricity, From Solar Panels	$0.29/kWh	N/A	$0.01	$0.30/kWh

Now let's look at Table 3, which compares the added costs for a few different categories of products. I've simplified the numbers by combining all the added environmental and marketing costs into one total cost. The conventional and organic corn are the same as in Table 2. When we move to an animal product, cows in particular, the environmental costs go through the roof, because the CO_2e emissions of cows are astronomical compared to vegetables, as you saw in Chapter 17. These added costs would be similar for any comparison of cow products, from beef to cheese to yogurt. The added costs for organic are about half those for conventional because the feed for organic cows are grown without the use of pesticides. In addition, conventional cows have the added health costs of dealing with antibiotic resistance, an issue that applies to cows but not to vegetables. When the environmental and health costs are considered, organic milk is far less expensive than conventional milk. Also notice

that if you buy a gallon of conventional milk, nearly 90% of the cost is for the plastic jug. A decent case for going bulk if you must have milk. It can be had in most areas in returnable glass jugs.

Comparing Coca Cola and a local cola, Coca Cola has a 30% higher environmental cost compared to local cola, because the corn used for the corn syrup in Coca Cola is grown conventionally, which has a higher carbon footprint. The total costs for these products is lower than the others because they are basically sugar water, and the sugar is a refined vegetable product. For both products, the price of the container is significant compared to the actual cost of the product inside. Hilary and I have gone to a carbonator with a returnable CO_2 cartridge, to avoid small single use beverage containers like soda water (we never drink pop), as well as refillable growlers for beer.

Dawn dish soap, priced about 30% lower than Aspire castile soap, a small local brand, carries a gigantic environmental price tag because it contains toxic petrochemicals for color and scent, as well as other chemical embellishments to differentiate it from competitors. It is an example of the many toxic cleaning products that we run down the drain every day, some of which passes through wastewater treatment plants to receiving surface waters. These kinds of products play big in poisoning our wildlife. The oils used to make the soap are not organic, which increases the carbon footprint of the vegetables used to make the oils. The Aspire castile soap is made from organic vegetable oils and contains no toxic ingredients. There is no coloring other than the natural gold that comes from the oils, and it is scented with essential oils, not petrochemicals. Also, with Aspire, the product can be refilled, to eliminate the container cost.

Roundup is the nastiest product on the list, carrying the biggest environmental cost because it is poison made from petrochemicals that is intended to kill all life that it comes in contact with. The entire category of pesticides is responsible for killing about 25% of the wildlife that we've lost, and about half of all Roundup is used on home lawns. This is the worst thing any of us can buy or use. Yet many of us do. Roundup is the best-selling pesticide in the country, with gross sales of $2.8 billion. Also, the CEO gets nearly 1% of that, $2.4 million. We sure do pay the billionaires big to poison our planet, don't we? Are you one of those? If so, thanks a lot. By the way, nearly half of what you pay when you buy a jug of Roundup goes to the single-use container. Pretty economically stupid if you ask me.

A simple 16 oz plastic bottle is included for reference. They only weigh about 1 oz, so the environmental cost per bottle is pretty low, but it does include poisoning of wildlife, as about 0.5% of all plastic produced makes its way to waterways and ultimately the ocean,[46] which is how it's killing sea life and permeating all organisms, including us humans, with microplastics as noted in Chapter 14. I kept all the extra costs for consumables separate from the containers in order to highlight the costs of the products, but the containers also have a footprint.

Now let's look at electricity. When we compare solar panels with grid electricity that's generated in a power plant using coal and natural gas, we compare the grid electricity price with the cost of the solar panels compared to their annual production of electricity, divided by 25 years, which is the typical expected lifetime of solar panels (though many are lasting a lot longer). Using this simple method of comparison, solar panels are about 50% more expensive than power plants. However, when we buy the solar panels, we only buy them once, they are manufactured and the carbon footprint of solar panels is simply from the mining of raw materials, manufacturing and transportation, which is tiny compared to burning fossil fuels in a power plant for 25 years to produce the same amount of energy. Oh, and solar panels don't consume enormous amounts of water like power plants do. Fossil fuel subsidies as well as huge and powerful fossil fuel lobbying and campaign donations, as well as obscene

CEO pay, totaling $360 million per year, with another billion in marketing thrown in for good measure, also load the cost of generated electricity in addition to the CO_2e emissions from the fossil fuels when they are burned. Of course, all this money is intended to protect a precious $13.4 billion industry and keep us all needy, when the truth is that we can save bank and save our planet by converting to solar panels. In the west, where we face constant water shortages, the water savings from solar is hugely important.

The renewable energy lobbying, campaign donations and CEO pay, by the way, runs less than $100 million to protect a far more lucrative solar industry, which is worth about $500 billion annually these days. People seem to be finally getting the idea that solar is far better and less expensive than fossil fuels, and if this trend continues it will help our planet a lot. By the way, the solar costs do not include the Federal subsidies, because the current administration has done away with them in support of fossil fuels. Yet, even without the federal subsidies, solar still pays out far and away better than fossil fuels. When the pricing is fully loaded with environmental and political costs, the fossil fuel is ten times more expensive than solar energy. Think about that. Also, think about the fact that solar panels can literally be made anywhere in the world, so the energy isn't restricted to a few big greedy countries (U.S. included) that like to gouge the planet and all us consumers. With solar panels, there's not much to fight over either.

So, do you see that if we're spending less money to buy a cheap product from the store, we're contributing to obscene CEO salaries, paying for companies to lobby for their toxic products and make big campaign donations so the government will leave them alone and let them keep polluting? Oh, and the 8% for marketing so they can keep on pestering us with ads and commercials so we can remember how beautiful it is to drink sugar water that says "Coca Cola" on it? And our tax dollars to clean up some of the mess created by the extra CO_2e emissions, and the poisons on our land, in our water, in our air, and in our very bodies? When I say part of the mess, it's because there's no cleaning up all of the mess. We may get some of our wildlife back, but we're not going to get rid of microplastics, PFAS and petrochemicals completely any time soon. For that, we'll have to stop buying them so industry stops making them, and wait about a thousand years. In hindsight, now that we're stuck holding the bag with all this damage, wouldn't it have been so much easier to avoid the poisons and emissions to begin with?

The Green Payout

So, what's the actual economic return on investment of environmental responsibility? We now know about the hidden costs of our choices, but when businesses choose to pollute, or convince us to pollute, how much are they actually saving? Actually, it turns out not very much in the grand scheme of things. It turns out that environmental controls are maybe 5 – 10% of the cost of any new facility. An older facility may feel a bit more sting if they've been running for years without controls, then changing regulations demand that they add controls to a facility that they had already paid off, which is understandable. Either way, the cost to control the emissions so that they don't ever leave the site is a helluva lot less expensive than cleaning it up after it's spewed all over the environment.

President Joe Biden's Inflation Reduction Act was a great start. In the state of Georgia, billion-dollar investments in green industries have led to so much job creation that Republicans and Democrats are fighting over who should get the credit.[29]

Of more than 500 global companies, 69% report higher-than-expected financial returns on climate initiatives. McKinsey estimates that getting to net zero energy is a more than $12 trillion opportunity. That's right. *Opportunity*. Not *Cost*. Boy we sure have been getting fed a bunch of baloney haven't we? Too expensive my ass. From 2011 to 2020, investments in renewable power generated total returns 7 times higher than fossil fuels (422.7% vs 59%).[29]

In the case of our own home conversion to all-electric solar-powered, we had to do some rewiring in our 1948 house to make it work, but all-in-all the entire cost was perhaps 10% of the current value of the home. And now we'll never have to pay for electricity or natural gas again. Ever. And we don't even have to pay for gasoline, because we also charge our EV at home from our solar panels. So, as fossil fuels get more scarce and harder and more expensive to produce, we'll be just sailing along on our own power. Until the panels fail in 25 years, at which point we'll pay the maintenance costs to have them replaced, and the new panels will probably be far more efficient and cost-effective than the ones we bought the first time, because the technology is improving at an incredible rate, in the opposite direction of fossil fuels. Also, we'll just be replacing panels, which is a mere fraction of the all-in cost of the original installation.

For new construction, installing electric instead of natural gas for heating and cooking is cheaper and safer. If you're looking at a new home, say, and your spec happens to be about 2,000 square feet, why not get a 10% smaller home, say 1,800 square feet, and spend the extra savings on an all-electric retrofit with solar panels? I mean, are you really going to notice that 200 square feet? I guarantee you'll definitely notice the lack of utility bills. Or get a 1,080 square foot home instead of 1,200 square feet. See what a small difference that is? For some serious savings in utilities and a severe reduction in your carbon footprint? There's even less house to keep clean. How can that be bad?

I hope that by 2050 most of us see the light and make this important conversion. I'm pretty sure we will, because it won't be long before spending money constantly on fossil fuels is going to be just plain stupid. Saudi Arabia, The United Arab Emeritus and Qatar are installing vast arrays of solar panels made in China. I mean, what does that tell you? Many poor communities that have never had electricity in Africa and countries like Pakistan are beginning to jump directly from no electricity in small remote villages to solar farms that bring them directly into the 21st century without ever dealing with grids or power plants or coal.[47] Somewhat like what happened with cell phones at the turn of the century; in countries that never had the infrastructure for land lines, they went straight to cell phones and now everybody has one.

Now let's think about that federal tax incentive for solar panels, that the Trump administration did away with in an effort to keep us dependent on fossil fuels. It was a 30% tax credit, meaning that any of us who installed solar panels would get 30% deducted from our Federal taxes. If all of us, including residences and businesses, did that, the Federal government would have paid (actually not received) a total of $728 billion, or about 15% of the Federal budget to Americans who installed solar panels. We would install a total of 372 MWh of solar energy, eliminating 143 mmt of CO_2e, for a reduction nationally of 2.4% of CO_2e in a single year. And, I'll ask the question that if we all pay for that tax rebate in the form of lower income to the U.S. treasury whether we're installing solar panels or not, then doesn't it seem silly not to take advantage of the tax credit? Ten years of this would get us all on solar and off fossil fuels for our residential energy by 2035. Now, wouldn't that be a lovely non-monetary measure of success to aim for?

Just for fun, since food is our largest carbon footprint and we're all united in that we have to eat, I thought it would be interesting to compare the economics and environmental impacts of sustainable and healthy eating habits with the unsustainable and unhealthy eating habits that many of us have fallen into. Table 4 shows a basic healthy diet, which is how my husband and I eat, for the most part, and Table 5 shows an unhealthy diet that a large portion of Americans eat. Of course, us humans come in all manner of sizes and weights, so it's worth specifying that Tables 4 and 5 represent an average 150 LB human with a requirement of about 2,000 calories per day, that needs to be balanced with all other nutrients. Here we're just balancing with protein, cholesterol and sugar. You're probably a different weight than 150 LBS (I am) so you can factor up and down accordingly if you want to compare this with your own diet. 150 LBS may seem a bit low for an average weight, given all the obese people, but this includes all people 4 years of age or older, which brings the average down a bit.

In Table 4, a healthy and sustainable diet, consuming 3 pounds of food daily, made up mostly of plants, with eggs limited to one every couple days, and meat and dairy at less than 4 oz per day, we can easily meet our calorie requirements while exceeding protein requirements and cholesterol.[48,49,50,51,52,53] Basically we can easily meet our protein requirements with a vegetable diet. We don't even need the meat and eggs, it's just included because we like them. It appears to be impossible to avoid cholesterol with even the minimum amount of meat and dairy, especially if we allow ourselves some eggs now and then. The small amount of cholesterol in this diet is actually ten times the recommended daily value. Since it's implicated in so many diseases, especially heart diseases, it's best to keep it as low as possible.

Table 4 - Sustainable Diet, 150 LB person

Product	Cost/LB	Cost /Container	Environmental Cost/LB	LB/Day	Cal/Day	Protein, g/Day	Cholesterol, g/Day	Added Sugar, g/day
Vegetables (bulk)	$2.94	$0	$1.51	1	204	8	0	0
Fruits (plastic bags)	$4.74	0.104	$1.51	0.5	129	1.71	0	0
Nuts and Legumes (plastic bags)	$13.11	0.104	$1.51	0.4	795	33.1	0	0
Whole Grains (Plastic Bag)	$6.09	$0.104	$1.51	0.3	490	20.6	0	0
Eggs (cardboard carton)	$15.99	$0.33	$1.48	0.042	58	4.7	0.14	0
Poultry (plastic bag)	$4.99	$0.104	$3.13	0.0625	67	7.67	0.025	0
Beef (butcher paper)	$12.99	$0.10	$71.63	0.0625	52	7.33	0.024	0
Dairy (plastic jugs, tubs, bags)	$8.74	$1.00	$14.32	0.125	10	0.47	1.50	0
Processed Food - bread (plastic bag), pop (aluminum can)	$17.95	$0.25	$0.83	0.5	170	0	1.54	45
Total/Day	$24.24	$0.31	$10.26	2.99	1,975	84	3.2	45
RDV	-	-		3 LBS	2,090	50 g	0.3	79 g
RDV, %	-	-		99.7%	94.5%	167.5%	1,079%	57.5%
Annual Costs	Product, $/Year		Container, $/Year		Environmental, $/Year		Total, $/Year	
Conventional	$8,847.05		$112.31		$3,745.37		$12,704.74	
Organic	$10,616.46		$112.31		$2,621.76		$13,350,54	

Added sugar is within the daily limit, at 45 grams compared to a limit of 50 g, and the only added sugar in the diet comes from processed foods, since basic whole fruits and vegetables foods don't contain added sugar by definition. That's not to say that fruits and vegetables don't contain sugar. They do. All fruits and vegetables and grains contain lots of complex carbohydrates and fiber, and some of the carbohydrates are easily digestible sucrose, fructose and glucose, which is basically what refined

sugar is. When it comes to added sugar, I actually think that any limit is too high; we should strive for zero added sugar, and just consume the natural sugar, which is more than enough. That way, we get all the additional endless natural nutrients and micronutrients that our bodies need. In this diet, I'm allowing for a couple slices of bread and maybe a pop every couple days.

Overall, the healthy diet costs the consumer about $9,000 per year, at least in Denver, Colorado, where I got the prices, including the costs of the containers, if it's produced industrially, or about $10,600 per year if it's produced organically. The environmental and social costs bring the industrially produced diet up to $12,700 per year, while the all-in cost of the organic diet runs $650 higher, at $13,350 per year. Note the high cost of the processed food per pound, which significantly increases the overall cost of food, even if a small amount is consumed in a sustainable diet. This higher cost applies generally to all processed foods, but is extremely high for ultra-processed foods like supplements, energy bars and vitamins. In reality, none of these processed foods are needed in a healthy diet, because all the nutrients are provided by the unprocessed foods, and if the processed foods are eliminated completely the entire cost of the diet drops by at least a third.

Table 5 - Unsustainable and Unhealthy Diet, 150 LB person, common levels of daily meat and dairy, smatterings of plants.

Product	Cost/LB	Cost /Container	Environ mental Cost/LB	LB/Day	Cal/Day	Protein, g/Day	Cholesterol, g/Day	Added Sugar, g/day
Vegetables (bulk)	$2.02	$0	$1.51	0.1	20	1.0	0	0
Fruits (bulk)	$5.09	0	$1.51	0.1	26	0.34	0	0
Nuts and Legumes (bulk)	$4.99	0	$1.51	0.02	40	1.7	0	0
Whole Grains (Plastic Bag)	$8.99	$0.104	$1.51	0.03	49	2.1	0	0
Eggs (cardboard carton)	$8.49	$0.33	$1.48	0.25	346	28.1	0.86	0
Poultry (plastic bag)	$1.99	$0.104	$3.13	0.25	267	30.7	0.1	0
Beef (butcher paper)	$7.99	$0.10	$71.63	0.5	413	59	0.189	0
Dairy (plastic jugs, tubs, bags)	$3.66	$1.00	$14.32	0.25	20	0.93	3.01	0
Processed Food - bread (plastic bag), pop (aluminum can)	$10.02	$0.25	$0.83	2.5	851	0	7.7	227
Total/Day	$33.66	$0.67	$43.00	4.0	2,033	123	11.9	227
RDA	-	-		3 LBS	2,090	82 g	0.3	79 g
RDA, %	-	-		133%	97.3%	150%	3,955%	287%
Annual Costs	Product, $/Year		Container, $/Year		Environmental, $/Year		Total, $/Year	
Conventional	$12,286.08		$245.14		$15,695.35		$28,226.57	
Organic	$14,743.30		$245.14		$10,986.74		$25,975.18	

Table 5 shows a more typical American diet, mainly loaded with meat, dairy and eggs, and lots of processed food. Think of a McDonald's cheeseburger, with a quarter pound of beef, a slice of American cheese in a large bun, with a scrap of lettuce and tomato tucked in there somewhere. When we eat like this, the calories in our diet are accompanied by more protein than we need, and about 40 times as much dietary cholesterol than the RDV. Of course, the meat and eggs have a lot fewer calories compared to protein and cholesterol, and we absolutely need those calories, or we'll just lay around all day without the strength to move. To make up for those needed calories we have to consume more empty calories from processed food that contains added sugar, without the protein or cholesterol. This brings the total weight of our daily food up to 4 LBS daily, which is at least 30% more than we need. This added food causes us to gain weight over time, creating kind of a vicious cycle, because as we gain

weight, we need more calories. After all, it takes energy to haul all that extra weight around. Ultimately on this diet our bodies are out of balance nutritionally, and we can expect dietary diseases to catch up with us eventually, including but not limited to all the ones mentioned in Chapter 17. As a bonus, we pay significantly more to eat this way, both for the food and for the containers. And, the processed food significantly increases the cost of the diet.

Think about this. Does it make economic sense to pay more for food that makes us less healthy, so that ultimately we suffer and have to pay more for pharms and health care? And, as a further bonus, pay huge environmental and social costs in the process? Even worse, if you cross the "obese" line, you're paying even more for your food, at least 30% by definition (Chapter 17 again), in addition to the extra 30% you pay for the unhealthy diet. My point is that it makes much more sense economically in addition to environmentally to eat a healthy diet. Ya think? In the U.S. we pay nearly 20% of GDP on healthcare, the highest in the world, yet we have one of the shortest life expectancies of the wealthier countries. Doesn't that seem a little backwards?

Now let's move on to the economics of contraception. If all women who wanted to avoid a pregnancy had access to modern contraceptives, and all women and their newborns received proper care recommended by World Health Organization (WHO), unintended pregnancies would drop by 70%, from 74 million to 22 million.[54] That's 52 million births annually, or about 0.65% of global population, which would greatly help in reducing our runaway population growth, which is key to saving our planet. Added benefits would be a reduction in maternal deaths of about 200,000 women, and newborn deaths by 2.3 million. All this can be done for about $39 billion per year, which works out to about $25 per woman of reproductive age, and as low as $7 per woman in developing countries. This would permanently reduce CO_2e by 234 mmt per year, or 3.9% of current global emissions, a cost of $167 per mmt. Think about that. The annual cost would be similar to the fossil fuel subsidies at about 0.7% of the Federal budget, or Don Wood's (Exxon-Mobil CEO) salary. It's about the least expensive carbon reduction there is, other than changing our eating habits.

Smart meters are another low cost way to allow customers to see their actual energy usage in real time, which helps reduce energy on average by 20%. We have a smart meter in our house and it works. It also worked at Coors. At Coors, we had CO_2e emission reduction goals as part of our sustainability initiatives, and as the energy engineer for the Golden Brewery, I was constantly made aware of savings opportunities by the many operations teams from utilities to brewing to packaging. Luckily, saving energy has a great ROI, so I was typically able to get funding for the truly viable projects. We also found that many opportunities could be found by the many operations teams from utilities to brewing to packaging, that were score-carded and bonused on sustainability, and just changing procedures could save a lot of energy and costs, without spending much in the way of capital. One of our biggest early capital projects was to simply install meters on all the energy consumers throughout the brewery, to understand how the energy was getting used. We're talking over a hundred different meters for steam, condensate, water, ammonia, CO_2 (captured from fermenting and used to pressurize all the beer lines and tanks downstream of fermenting to packaging), and

> "Believe in climate change. Or don't. It doesn't matter. But you'd better understand this: the best route to rebuilding our economy, our cities, and our job markets, as well as assuring national security, is doing precisely what you would do if you were scared to death about climate change. Whether you're the head of a household or the CEO of a multinational corporation, embracing efficiency, innovation, renewable carbon markets, and new technologies is the smartest decision you can make. It's the most profitable, too. And, oh yes – you'll help save the planet." [40]

plant air, as well as more than 60 electrical substations. We managed to cut our energy usage in half without too much in the way of capital costs. Coors was part of a consort, the Colorado Industrial Energy Challenge, and met regularly with several other companies who were achieving similar goals. One year, we won the award for the most energy savings because of our steam reduction. It certainly can be done, when there's supportive leadership and engaged teams.

What Good Looks Like

If our infinitely growing economy is destroying our planet, then what can we do instead? How can we define success in terms of something besides growth, or GDP? We're definitely going to have to figure out how to define ourselves in other ways besides strictly money. We already do have some indexes, like the "happiness index", that includes measures of human well-being and contentment, that turns out to actually be lower in wealthier countries, proving that money really can't buy happiness. It turns out that in the U.S., happiness has stagnated for decades. In Europe, they have higher development indicators than the U.S. in most areas, with 40% lower GDP and 60% less CO_2e emissions per capita.

> "Today's economy is divisive and degenerative by default. Tomorrow's economy must be distributive and regenerative by design." Kate Raworth

At this point, we've overrun our earth's resources and we're already taking resources from future generations. Because of this, ironically, we are actually reducing living conditions and increasing poverty as GDP grows. A huge part of this, of course, is because as GDP grows, the rich actually get richer, at the expense of the rest of us. GDP doesn't really represent all of us. So, the main people who would be impacted by de-growth would be mainly the ultra-rich assholes who are gouging the daylights out of the rest of us. They are also the ones who are spewing the most carbon.

Genuine Progress Indicator, or GPI, is one method of measurement that's been suggested to either replace or supplement GDP.[55] The GPI separates the economics from measures of societal growth. It includes values of environmental and carbon footprints that businesses produce or eliminate, including in the forms of resource depletion, pollution and long-term environmental damage, and subtracts those costs from GDP. As GDP rises, GPI can be either flat or even drop to zero if the environmental impact and social costs of economic production and consumption in a country are balanced with overall health and well-being.

> "The most powerful tool in economics is not money, nor even algebra. It is a pencil. Because with a pencil you can redraw the world." Kate Raworth

Personally, it seems to me that the simplest method of measuring true success in this era of overconsumption would simply be to measure the single overriding issue we have, which is CO_2e emissions. If that starts to drop, we're doing better, and moving in the right direction. Then, we could take the major contributors to emissions, population, construction, food, building energy, transportation and waste, and work on those contributors, to reduce emissions in each category. We work on the biggest contributors to each of the categories, for example, in agriculture, it's the cattle and land management practices. This is the basic strategy that big corp uses to optimize and reduce costs. I learned it at Coors and it works.

We can measure indicators of success in each area in other ways besides money. How many cows are still grazing on public lands? Is the percentage of organic food increasing? Are poison sales

decreasing? Are plastics decreasing? Is construction decreasing? Is population decreasing? Is fossil fuel production decreasing? Mining? Farmland? Are the monarchs increasing? The salmon? The krill? The wolves? The prairie dogs? The seahorses? The gray jays? Of course, we'll continue to measure money, since we're a long way from getting over that, but include other important measures, like numbers of solar and wind installations. We could even do ratios, like percent renewable energy vs fossil fuels. Not that we don't do this now. We do. But it's not nearly as visible to the general public as the GDP is, by a long shot. Imagine turning on the news to see what the environment metrics are. Why don't we work on specific, measurable goals and then track those and show them publicly on every form of media? And, comparing employment in renewables to employment in fossil fuels is telling, with solar technologies, including panels and batteries, employing more than 460,000 people in 2024, installing a record-breaking 50 GW of solar capacity and accounting for 43% of the electric power generation workforce.[56] Costs of renewables is less than fossil fuels in two thirds of the world at this point. Why don't we track those too?[57] If costs continue on this trend, we should see increased renewables and lower CO_2 emissions.

For agriculture, we'll know we're driving reduced CO_2e emissions if organic and restorative agriculture increases from the current paltry 0.85% of all agriculture to 1%, then 2%, then 5%, and continues to increase until it's 100%, and we never poison the land or wildlife. Think about that. Employment in agriculture would increase, and employment in toxic chemical industries would decrease, with a likely net increase in overall employment. Since chemical industries and industrial agriculture are more profitable than organic farming, this would be a net decrease in GDP, but an overwhelming success in terms of the planet and recovery of wildlife. Also, we'd finally starting seeing an actual increase in wildlife instead of constant losses. Think how amazing it would be to actually see in the news that monarch populations are actually *increasing*.

And then there's the cows. What if we measured a decrease in demand for beef and dairy, such that our consumption was in balance with our actual dietary requirements? We could measure how much of our diets come from plants vs cows, and an increase in that ratio would show success. CO_2 emissions would decrease, wildlife would increase, but GDP would decrease, because plants are far cheaper than cows. Another wonderful benefit that would also decrease GDP would be lower requirements for pharmaceuticals, another very lucrative industry, from better diets. This would also help wildlife recover because we wouldn't be constantly pissing partially metabolized pharms into the sewers.

And we obviously wouldn't lose all the cows, most of us love a bit of beef and dairy now and then. We could start with the cows running on public lands, and reduce the available AMU's in stages every year, to give ranchers that actually make a living from the program, some time to rethink and plan for the future. Perhaps a game hunting service? The obvious place to start would be with the ultra-rich hobbyists who are simply taking advantage of taxpayers. Remove AMU's in order of income range, highest first. Remove the cows, take down the fences and let the wildlife have its way. Track the reductions in CO_2 emissions along with recovering wildlife populations. When the wild game recovers, initiate programs to sustainably hunt a portion for consumption in place of cows, and track the transition from cows to game. Instead of handing out taxpayer dollars to freeloading ranchers, utilize a permit fee and guide system, which would actually bring in a net profit to government. This should be easy, since we already do it, so we would simply build on what's already in place.

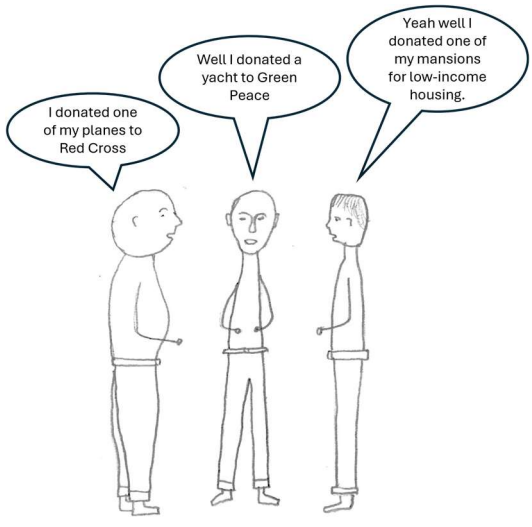
Rather than the historically used increased spending as an indicator of economic optimism, why not encourage reduced spending and simplicity as indicators of success? Again, this would have a

negative impact on GDP, but a positive impact on emissions. And probably happiness. We can spend our time and money in more beneficial ways and measure those as indicators of success, like more time spent outside, doing actual recreation instead of sitting inside on a couch gaming and drawing energy off a data center. When we buy stuff, it's more sports, hiking shoes, bicycles, skates, things that last, and less on fast fashion. In the west, natural resources extraction is dropping, and outdoor recreation is picking up to fill the gap, which is helping some of the small towns that are struggling. This is measurable with the increases in public lands visitation discussed in Chapter 5. Economics is increasingly coming from the outdoor industry, currently worth about $900 billion annually in the US. Employment in hunting and fishing in the West is 483,000 compared to 183,000 people working in oil and gas.[58] These are all easily tracked numbers that point to a better and more sustainable means of making a living, while decreasing CO_2 emissions.

A reduction in the absurd CEO salaries would help a lot. Simply allowing a maximum of $1 million would drop our national emissions by 40%. Globally, the same salary cap would cut global emissions by a similar amount, and the rest of us could simply live our lives. Although we'd definitely need to stabilize our population to avoid being backed into a corner in the coming decades, and knock it off with our abuses on the wildlife. If we capped salaries at $350,000, emissions would be cut in half. Think about that. Who truly needs $1 million per year, or even $350,000 per year. I mean, seriously?

During my entire career as an engineer, I barely broke into six digits, and that was only in the last few years. The first years were hand to mouth, living paycheck to paycheck, as we struggled to make ends meet, especially when the kids were in day care. By carefully managing our money and living within our means, as well as taking full advantage of employer matched retirement benefits, we gradually worked our way into a nice and comfortable lifestyle. The main thing for us is to be healthy, secure and busy doing things we love and being with family and friends. We love to travel, go out to eat, do all kinds of outdoor activities, and we're not restricted by limited money. Now that we're retired, our mortgage is paid off and we live on about $60,000 per year, with social security and pensions.

In this book I think I've said we need to "stick it to big corp" dozens of times, and this is what I'm talking about. The only way to knock back the insanity of executive salaries and bonuses and the associated insane carbon emissions is to avoid their products and publicly shame and humiliate them. A lot. All the time. Ostracize them for showing off their extravagances and their waste. This is already beginning to happen with many of these guys, because of their blatant support of a fascist candidate for President of the United States. Yet another great possible measure of success would be to see these salaries begin to drop. A measure of the top 20% of U.S. households emitting half the national CO_2e, instead of the top 10%, would be a step in the right direction, wouldn't it? Imagine CEO's trying to outdo each other by actually reducing their wealth and their CO_2e and bragging about it? Now how crazy would that be?



That'll be the day!

Clearly, we have options. We absolutely don't have to keep growing our economy and destroying our planet, nor do we want to. And we don't have to keep growing our population to ensure continued economic growth and increasing GDP. We can measure success in different ways that reflect improvements on our planet and our efforts to do better. Why would we not do this?

Paying the True Price

Unfortunately, while I have no doubt that we can in theory get ourselves aligned with our planet fairly quickly with our own simple changes and new measures of what good looks like, I know in my heart that many of us will resist the change. It's what we do. While we'll all be forced to change eventually, as sustainable resources become the norm and unsustainable resources are phased out, the natural process is likely to take 50 or more years, which is too long. If we wait that long, we'll have a much more serious planetary disaster on our hands than we will if we move faster.

A lot of viable ideas have been floated.

- Pricing products to align with their true social and carbon impacts, basically the pricing in Table 3, column 5, which would make pretty much everything except organic vegetables and solar energy too expensive to buy.
- Impose a tax equivalent to the "social cost" of pollution, similar to the pricing in Table 3 above, and then let the market decide how much pollution is worth emitting. Germany imposed an eco-tax from 1999 to 2003, that raised the price of fossil fuels used for transport, heating and electricity, while lowering payroll taxes by an equivalent amount. This cut fuel consumption significantly and increased employment.[59]
- We could at least label things with their carbon footprint, put it on the label along with the nutrition information. Of course, big corp would whine about that just like they whined about the original nutrition information requirements, since it would probably tap their profits by some 0.00000001% to administer the requirements.
- Initiate a cap and trade system for carbon emissions. California did this, and has successfully demonstrated that it's possible to reduce carbon and still have economic growth. They are considering reducing carbon to net zero by 2045.[60]
- Stop subsidizing industries that cause CO2e emissions. They should be able to make a profit on their own if they're relevant and necessary.
- Ban installation of new power plants and natural gas infrastructure to new development. This avoids waste of resources and energy on construction that will be obsolete in the next couple decades. It will also be a continued push in the right direction, towards renewable electricity.
- Rewild the public lands in the west. Allow only access by foot beyond the current visitor's centers. Keep viable cities and towns, don't take any land from landowners, focus only on public lands. This will probably be enough for the wildlife. If not, in a few decades we can rethink it.
- Don't touch any more wetlands.
- Irresponsible companies that make irresponsible products should be required to "pay to play", to clean up their own messes. CEO's of companies that fail to comply should be imprisoned under due process of law. This was the original intent of the legislation put in place to protect our environment in the 1970's.

- Fines for polluting should be severely increased such that it's uneconomical for businesses to choose to pollute and pay fines instead of installing pollution controls.
- Tiered pricing for utilities, including energy and water, so that extreme users pay higher prices. This is in common use now in several places, and it works.
- Increase taxes on motor vehicle fuel to account for cost of carbon impacts to society. Ultimately this would encourage more use of EV's instead of ICE's.
- End the insanity of tax loopholes, offshore havens, profit shifting and special exemptions that allow big corps and the ultra-wealthy to get away with avoiding their share of taxes in the countries where they live and do business. At least $18.5 trillion is hidden by the wealthy in tax havens globally, which is a loss of more than $156 billion in tax revenue. I mean, if Amazon is going to do business in the U.S., they can damn well pay their taxes like the rest of us. It appears to me that Jeff Bezos can well afford it.
- Even better, cap maximum earnings potential in order to minimize the top to bottom ratio of earnings, and create a more equal economy. This could be done gradually over years. At least tax the ultra-wealthy like the rest of us.
- Require the wealthy to meet the same emissions goals as the rest of us, and tax the shit out of them for excess emissions that are beyond the global goals. This way, they'd have to figure out better uses for all that money beside superyachts.
- Ban or severely tax carbon-intensive luxury consumptions, like private jets, superyachts and frequent air travel.
- Stop supporting toxic personal care, cleaning and pharmaceuticals by buying the products. Instead, buy responsible organic products and pay a fair price for them. This simple action would avoid a good $2.4 billion in costs to add tertiary treatment facilities to current wastewater resource recovery facilities. It would also avoid an increase in carbon emissions of 0.8% of our current total carbon emissions for the electricity to run the facilities. An obvious bonus is that when we make these kinds of responsible choices, not only are they cost-effective, they also take business away from the irresponsible companies that produce the toxins. Oh, and we don't kill the wildlife by poisoning the waterways.

There are just oodles of ideas out there on how much it could cost to save our planet, and what the cost will be if we don't do anything at all, and just let runaway capital growth run its course. For example, Lord Nicholas Stern, former chief economics of the World Bank, estimated in 2006 that the cost to respond to global warming would be 1 – 2% of global GDP while complacency would likely cost on the order of 5% GDP annually. He basically proposed the use of some form of carbon tax.[61] The court-mandated cleanup of Boston Harbor cost $4.7 billion, but delivered twenty times that in ecological benefits.[62] A more recent estimate from the University of Cambridge proposes that it could cost $103 - $171 billion per year to protect 30% of the globe for nature, while the benefits could reach more than $454 billion per year by 2050, and could reach over a trillion dollars per year with multiplier effects for tourism. The main costs would be from loss of income from current exploitation, such as forestry and agriculture.[63] The World Economic Forum now rates biodiversity loss as one of the top risks to global economy.

> Generally, the various cost-benefit analyses come to the same conclusion – we have to act now, and the benefits of giving land back to wildlife will far outweigh any perceived costs.

My own reasoning on costs and benefits of saving our planet is simple. If most of our agriculture is for livestock forage and feed, and most forestry is for single-use paper, if we stop consuming those, the cost should be negligible. And, those changes aren't what I would call actual sacrifices, so much as common sense. Hilary and I do these now, and we don't feel like we're making a sacrifice at all. It's just a change. For the better.

Boycott by Divestment

I already mentioned that after reading Rachel Maddow's book, "Blowout", I divested of any holdings I had with big oil. This also meant mutual funds that had even one oil company in them. It turns out that I'm not the only one. One of the big problems with big oil is that they're never going to stop keeping their production and profits as high as possible, and they're extremely unlikely to transition from fossil fuels to renewable energy. The reason for this is basically that they can't make as much money with renewables, because they're so cheap compared to fossil fuels. Renewables have now passed fossil fuels in economics, with solar panels and batteries getting cheaper and more efficient by the day. And, consumers only need one set of solar panels and a battery, which will last at least 25 years, on average, before they have to be replaced.

A couple of oil companies started to move in the direction of renewables early in this century, including BP and Chevron, with lots of advertising and fanfare, but they backed down because of the profits. Those profits, of course, are not only important for the extremely high CEO pay, they're also important for stockholders. And the biggest stockholders aren't little old me, they're other extremely wealthy people and corporations who keep their investments in fossil fuels because they're so lucrative. Except when there's a bust. Which has happened plenty of times, as we know. Hell, it happened three times during the 22 years I was in the oil industry, from 1978 to 2000. Which brings me to another benefit of renewables. Once those solar panels are installed, they don't boom and bust. After all, the sun comes up almost every day. And, while it's true that the sun sets at night, and that we have cloudy days, those periods can be offset with a battery that supplies the energy.

It appears that more and more big institutions are recognizing the reality of these facts, which is driving the beginning of the fastest divestment trend in history. So far, the fossil fuel divestment has reached $40 trillion.[6] About 75% of the divestment has been religious institutions, academic bodies and individuals, and the rest is from celebrities, institutional investors and pension funds that have decided that they don't want to be a part of the continued use of fossil fuels. Which is why I divested.

These realities also explain why the fossil fuel industry is doubling down on the campaign donations, lobbying and misinformation campaigns in an effort to keep the population, in other words, we the dumbed-down people, in the dark. Have you noticed a lot of news coverage about all this? Since it's one of the most important financial stories of the entire past *decade*? That's not a coincidence. Nor an oversight. It's a very purposeful campaign designed to keep us ignorant and totally dependent on fossil fuels. The entire divestment movement kicked off in 2011, and the first institution to divest was Unity College in Maine.[64] After that, it rapidly gained global momentum as others jumped onboard, amid pressure and demonstrations from students and other activists. It seems that there are plenty of us who don't want to pay big to pollute our planet for the rest of our lives, and who don't appreciate the hypocrisy that goes with enabling continued fossil fuel infrastructure through investments as shareholders.

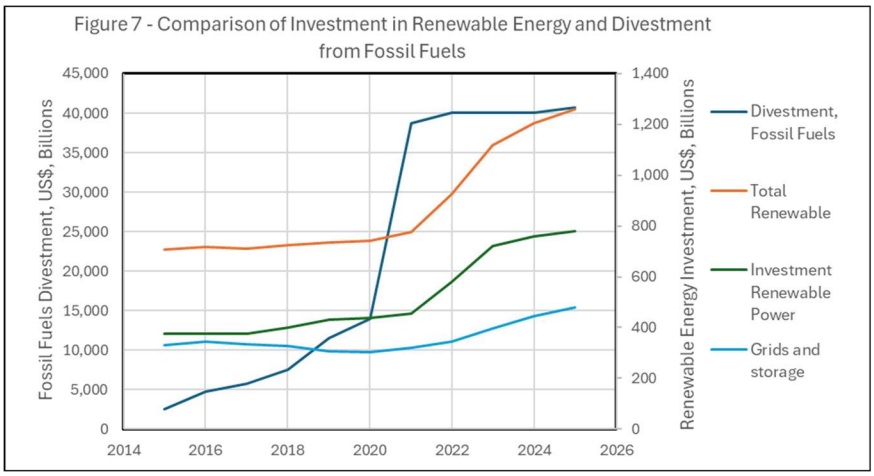


Figure 7 is a comparison of total divestment from the oil industry and investment in renewable energy.[65] The magnitude of increased investment in renewables is about 5% of that of divestment from fossil fuels, and is picking up momentum, growing about half as fast as fossil fuel divestment. This is interesting and may be an indicator of how much more economically efficient renewables are compared to fossil fuels, given that total energy is growing, and the investment/divestment trend represents a transition from fossil fuels to renewables. At this point, 1731 institutions are divesting globally, and a list of divestors can be found on the Global Fossil Fuel Divestment Commitment Database.[65]

Even in the face of denial, the more progressive oil majors are starting to look again at the potential of clean energy, and are slowly moving away from more capital-intensive projects. Also, more policymakers are beginning to realize that we're going to have to do something about the carbon emissions.

Summary

This chapter aimed to help explain the extreme importance of our purchasing choices to the environment, and how we pay one way or the other when we choose cheap, irresponsible goods. As consumers, we have all the power, and it's up to us to leverage our enormous power to get back in balance with our planet. Us commoners far outnumber the obscenely wealthy, and we can use the power in our numbers to put them in their proper place.

Now that we know that those of us making $11 million or more are responsible for half of our carbon footprint, how do we account for that? I thought that it might be fair to reduce our personal share of carbon footprint that was summarized in Chapter 23, but not for long. The reason I abandoned that line of thinking is that I don't think that's appropriate, because even though the wealthy are running wild on our planet, we're the ones enabling them to do so by giving them our money when we buy their products. If we follow a plan, similar to what Hilary and I have done, the obscene incomes will begin to decrease, and their extreme carbon footprints along with it. So for now I'm leaving Hilary and I at a 66.2% reduction from the average U.S. per-capita carbon footprint of 22 tonnes/year. Because of our low footprint and our divestment from fossil fuels, our local, organic and low meat diets, our zero energy and zero waste and other choices, we are paying big corp less, and are enabling them less by approximately the same percentage, 66.2%, give or take.

At the end of the day, we are beginning to see some needed changes in our thinking and how we do things. But it needs to happen faster. And it's up to us consumers to make sure that it does. It is us to protect our descendants who will have to live with the consequences of big corporations running wild, for good or bad. And it will be our fault if we let them.