The Great Simplification:

Navigating Society's Inevitable Power Decline

Introduction

Our culture is distracted by two narratives for the future of humanity; one that envisions a continuation of the limitless growth and progress of the last two hundred years, and another that sees obstacles ahead, but expects solutions via technology and innovations. Although hopeful, both of these stories are missing critical pieces for understanding the reality and severity of the challenges humanity faces in the coming decades.

The Institute for the Study of Energy and Our Future (ISEOF) examines our current global predicament and the path that brought us here. From species loss, climate instability, income inequality, geopolitical risks, and other alarming conditions, the symptoms of unchecked growth abound. By viewing the history of humanity through a systems lens, we gain a deeper understanding of the world around us and see a society struggling under its own complexity while simultaneously destroying its foundation. It is our conclusion that significant change is coming, but what it is and how it unfolds remains to be seen.

By examining the interwoven stories that brought us here, can we alter our behavior, our expectations, and our systems, and perhaps avoid a devastating fracture? We aim to help society bend, not break, by changing the initial conditions of the future through education, systems analysis, networking, and interventions.

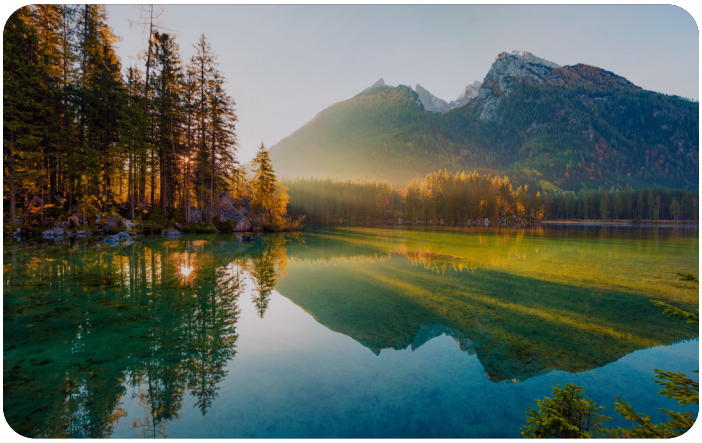
The Story

Four interconnected dynamics drive the exponentially-growing human systems at the center of our world's crises. These four are:

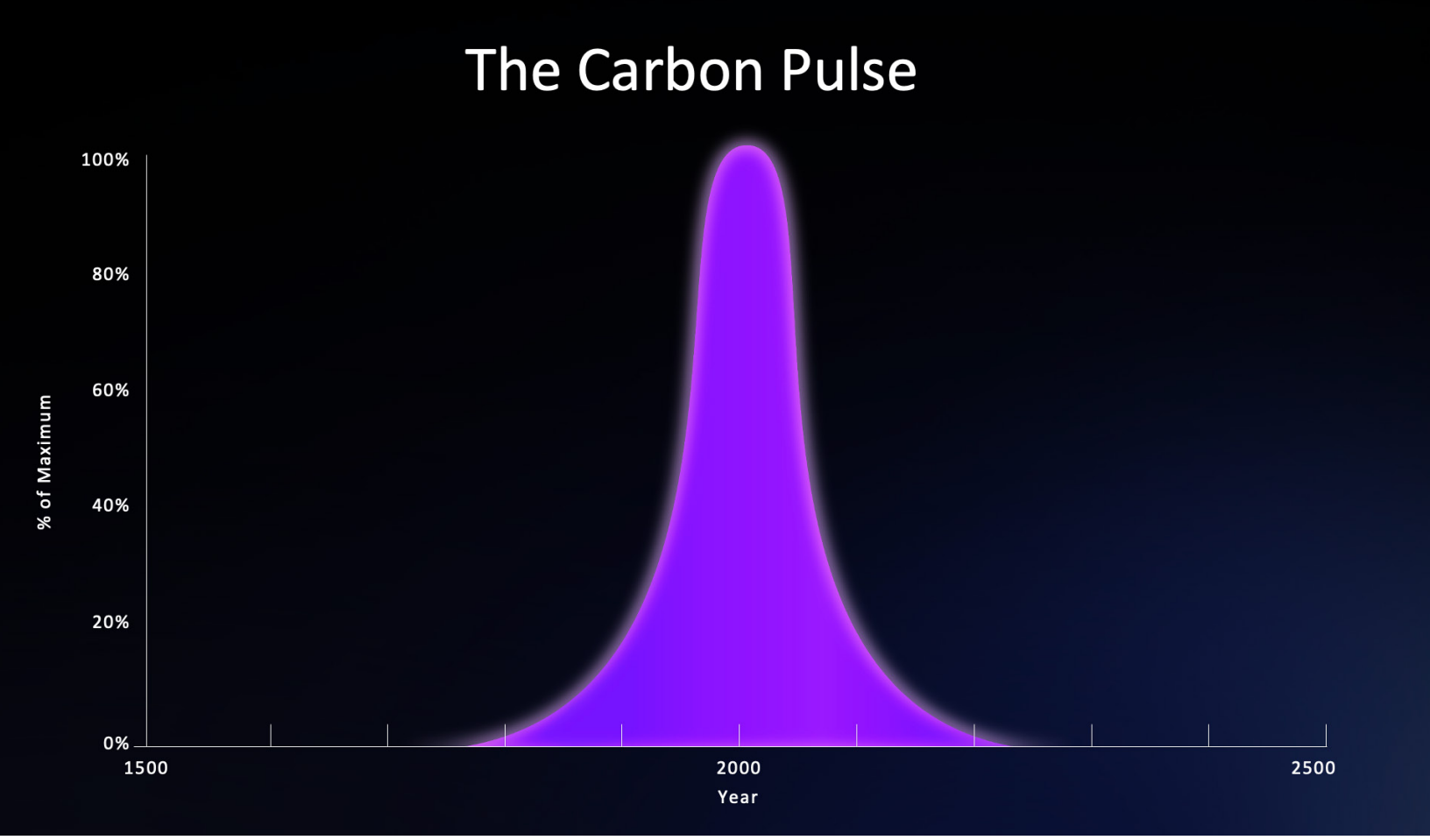
Energy

Economic Growth

Ecology



Human behavior



Energy

We tend to think that our daily experiences involving communication, travel, food, and other extravagances are normal, but in the grand scale of history, they are not. Our current lifestyle, especially in industrialized countries, is defined by and entirely dependent on our ability to extract and burn ancient fossil hydrocarbons from the ground in the forms of coal, oil, and gas.[1]

This ***Carbon Pulse*** epoch is a period of extremely high consumption of fossil energy that has propelled humanity to previously unimaginable levels of production and consumption.

This sliver on the timeline of our species has defined our modern economic systems, and more drastically, our expectations for the future – unbounded economic growth.

Prior to fossil fuels, most labor was accomplished by humans and animals. However, beginning with the Industrial Revolution, we transitioned to reliance on machinery powered by this dense energy source, which led to an unprecedented surge in productivity.

For comparison, the amount of energy stored in one barrel of oil equals approximately 4.5 years of human labor,[2] and globally, we consume ~100 billion barrel-of-oil-equivalents per year.[3] Effectively, this adds the productivity of nearly 500 billion additional "laborers" to our workforce of five billion actual humans and has unleashed a fossil army that powers almost every single thing we do.

= **4.5 years of human labor**

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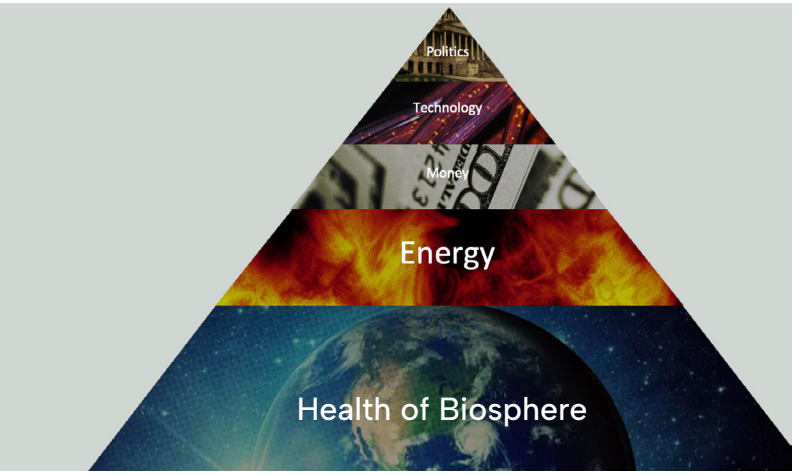
The cost of coal, oil, and gas includes those activities and investment up to its end user; namely extraction, transportation, and refinement, but not the millions of years required to "trickle charge" this energy source from heat and pressure combined with ancient biomass.[4] Our extraction rate has far surpassed the natural processes that sequestered it. In essence, we treat fossil energy like an interest payment when we are really spending the principal. Every barrel of oil we extract from the Earth is like a withdrawal from the geological energy trust fund that is the foundation of our economic system – a system based on expectations of infinite growth, indefinitely. But the Carbon Pulse won't last forever. This is one way our society has become Energy Blind. We conflate the dollar cost of energy with the work value it provides, which is orders of magnitude more.

Renewable resources like solar, wind, and hydropower are viable alternatives, but fall short as replacements as these too, rely on fossil fuels for their creation and transportation.[5] Furthermore, renewables are not actually renewable, but rather rebuildable. More fundamentally, solar and wind generate electricity, but cannot directly replace the dense liquid fuels, petrochemicals, and high-temperature industrial heat that fossil hydrocarbons currently provide – functions that underpin supply chains, agriculture, and manufacturing at global scale. Wind turbines, for example, have an operational lifespan of only 20–25 years.[6] Additionally, intermittency observed in solar and wind challenges our expectations of providing the on-demand energy of fossil fuels.[7]



Infinite growth on a finite planet is impossible.

Economic Growth

Money represents a claim on the natural resources that underpin everything in our economy: oil, wood, iron, sand, copper, and more. These resources are the true wealth of nations, while money is simply the mechanism we use to procure and allocate their access.

In today's economic system, governments create money with no tether to biophysical resources, like gold. But no matter how much money governments create, it doesn't increase the amount of physical resources the planet can actually produce. In fact, new money is usually created in the form of debt, which allows for increases in the scale of near-term human consumption.[8]

This creates a claim on future resources, further accelerating the extraction of non-renewable resources and energy, further degrading Earth's ecosystems. Debt requires us to pay back what we originally borrowed plus interest, enforcing the need for economic growth. The result has been overconsumption beyond Earth's carrying capacity – fueled by oil, coal, and gas – propelling us into greater levels of overshoot than would otherwise have been possible.

This is why our economic system is blind to the fact that infinite growth on a finite planet is impossible. By expanding our financial claims beyond what the Earth can underwrite, the foundations of our financial and economic institutions erode, destabilizing the entire system. At some point in the future, humanity will choose to – or be forced to – contract our consumption. There will be an inevitable simplification of the way we live.

Ecology

Humans have shaped the planet more than any other species alive today, and we see the effects of our current consumption levels all around us: in the mining of precious metals, clearing land for agriculture, urban sprawl, harvesting trees for lumber, and overfishing the ocean, to name a few. The web of life is intricate, complex, and interconnected, and we are just one of a countless number of species.[9] Our current consumption levels come with an ecological cost affecting all species: overshoot.[10]

It takes humans just over seven months to consume the amount of resources the planet produces in a year.[11] We've lost 69% of animal populations globally since 1970, and 45% of insect populations since 1985.[12] Ocean currents are under threat of slowing, and precipitation patterns are becoming more extreme and unpredictable with a heating biosphere.[13] The Amazon rainforest – "the lungs of the Earth" – is at risk of tipping into a self-drying savanna.[14]

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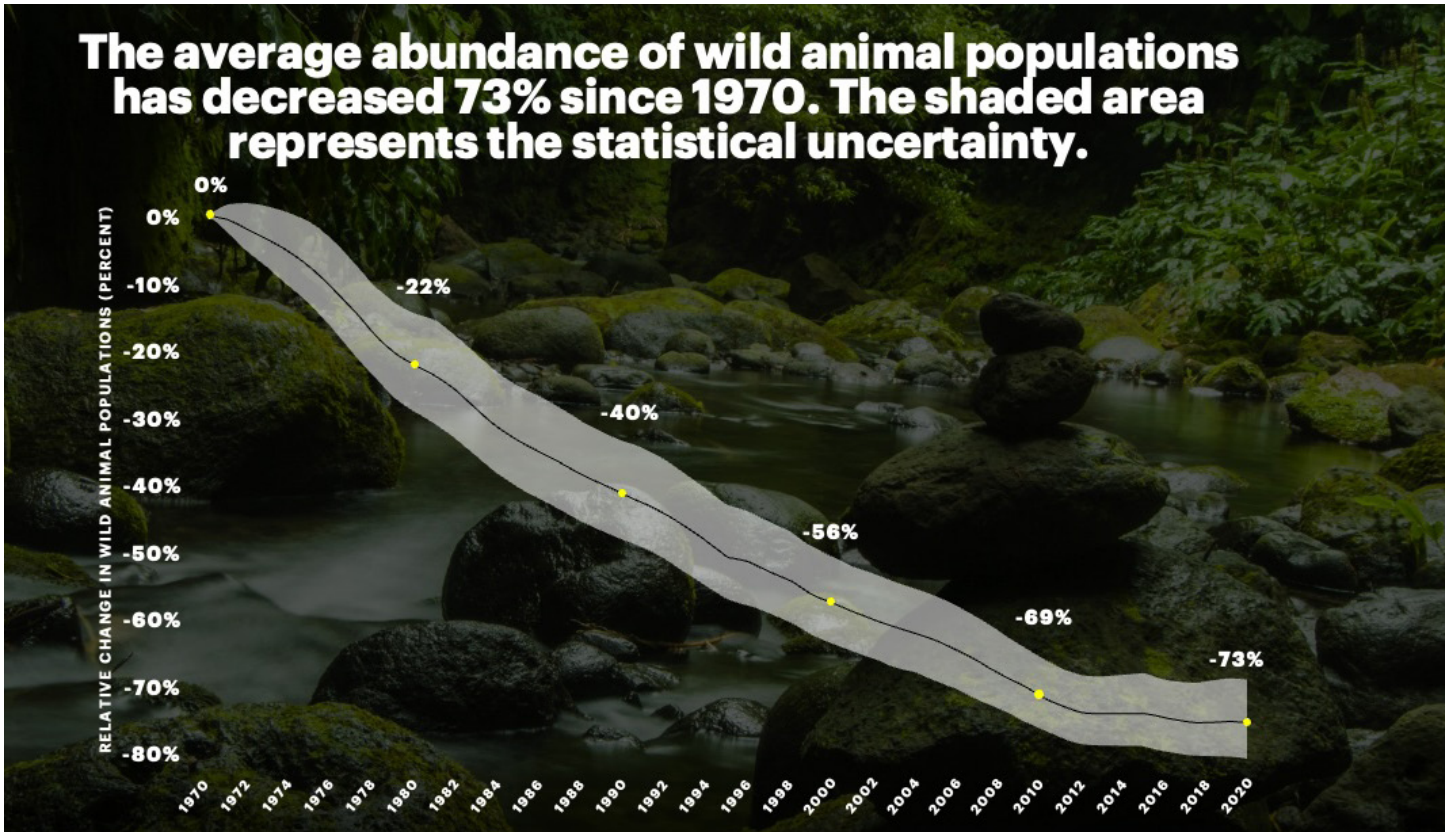
Scientists who study these ecological signals to assess total planetary health believe we are beyond the safety zone for seven of the nine planetary boundaries.[15]

Our measure of progress and success for the last two and a half centuries, industrial development, has drastically transformed the planet, destabilizing many biospheric functions we rely upon. The strain we place on these ecological systems threatens to degrade the planet's capacity to sustain complex life – including our own.



Human Behavior

Knowing this, why do we continue to behave in ways we know are destructive to the planet, other species, and even our own futures?

The answer lies partly in our evolutionary history.

At a broad level, evolutionary psychology shows us that we each have desires and biases that drive our behavior, all of which were evolutionarily advantageous to our species' survival over the past hundreds of thousands of years. Our hunter-gatherer ancestors were rewarded with a pleasant release of dopamine and other neurotransmitters in their brains following a successful hunt.

Today, our behavior is driven by activities that provide the same neurochemical release our ancestors experienced, but which lack a tether to our survival: eating junk food, shopping, gambling, social media, etc.[16] In effect, we have turned billions of barrels of oil into microliters of dopamine.

Combine this with competition, relativism, in-group/out-group bias, shifting baselines, and other cognitive biases,[17] and you have a recipe for human behavior driven by consumption.

While we rationally understand how our actions negatively affect the future of the planet, this knowledge rarely competes as a behavioral driver compared to the psychological factors listed above. Envy, competition, and sexual selection further drive us to amass status symbols, both digital and material, to gain advantage within our species.[18]

Instead of using our logic to protect the planet, these psychological drivers push our consumption well beyond what's necessary to live happy, fulfilling lives. In sum, our world has evolved much faster than our ancient brains, rendering us vulnerable to the inputs that keep us from acting in our own best long-term interests.

Human Civilization as an Economic Superorganism

These factors all propel the incredibly complex modern societies we see around us: a system built from eight billion members of a social species collectively seeking "profits," which are linked to energy and resource consumption. We've developed just-in-time intercontinental supply chains to deliver goods unfathomably quickly. Every time the growth slows, the system demands an increase in speed and complexity.

We use profit measurements, like GDP, as a way to measure human well-being. But what makes a human "well" is rarely measured in financial terms: access to clean air and water, free time in good health, and belonging in community. However, we have arrived at a place where we, as a culture, have outsourced our decisions and planning to the financial system. But the system is no longer under anyone's control. The human species has, without intending to, organized itself into an energy-hungry economic superorganism – one that no individual or institution fully controls.

This wasn't one person's decision, or even that of a group. As much as we may praise or scorn various titans of industry, they're ultimately responding to what the market demands. While common rhetoric often puts the responsibility on consumers to use less, recycle, or live more simply, the reality is that our collective actions have created our society. In a faltering system, small changes in individual behavior won't be enough to change course.

AI as a Superorganism Accelerant

Artificial intelligence represents perhaps the most powerful accelerant ever applied to the superorganism's metabolism. A typical AI-focused data center consumes as much electricity as 100,000 households[19] – and by 2030 total global data center electricity consumption is projected to exceed Japan's current total electricity consumption.[19] Beyond electricity, the infrastructure required to run these systems at scale – data centers, cooling systems, rare earth mining and processing of critical minerals for chips and hardware – places enormous additional strain on already-stressed industrial capacity, energy grids, and ecosystems. But the deeper concern is not merely the energy cost of AI itself; it is what AI presents. As the Industrial Revolution provided a juvenile superorganism the means for rapid expansion via fossil fuels, AI will dramatically amplify human productive and consumptive capacity, and accelerate every dynamic described in this paper – faster drawdown of natural capital and faster expansion of financial claims against a shrinking biophysical base.

In this way, AI may be the most sophisticated tool yet, expressing our civilization's desperation to continue supporting and encouraging a fundamentally flawed system. In its infancy, the direction in which AI is focused depends upon those creating and controlling it. As we outsource decision-making authority to machines, will they optimize for long-term planetary health and human well-being, or for a short-term systemic race for power? Whether AI ultimately helps humanity bend or accelerates the break may be the defining question of the coming decades but the timeline for mitigation efforts is now greatly reduced.

The Great Simplification

However the future unfolds, the Carbon Pulse will only be a brief period of human history. We will eventually face declining energy and resources, ultimately forcing our societies to undergo a Great Simplification.[20]

Despite this reality, most of humankind still envisions futures rooted in an economic and civilizational structure that's the same or similar to what we have today. For those envisioning a different future, they focus on a single best or worst-case scenario, rarely considering the full range of possibilities before us. This is true for our conceptions of both our personal and collective futures, as humans rarely think in probabilities – yet doing so is precisely what the coming decades will demand.

However, we can be certain about a few things. For as long as the sun burns, there will be energy on Earth, but the amount of energy available to us will decrease. And when our economies can no longer grow fast enough to satisfy the claims of our financial industries and governments, they will recede to a scale that can once again support themselves off of biophysical value, not credit. Complex global supply chains and high-consumption, ultra-convenient lifestyles will diminish.

A world in which humanity "bends" is the best path for our continued existence.

Helping Humanity Bend, Not Break

While an eventual simplification of our societies is inevitable, they can either "bend" or "break." Knowing what we do about energy, the economy, overshoot, and human behavior, will we attempt to bend by altering how we currently live – even dramatically – to maintain a coherent human society? Or will we do nothing and break, shattering our current social structures, and suffer a complete system collapse?[21]

Breaking would mean a sharp drop off in the stability and functioning of the institutions and relationships that underpin humanity and the planet. For many, this might be the easier future to envision, as it's often simpler to imagine the world ending than substantial changes to the way we live. But easier does not mean we should not strive for something better.

A world in which humanity bends is the best path for our continued existence. It's not a utopia, though; it's an adaptation towards a simplified version of our lives, one that's less energy-intensive and more community-based.

What Will the Great Simplification Look Like?

A Great Simplification would result in a very different civilization. It's not a world where we simply use different energy – solar, wind, geothermal, etc. – but a world in which we use energy differently. It might mean redefining status and success, living at a smaller scale that honors Earth's limits, and nurturing closer bonds with those who live near us. Perhaps, it would mean sustaining ourselves largely on what we can grow and extract from our nearby environments, and seeing ourselves as part of nature, rather than separate from it. It might mean focusing on the materials we need for survival and to truly enrich our lives, rather than for the sake of more short-term rewards and status.

The world of the Great Simplification might be one in which we shift our emphasis to value different kinds of capital. Our current civilization prioritizes financial capital – dollars. But dollars are just a marker for real capital. These are:

- **Built capital, such as a house, a car, a guitar, or anything else you own.**
- **Human capital, such as our skills and knowledge.**
- **Social capital, such as our networks and friends.**
- **Natural capital, such as streams, forests, healthy air, our biosphere, and our planet.**

Wherever we go, envisioning a simpler, more resilient life requires looking at our story through a systems lens and seeing all of the vast interconnections between humanity and the rest of life.

From there, we can ask the question: How are you and your community preparing for the different possible futures of humanity?

What To Do Next?

There are many responses to the coming Great Simplification. Our only realistic hope for a long and meaningful future requires us to envision as many of these paths as possible. Some might even be preferable to how we live now – not just survivable, but genuinely better. Others are so bleak as to seem nihilistic. But by thinking in probabilities and fostering pro-social, resilient communities, we can begin to navigate the inevitable changes ahead of us.

At the personal level, this might mean examining your own consumption patterns, building practical skills, and reducing dependence on fragile supply chains. At the community level, it could mean investing in local food systems, mutual aid networks, and regional resilience. At the institutional level, it requires rethinking the metrics we use to measure progress and the assumptions embedded in our planning horizons.

At ISEOF, we foster a collective approach to learning and action.
Learn more and step into the collective conversation on **our website.**

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The Institute for the Study of Energy and Our Future

Sources

1. https://www.brookings.edu/essay/why-are-fossil-fuels-so-hard-to-quit/
2. https://www.sciencedirect.com/science/article/pii/S0921800919310067
3. https://www.energyinst.org/statistical-review
4. https://ocean.si.edu/conservation/gulf-oil-spill/what-are-fossil-fuels
5. https://democracyjournal.org/arguments/why-renewables-cannot-replace-fossil-fuels/
6. https://www.nrel.gov/pv/lifetime
7. https://www.bpa.gov/energy-and-services/efficiency/demand-response/intermittent-renewable-energy
8. https://www.bankofengland.co.uk/quarterly-bulletin/2014/q1/money-creation-in-the-modern-economy
9. https://www.iucn.org/news/europe/201801/spirit-nature-everything-connected
10. https://natehagens.substack.com/p/the-7-fundamental-drivers-of-overshoot
11. https://overshoot.footprintnetwork.org/about-earth-overshoot-day
12. https://entomology.ucr.edu/news/2023/07/13/researchers-study-global-decline-insect-populations
13. https://today.tamu.edu/2022/11/08/texas-am-experts-explain-slowing-ocean-currents/
14. https://www.nature.com/articles/s41558-022-01287-8
15. https://www.stockholmresilience.org/news--events/general-news/2025-09-24-seven-of-nine-planetary-boundaries-now-breached.html
16. https://www.frontiersin.org/journals/behavioral-neuroscience/articles/10.3389/fnbeh.2025.1551213/full
17. https://read.realityblind.world/view/975731937/68/
18. https://read.realityblind.world/view/975731937/57/
19. https://www.iea.org/reports/energy-and-ai/executive-summary
20. https://www.youtube.com/watch?v=-xr9rlQxwj4
21. https://www.youtube.com/watch?v=cT5d8n1Syb8