Pragmatic Environmentalist of New York Summary Update July 8, 2024 to July 21, 2024

This is my fortnightly summary update of recent posts at Pragmatic Environmentalist of New York. I have been writing about the pragmatic balance of the risks and benefits of environmental initiatives in New York since 2017 with a recent emphasis on New York's Climate Leadership & Community Protection Act (Climate Act). This summary describes each of my recent posts with minimal technical jargon and includes links if you want to read the entire post. If you do not want to be on this mailing list, then let me know. Previous updates and a pdf copy of the following information are also available.

Risks of Climate Act Net Zero Tom Shepstone published a condensed version of this here and here. I believe the Climate Act transition to net-zero will do more harm than good because it will negatively affect affordability, the environment, and reliability. This was a post that I have wanted to do for a long time but only was prompted to do this after reading a couple of posts. I will include a long summary because of its importance.

David Turver's Risks of Net Zero article prompted me to write this post. He states:

> We hear a lot about how we are supposedly in a climate crisis and how The Science™ tells us we are about to succumb to global boiling. Most climate activists claim that we must cut emissions by spending more money on windmills and solar panels or we will all burn to a crisp.
>
> I would describe myself as a lukewarmer, by which I mean that I acknowledge the earth is warming and that human emissions of CO_2 have made some contribution to that warming. However, it is also true that the climate has changed dramatically without human intervention; clearly, there are other causes of climate change too.
>
> The strategy of reducing emissions of greenhouse gases to Net Zero is classified as a "mitigation strategy" in the parlance of the IPCC. The alternative strategy is adaptation which means taking measures to adjust to climate change such as building flood defences, irrigation systems or developing new strains of crops to cope better with changing weather patterns. Most spending effort in the West is geared towards mitigation. But, what if the Net Zero cure is worse than the disease? What if mitigation is less effective than adaptation?

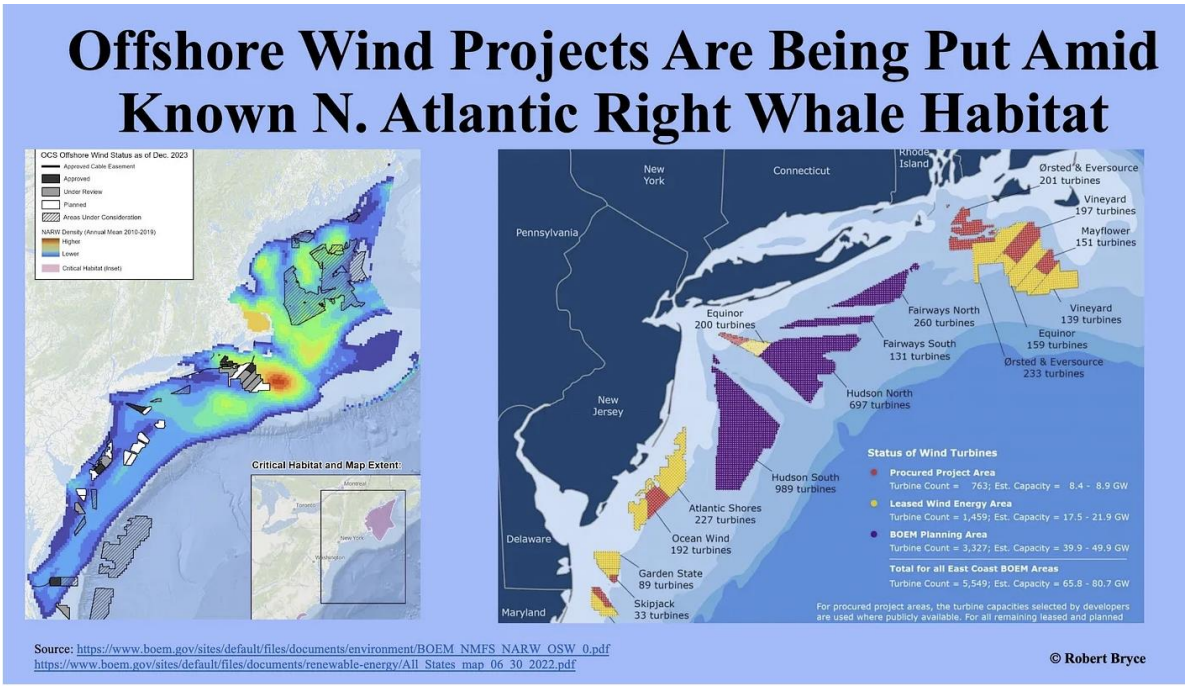
Turver points out issues related to mitigating climate change by reducing emissions. Mitigation only works if CO_2 is the only climate control knob but that cannot be the case because we have observed temperature changes over the last thousand years. Mitigation can only work if everyone else slashes emissions too.

On the other hand, adaptation measures where we attempt to reduce the potential impacts of extreme weather, have many benefits. They can be "applied locally where they produce results quickly", "protect against changes in the climate that are not driven by CO2 and reduce impacts from events that we know have happened in the past.

I think the biggest issue with the Climate Act is affordability. Everyone wants a clean and safe environment but just how clean, how safe and at what price are all value judgements. Turver points out that implementation of net-zero policies like the Climate Act have poorly acknowledged cost risks. He describes observed cost increases in the United Kingdom and makes the point that additional costs also make manufacturing and other production less competitive, which leads to job losses. Ultimately the inability to produce basic needs reduces security. He also points out that renewable energy development requires more materials than alternatives. Turver explains that the increased penetration of renewables in the United Kingdom has led to a massive increase in electricity bills. This increase comes from "renewables subsidies as well as grid balancing costs and the massive costs of expanding the grid out to remote offshore wind farms".

I believe that the environmental impacts of wind and solar development are greater than the impacts of fossil-fueled or nuclear resource development. Robert Bryce published an article entitled The Offshore Wind Scandal is Even Worse Than You Think that addresses one of the cumulative environmental impacts that the Scoping Plan ignored. In his article he includes 11 charts that "show how America's biggest NGOs are colluding with foreign corporations that want to industrialize our oceans with thousands of turbines that will hurt whales and ratepayers". He argues that the massive offshore wind development will affect whales:

> I'm old enough to remember when environmental groups cared about whales. Alas, that was a long time ago. On Sunday, the *Daily Mail* published an article about Apostolos Gerasoulis, a Rutgers professor emeritus of computer science who built a software system to analyze the dozens of whale deaths that have occurred on the Eastern Seaboard over the past few years. Gerasoulis set out to determine if the whale deaths were related to the loud blasts of sonar used by offshore wind survey vessels. His conclusion: "Offshore wind kills whales...The numbers never lie. There is a cause. We have shown that the cause for death of the whales is offshore wind. Period."



The remaining charts compare offshore wind capacity and costs relative to other resources. He concludes that these developments will markedly increase costs for states that already have some of the highest electricity rates in the country.

I maintain that the New York State has shirked its commitment to the environment because it has not addressed cumulative environmental impacts of the Scoping Plan buildout of wind and solar. No where is this more impactful than the effects on whales in general and the remaining North American Right Whales in particular. Bryce quotes an opponent of offshore wind: **"**What is Big Wind going to say when they kill the last whale? 'Sorry'?"

I described my concern about the enormous reliability risk of an electric grid relying on wind and solar resources in a previous post. In this post I refined my arguments. Today electric resource planning relies on decades of experience with hydro, nuclear, and fossil-fueled generators that operate independently. There is no reason to expect that they will all have low output at the same time. The proposed Climate Act electric system is supposed to rely on wind and solar generation. Those resources will be affected by weather systems that are so large that all the New York resources can be affected at the same time. This complicates planning projections for how many resources must be in place to fill the gap when wind and solar provide low output.

Electric resource planning emphasizes the need to provide reliable power when the load peaks. The Climate Act strategy is to reduce emissions by electrifying residences and transportation that will increase the future peak load and magnify the importance of supplying sufficient energy during the peak loads. Reliance on weather-dependent generation means that the probability of these low resource availability periods must be considered. I believe that providing the resources necessary for a one in fifty-year drought will be impractical because of costs. However, when a fifty-year resource drought inevitably occurs that means that catastrophic blackouts will be inevitable. Moreover, even if the grid is built to deal with a fifty-year drought what happens when the seventy-year drought occurs?

There is no doubt that all these impacts will occur in New York as the Climate Act mandates are implemented. There has not been an adequate assessment of these issues. The Hochul Administration has not provided comprehensive and transparent cost estimates. The last cumulative environmental impact assessment was completed before the Climate Act projections for the number of solar panels and wind turbines was completed. My concerns about handling the worst-case renewable resource drought have not been addressed either. Failing to plan is planning to fail.

New York City Local Law 97 – Don't Do It

I have the pleasure to announce the availability of a new report prepared for New York Co-op and Condo Boards and Trade Associations regarding New York City Local Law 97 (LL97) mandated conversion to electric heat. Francis Menton, Richard Ellenbogen, and I prepared this report without compensation and on a pro bono basis because we felt duty-bound to warn people of the significant impending threat to their health and safety of this ill-conceived law.

Local Law 97 mandates that "most buildings over 25,000 square feet are required to meet new energy efficiency and greenhouse gas emissions limits as of 2024, with stricter limits coming into effect in

2030." Our report ("LL97 Impacts Report") argues that in the absence of a credible and feasible plan demonstrating where the electricity will come from, backed up by a functioning Demonstration Project showing how the transformed grid will work and how much the electricity will cost, Co-op and Condo Boards cannot responsibly undergo the enormously costly process of conversion to electric heat.

The article describes LL97 and a report prepared by the LL97 Advisory Board. The NYC LL97 Advisory Board report provides reporting recommendations, suggestions to maximize emission reductions, and more. What it does not do is address feasibility.

Our report points out that neither the State nor the City of New York has presented any credible plan demonstrating that when in the early to mid-2030s there will be sufficient reliable electricity generation to meet the demands anticipated from both current uses, and from the large additions expected. Indeed, the State has admitted that, in lieu of a definitive plan, it relies instead on a speculative hope for new technologies not yet invented or deployed at scale to bridge the large gap in electricity supply that will inevitably arise from the conflicting mandates. The State can point to no Demonstration Project showing how its hope for a de-carbonized electrical grid can succeed, nor to any detailed projection of the anticipated costs.

We concluded that the NYC LL97 Advisory Board report falls far short of what is needed to provide Co-op and Condo Boards and the residents of those buildings with any assurance that the LL97 mandates can be met at the same time the Climate Act is transforming the electric energy system with massive deployments of wind, solar, and energy storage as well as not yet commercially available resources. This means extraordinary risks for keeping the heat on in the winter in NYC.

The fines that are slated to be imposed on buildings failing to convert by 2030, although substantial, are small compared to the combined exposures of conversion costs plus potential liabilities. Moreover, when it becomes apparent that the grid cannot handle the mandated demands, the laws imposing impossible and irreconcilable mandates must inevitably be modified. Our report concludes that no responsible Board can go down the road of converting a large building to electric heat until NYC proves that the mandates are demonstrably feasible without threatening the safety and welfare of affected residents.

Ellenbogen on the Comptroller Audit of the Climate Act

In the last month there have been three important reports regarding the implementation of the Climate Act. My post on the NYISO Power Trends Report noted that it provides an excellent overview of New York State's power grid and wholesale electricity markets but does not consolidate all the warning signs about Climate Act implementation, nor does it call out state policies that are exacerbating problems. My post on the Clean Energy Standard Biennial Status Report explained that the Public Service Commission has found that the 2030 goal for the electric grid to get 70% of its power from renewable energy is very unlikely to be met. This post describes the third report: New York State Comptroller Office audit of the New York State Energy Research and Development Authority (NYSERDA) and Public Service Commission (PSC) implementation efforts for the Climate Act titled Climate Act Goals – Planning, Procurements, and Progress Tracking.

The audit found that: "While PSC and NYSERDA have taken considerable steps to plan for the transition to renewable energy in accordance with the Climate Act and CES, their plans did not comprise all essential components, including assessing risks to meeting goals and projecting costs." It noted that the "PSC is using outdated data, and, at times, incorrect calculations, for planning purposes and has not started to address all current and emerging issues that could significantly increase electricity demand and lower projected generation". Regarding costs the audit notes that "The costs of transitioning to renewable energy are not known, nor have they been reasonably estimated" and goes on to point out that the sources of funding have not been identified. The PSC is supposed to start "to formally review progress toward Climate Act goals with updated generation and electricity demand forecasts" this month but the audit points out that waiting has increased the risk that the targets will not be met.

The article presents Richard Ellenbogen's impressions of the report. He argues that the Climate Act was doomed from the beginning because the legislation was overly ambitious. The politicians who passed this legislation ignored the cost realities and the analyses done by the state hid the costs. It is no longer possible to hide the costs. Ellenbogen notes: "No one wants to put the actual number into the public domain because it is so astronomical that the minute it was announced, the project would implode, and the political fallout will be staggering."

Richard Ellenbogen and I have long argued that a clear and transparent accounting of all the costs to meet the Climate Act goals is not available. It is heartening to see that the Comptroller audit agrees with our position that this information is necessary.

Climate Act Presumption That DEFR is Unnecessary

One of my ongoing projects is to provide documentation for a new category of generating resources called Dispatchable Emissions-Free Resources (DEFR). My goal is to set up a page that summarizes the issue and provides brief overviews of more detailed descriptions of articles that I have published. The reason that this is necessary is that there is still some controversy about the need for the resource.

Most analyses of the future New York electric system agree that new technologies are necessary to keep the lights on during periods of extended low wind and solar resource availability. There is one notable exception, and it matters because it was used by the authors of the Climate Act to claim no new technologies are needed and to rationalize the schedule and ambition of the law. This post documents that outlier.

I have previously written about the out-sized and misleading impact that Robert W. Howarth, Ph.D., the David R. Atkinson Professor of Ecology & Environmental Biology at Cornell University had on many of the members of the Climate Action Council. In his statement supporting the approval of the Draft Scoping plan he claimed that he played a key role in the drafting of the Climate Act and explained why he believes that no new technologies are needed to meet the Climate Act goals:

> I further wish to acknowledge the incredible role that Prof. Mark Jacobson of Stanford has played in moving the entire world towards a carbon-free future, including New York State. A decade ago, Jacobson, I and others laid out a specific plan for New York (Jacobson et al. 2013). In that peer-reviewed analysis, we demonstrated that our State could rapidly move away from fossil fuels and instead be fueled completely by the power of the wind, the sun, and hydro. We

> further demonstrated that it could be done completely with technologies available at that time (a decade ago), that it could be cost effective, that it would be hugely beneficial for public health and energy security, and that it would stimulate a large increase in well-paying jobs.

I do not agree with any of these claims. This post explains that Jacobson's peer-reviewed approach has been rebutted in the peer-reviewed literature. I include a reference to Meredith Angwin's 2020 book *Shorting the Grid: The Hidden Fragility of Our Electric Grid* (Carnot Communications, Wilder, VT, 422 pp.) that also addressed the Jacobson analysis and referenced two other books that refute the claim that wind, water, and solar can be used as claimed. When I publish the reference page it will include multiple examples of other analyses that conclude that the new DEFR technology is required

Filling the Gap in New York's Decarbonization Plan: A New View of the Electric Grid

One of the examples of another analysis that addresses the need for DEFR is the Nuclear New York report "Filling the Gap in the State's Decarbonization Plan". The report was authored by Leonard Rodberg, PhD, Research Director, Nuclear New York, Inc.; Consultant, Energy Policy; Reiner Kuhr, Founder, Center for Academic Collaborative Initiatives (CAIC); and Ahmad Nofal, Co-founder, CAIC.

My article describes the methodology incorporated into a new modeling tool that they developed. In their analysis they compared how the generating resources operate in one of the Integration Analysis projections for the future with how their model predicts how they will run. Both modeling approaches include DEFR as a necessary resource, but the results of this analysis find that DEFR must be used much more frequently than in the Integration Analysis.

Another aspect of the report is a proposal for an alternative approach:

> In this paper we suggest alternatives to NYSERDA's plan that use baseload nuclear power along with a nuclear-powered firm dispatchable resource (DEFR) to ensure a reliable grid. Our plan costs one-third less than the RFPlan.

I concur with the report conclusion:

> We have shown, with a modeling tool capable of performing an hour-by-hour analysis, that dispatchable emission-free resources are essential to meeting the goal of a reliable, zero-emission grid. Further, this clean dispatchable source must be able to run a large portion of the year. The only such source likely to be available within the next several decades is nuclear power. The state will further benefit from the deployment of additional baseload nuclear power. This combination of nuclear resources will be more cost-efficient and environmentally-protective than an alternative focused on intermittent weather dependent sources.

Investment of RGGI Proceeds Report for 2022

This is the seventh installment of my annual updates on the Regional Greenhouse Gas Initiative (RGGI) annual Investments of Proceeds report. RGGI is a cap-and-dividend program where each electric generating unit in the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New Hampshire, New York, Rhode Island, and Vermont is required to purchase permits to emit CO2.

Proponents claim that "RGGI states have reduced power sector CO2 pollution over 50% since 2009." The insinuation is that RGGI was responsible for those reductions. All my updates have come to the same conclusion that the primary cause of the emission reductions was the fuel switch from coal and residual oil to natural gas. This fuel switch occurred because it was economic to do so. I believe that RGGI had very little to do with these fuel switches because fuel costs are the biggest driver for operational costs and the cost adder of the RGGI carbon price was too small to drive the use of natural gas over coal and oil. Also note that the opportunity for future fuel switching emission reductions is limited so future reductions will have to depend on the deployment of zero-emission resources to displace the use of the fossil-fired generators. The only remaining compliance option is to limit operations.

I believe that the appropriate measure of RGGI emissions reductions is the decrease due to the investments made with the auction proceeds. The accumulated total of the annual reductions from RGGI investments is 4,277,230 tons while the difference between the three-year baseline of 2006-2008 and 2022 emissions is 56,704,448 tons. The RGGI investments are only directly responsible for 7.5% of the total observed annual reductions over the baseline to 2022 timeframe!

Lessons from the RGGI Investment Proceeds Reports

I followed up on my annual update with another post that addressed the cost per ton reduced effectiveness of the RGGI investments.

The following table lists the annual avoided CO2 emissions generated by the RGGI investments and the annual RGGI proceed investments from previous reports. The overall cost per avoided CO2 ton equals the cumulative annual total divided by the avoided tons or $941 per ton reduced.

Accumulated Annual Regional Greenhouse Gas Initiative Benefits Through 2022

Time Period	RGGI Proceeds ($)	Avoided CO2 (Short tons)
Cumulative (2008-2014)	$1,365,479,615	1,700,000
2015	$ 410,158,329	298,410
2016	$ 436,397,471	382,266
2017	$ 315,600,000	438,099
2018	$ 248,000,000	273,217
2019	$ 217,000,000	167,211
2020	$ 196,000,000	399,493
2021	$ 374,000,000	235,229
2022	$ 364,000,000	383,305
Cumulative Annual Totals	$4,023,548,913	4,277,230

The purpose of this post was to compare the cost effectiveness of the five investment categories in the reports. The following table presents the results for the last five years. Clean & renewable energy programs that are directed at accelerating the deployment of renewable or other non-carbon emitting

energy technologies was the most efficient investment at $429 per ton. Energy efficiency programs were right around the average of all the programs that reduced emissions at $687 per ton. GHG abatement and climate change adaptation programs promote "the research and development of advanced energy technologies, the reduction of vehicle miles traveled, the reduction of emissions in the power generation sector, tree-planting projects designed to increase carbon sequestration, other initiatives to reduce greenhouse gases, and climate adaptation and community preparedness initiatives". Not surprisingly the wide range of programs reduces the cost effectiveness to $842 per ton. The final category is beneficial electrification that includes programs designed to reduce fossil fuel consumption by implementing or facilitating fuel-switching to replace direct fossil fuel use with electric power which has a cost effectiveness of $1,986 per ton. I think beneficial electrification investments inappropriately transfer costs to the electric sector that do not provide efficient emission reductions.

Summary of RGGI Investments in Categories that Provided Emission Reductions

Investment Category	Investments ($ Million)	Avoided CO2 (tons)	Effectiveness ($/ton)
Clean and Renewable Energy	$ 162	377,160	$ 429
Energy Efficiency	$ 619	901,152	$ 687
GHG Abatement and Climate Change Adaptation	$ 103	122,201	$ 842
Beneficial Electrification	$ 114	57,329	$ 1,986
Overall Investments	$ 997	1,457,842	$ 684

In addition, there are other categories that do provide any emission reductions. In the last five years $243 million or 17.4% of the RGGI auction proceeds went to direct bill assistance which helps reduce the impacts to those least able to afford them but means that there is that much less available to reduce emissions. Throw in the $102 million over the last 5 years for administration, that means that 24.7% of the RGGI auction proceeds were not used to reduce emissions.

Ther are ramifications of these results to the current program review process that is considering changes to future allocations to the affected sources. If RGGI investments could effectively support the development of zero-emissions resources or reduce load efficiently, then the affected sources could meet reasonable emission reduction trajectories. Unfortunately, the results shown here suggest that RGGI investments have not been particularly cost efficient. The bigger issue is that pressure to use RGGI funds to support electrification of other sectors not only causes an increase in load and likely emissions for the affected sources, but these results show that those investments have the worst cost per ton removed efficiencies. Coupled with pressure to make equity-based investments that may or may not be emission reduction efficient, this means that RGGI investments may be inadequate to support aspirational emission reductions targets.

This raises the threat that affected units will have to limit operations to remain in compliance which would be a very bad outcome. Hopefully, the RGGI states will put a greater emphasis on investments with cost effective reductions and consider the ramifications of an aspirational future reduction trajectory.

Commentary on Recent Articles 14 July 2024

In this edition of articles that would be of interest to my readers I covered the following topics and more.

Basic Economics and Renewable Energy Development is a great article I recommend that you read. Irina Slav describes electricity market factors affecting the deployment of wind and solar.

Ronald Stein makes a very good case that ridding the world of crude oil without a replacement is global suicide.

Steve Gorham explains that "Claims about the global warming potential of methane are accurate in the laboratory, but not in the atmosphere." He goes on to point out "Because of greenhouse gas saturation in the atmosphere, methane regulations across the world will have no measurable effect on global temperatures."

I quoted Rich Ellenbogen's description of the link between a Christian Science Monitor article on the Ithaca climate goal and our warning about New York City's Local Law 97. One recommendation in our report is the necessity of a test case to prove the viability of wholesale electrification relying on renewables. On July 10, there was a puff piece in the Christian Science Monitor regarding Ithaca's electrification plan.

Commentary on Recent Articles 21 July 2024

I managed to compile another edition of articles that would be of interest to my readers.

Paul Homewood explains How the West's big bet on hydrogen fell apart.

Offshore Wind Issues

David Wojick has been on a roll lately describing issues with offshore wind. He notes that "Biden's Bureau of Ocean Energy Management (BOEM) proposes to build a huge amount of floating offshore wind in the Gulf of Maine." The problem is that the draft Environmental Assessment of the area designated for this monster project insanely ignores the cumulative environmental impacts of all the potential lease areas. This problem is also a feature of New York's offshore wind development. His description of the proposed floating offshore wind platforms proposed for Maine boggles the mind: "Simple physics says that if you want to put a 2,000-ton generator on top of a 500-foot tower with three 300-foot wings attached on a boat and have it still stand up in hurricane-force winds, it will have to be a mighty big boat."

Robert Bryce published an article entitled The Offshore Wind Scandal is Even Worse Than You Think that addresses one of the cumulative environmental impacts that New York and the BOEM are ignoring. In charts he explains where the money is flowing, describes potential impacts to whales, and includes a map showing that New York's offshore wind developments overlap the migration paths of the critically endangered North American Right Whale. The big

green environmental organizations are abandoning whales in general and the remaining North American Right Whales in particular.

Videos

There is no question that the global climate has been warming since the end of the Little Ice Age circa 1850. There are two questions that I think are important: why it has warmed and how much has it warmed. CO2 Coalition released a short video about the urban heat island that addresses the second question. If we are worried about global temperatures, then local effects should not be included. For example, temperature measurements in New York City's Central Park have warmed by some amount due to development around the park in addition to the global driver causing warming. The video correctly describes the issue but, in my opinion, does not completely explain why the urban heat island occurs. I think the video over-emphasizes the impact of direct heat releases relative to the impact of buildings and other structures absorbing heat from the sun. Even with that caveat this is still a worthwhile video.

Balanced View of Fossil Fuels

Alex Epstein explains why we should look at fossil fuels in a balanced way. Here is a sample:

- Most "experts" look at the negatives of fossil fuels but ignore huge positives.
- Many "experts" ignore that much of the world would starve without fertilizer from natural gas.
- To decide what to do about fossil fuels we must be balanced, looking at both negatives and positives.
- Fossil fuels do impact climate—but even there we must consider positives along with negatives.
- A huge, ignored climate positive we get from fossil fuels is the ability to master climate danger.
- Fossil fueled climate mastery has helped us become safer than ever from climate.
- In weighing fossil fuels' positives and negatives, we must be precise—not exaggerate or fabricate.
- Sadly many "experts" exaggerate the negatives of fossil fuels in addition to ignoring the positives.

Closing Note

If you made it this far, congratulations and thank you. I published nine articles in the last two weeks. This was the result of finally finishing off several articles that had been in development for a long time and several articles that were short and sweet. Another factor was the recent heat. It was too hot to do much outside, so I had time to write.