Pragmatic Environmentalist of New York Summary Update February 6 to February 19, 2023

This is the latest summary update of my 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. This summary describes each of my posts with minimal technical jargon. 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.

Making Climate Policy Work, RGGI, and New York Cap and Invest February 17, 2023
In this post I reviewed how the book Making Climate Policy Work considered the Regional Greenhouse Gas Initiative (RGGI) and what their findings mean for Governor Hochul recently announced plan to use a market-based Cap and Invest program to raise funds.

I searched the book for references to RGGI and found that they correctly understand that RGGI was not the primary driver for the observed emissions reductions. I agree with them that RGGI successfully proved the concept of using a cap and invest program could raise revenues. I don't think the authors spent enough time to see through the obfuscation of New York's RGGI auction proceeds documentation to understand just how much green pork is in those invested proceeds.

The Hochul Administration proposed Cap and Invest program is supposed to provide revenues and establish a compliance mechanism. I agree with the authors that the results of RGGI and other programs suggest that the Cap and Invest proposal will generate revenues. However, we also agree that the amount of money needed for decarbonization is likely more than any such market can bear. The problem confronting the Administration is that in order to make the emission reductions needed they have to invest between $15.5 and $46.4 billion per year. I don't think that range is politically palatable.

The use of Cap and Invest as a compliance mechanism is more of a problem. The Hochul Administration has not acknowledged or figured out that the emission reduction ambition of their Climate Act targets is inconsistent with technology reality. Because GHG emissions are equivalent to energy use, limiting GHG emissions before there are technological solutions that provide zero-emissions energy means that compliance will only be possible by restricting energy use. Unless a miracle occurs in 2030 when there are insufficient allowances someone will have to choose who gets to operate.

Net Zero or Good Enough? February 10, 2023 co-authored with Russell Schussler
I had wanted to do an article for quite a while that offered a pragmatic alternative for GHG emission reductions that would be much more likely to be technically feasible. Schussler (aka the Planning Engineer) has been writing about the challenges of "green energy" since 2014 at the Judith Curry's Climate Etc. blog.

We argued that the more seriously you take climate change, the more important it becomes that you have a good plan for electric generation in the near and midterm planning arena. Taking foolish actions in the near to mid-range time periods will not help with CO2 reductions or climate change and may be

far worse than doing nothing. Maybe we all could compromise and find a less grand something that has more likely benefits with far fewer threats to reliability, affordability, and overall environmental impacts.

The article compared the characteristics of good and bad electric plans especially as they relate to the Scoping Plan. Not surprisingly for a plan mandated by politicians with agendas we don't believe that the Scoping Plan recommendations for the future electric could be characterized as good.

Our compromise plan drops recognize how people use electricity and what technology is best suited to provide that energy when needed as reliably and affordably as possible while reducing emissions, just not to zero. In addition, they don't provide essential reliability services. We recommended expansion of nuclear power so that it can provide most baseload needs because it offers the best opportunity to reduce dependence upon fossil fuels for electric generation because it is the only proven technology with no emissions that can be scaled up in the immediate future. Natural Gas combustion turbines and combined cycle are best suited to fill in the gaps when reliable and functional generation additions are needed. If and when "zero-emissions" alternatives prove capable of doing the job they can be phased out. We suggested that existing fossil-resources should not be ignored. The existing fleet of these plants could be kept around for limited peaking power needs, emergency power, and long-term temporary system needs.

It is notable what we did not include. Wind, solar, and batteries are not included because until the capabilities of energy storage are improved it is too soon to rely on these intermittent resources. The necessity for a magical resource that has no emissions but can be dispatched as needed in a zero-emissions system is eliminated through the combination of reduced need because of intermittent resources and new natural gas turbines with keeping existing fossil-resources available. We suspect that eliminating the cost of a brand-new resource to fulfill a very limited role will make this approach cheaper than any net-zero alternative.

The final component of our recommended plan addressed the segment of society that is invested in the need to do "something" about climate change. A good enough plan would support R&D on clean technologies for future generation, energy storage, and transmission system support. Currently, these clean technologies are simply not ready to provide reliable and affordable energy. The developing world will not use zero-emission technologies until they can provide electricity cheaper than existing resources so this R&D is necessary for a global solution.

We conclude that a major shift to the nuclear plants that are the obvious best choice for baseload power, supplemented with natural gas units, and retention of on the ground facilities should be the framework of a good enough plan. Good enough plans are also flexible so integration of newer technologies when and as warranted is a reasonable attainable path without major downsides. This good enough plan may get you to net zero before the more ambitious ones. It is likely to have less carbon emissions than the more aggressive plans over time. It certainly will be more reliable and affordable.

I plan to follow this article up with an analysis of the costs and emissions in New York relative to the Scoping Plan scenarios. Stay tuned.

New York State GHG Emissions Update February 9, 2023

The Climate Leadership and Community Protection Act (Climate Act) includes a target for a 40% reduction of greenhouse gas (GHG) emissions from 1990 levels by 2030. This post looked at where the state stands.

In 2022 the generating units that report to EPA emitted 30.7 million short tons or 27.8 million metric tons. As shown in the following table NYS emissions had been trending down until 2019 as generation from coal and oil was displaced by generation from natural gas. The last three years the effect of the shutdown of the Indian Point nuclear generating station and the loss of its zero-emissions capacity have become evident. Since 2019 CO2 emissions have increased 5.8 million short tons or 23%.

New York State Electric Generating Unit Recent Emissions 2009 to 2022
CO2 Emissions (tons) by Fuel Type and Year

	Coal	Residual Oil	Diesel Oil	Natural Gas	Other	Total
2009	13,637,433	5,023,632	1,238,869	18,055,052	340,381	38,295,368
2010	14,950,792	6,140,048	351,399	20,808,056	313,553	42,563,848
2011	10,394,280	3,905,382	150,436	22,839,373	155,944	37,445,417
2012	5,030,164	3,920,740	173,492	26,224,818	450,839	35,800,053
2013	5,463,637	3,681,321	199,768	24,571,753	74,661	33,991,141
2014	4,667,127	3,457,367	124,538	25,785,100	657,883	34,692,016
2015	2,229,725	3,875,931	108,193	26,457,826	600,041	33,271,716
2016	1,588,950	1,809,201	125,402	27,301,230	615,717	31,440,500
2017	763,861	874,196	55,453	22,981,721	626,856	25,302,086
2018	703,377	1,440,426	126,701	25,119,035	636,234	28,025,772
2019	471,969	771,375	97,142	23,019,716	543,723	24,903,924
2020	174,360	266,417	210,324	25,675,000	594,535	26,920,636
2021	0	134,176	189,432	27,619,633	615,443	28,558,685
2022	0	419,292	184,132	29,564,773	508,036	30,676,232

I combined data from the NYS 2020 GHG emissions inventory and the EPA 2022 emissions report to estimate statewide emissions in 2021 and 2022. Because of the shutdown of Indian Point I project that the 2022 emissions increase to levels not seen since 2018.

Projected and Observed NYS GHG (CO2e AR5 20 yr) Emissions by Sector

Year	Electricity	Buildings	Transportation	Agriculture	Industry	Waste	Total
2011	78.16	115.93	117.16	18.12	42.32	38.35	410.04
2012	76.62	109.39	116.52	18.44	41.28	38.70	400.94
2013	72.39	120.16	116.55	18.31	40.29	39.27	406.97
2014	70.21	122.72	115.75	18.90	40.14	40.58	408.31
2015	65.80	122.35	114.35	20.49	39.44	40.86	403.28
2016	64.73	112.59	111.92	21.21	36.40	41.13	387.98
2017	51.50	112.15	108.96	21.20	35.13	42.06	370.99
2018	56.82	122.19	107.94	21.75	35.30	41.39	385.38
2019	50.66	119.82	107.57	21.25	35.27	41.62	376.18
2020	52.41	108.40	87.10	22.08	32.92	41.95	344.85
2021	56.79	116.69	109.09	21.35	35.52	41.55	381.00
2022	60.47	117.71	108.39	21.39	35.31	41.65	384.92

The Climate Act includes a target for a 40% reduction of greenhouse gas (GHG) emissions from 1990 levels by 2030. The NYS Part 496 1990 baseline emissions are 404.26 mmt CO_2e. The total 2020 NYS emissions were 344.85 mmt CO_2e which is a 15% reduction from the baseline. The 2030 limit is 245.9 CO_2e which will require a further 29% reduction. On an annual basis a 2.96% reduction per year is required to get to the 2030 limit. Using my projection for 2022 the annual reduction rate would have to be 4.52%. Historically there have a been a few years where reductions were about those magnitudes but those were the exceptions and were not sustained over more than a few years. The expectation that annual reductions of 3% much less nearly 5% can be sustained over the next eight years to meet the 2030 limits is likely overly optimistic. There is no plan B in the Scoping Plan when the targets are not met. What will happen when this occurs is anybody's guess.

New York Good Intentions Unsullied by Reality February 15, 2023

My entire career as an air pollution meteorologist has been devoted to upholding the Clean Air Act (CAA). Several New York initiatives are combining to undermine the very foundation of that law and don't consider practical tradeoffs of environmental risks and societal benefits that are necessary for workable solutions.

In the past several years the Precautionary Principle, a strategy to cope with possible risks where scientific understanding is incomplete, has led many to rely on the idea that to be safe we have to eliminate all risks as a precaution. At its core that means that there is no such thing as a threshold for adequate public health safety. David Zaruk has explained that the resulting problem is that policy-makers and politicians have confused this uncertainty management tool with risk management. Policymakers have adopted the path of policy by aspiration and ideology rather than practical solutions relying on the best available evidence.

My biggest concern is with the Environmental Rights Amendment to the New York constitution. I was prompted to write this article after reading Celebrating the 1-Year Anniversary of the New York

Environmental Rights Amendment that includes a link to a webinar: "The environmental rights amendment: by and for New Yorkers". The webinar makes it clear that there are people and organizations that believe that their right to clean air guaranteed by the Amendment extends to pollution levels below the National Ambient Air Quality Standards mandated by the CAA to protect human health.

This interpretation of the Environmental Rights Amendment presumes that it is supposed to provide assurance of good health (e.g., no asthma) for all. Individuals in EJ communities near existing sources of air pollution have been led to believe that poor health outcomes are attributable to local sources based on environmental activist studies. They do not understand the proven NAAQS protections for the population. Activists have stoked their fears by funding projections that claim there is no threshold for health impacts and that there is a relationship between health impacts and ambient concentrations below the NAAQS standards.

There is no question that past inequities in environmental burdens were wrong and should be avoided in the future. Nor is there any question that everyone deserved the right to clean air and water. The problem is that if this good intentioned solution insists on zero risk, then the reality is that it requires no emissions. If no tradeoffs are allowed then the only solution is to shut down or not build.

New York Annual Climate Act Cap and Invest Revenue Targets February 13, 2023
One of the biggest questions related to Governor Hochul announced plan to use a market-based program to raise funds for the Climate Leadership & Community Protection Act (Climate Act) is the revenue target.

I calculated potential revenue targets and found that the inclusion of the Climate Action Rebate totaling 30% of the revenues, a 3% payout to small businesses, a 7% adder for administrative costs, and the interpretation of the 40% investment in Disadvantaged Communities makes a big difference in the revenues needed. If all the money collected was invested to make reductions, I determined that the historical cost per ton reduced for the NY Regional Greenhouse Gas Initiative auction proceeds ($534 per ton reduced) multiplied by my estimate of the reduction trajectory needed to meet the 2030 Climate Act target is $9.3 billion per year. When the Climate Action Rebate of 30% is incorporated, the increased revenues beyond that needed to meet the emission targets increases the total to $12.3 billion. Adding 3% for small businesses and the same 7% administrative costs as in RGGI raises the total needed to $15.5 billion per year. That assumes that all the environmental justice targeted money can be invested in reductions that benefit environmental justice communities. If the interpretation of the 40% for environmental justice communities is in addition to the investments needed to meet the reduction targets, then the annual total revenue needed would be $46.4 billion.

There is no clear and obvious revenue target. As with all GHG market-based control programs the real concern is that the costs necessary to make reductions are so high that they exceed the Value of Carbon and the likely limits of the public's willingness to pay.

There is another concern. The Scoping Plan requires an ambitious emission reduction trajectory. Because there are no cost-effective control options for GHG emissions, the reductions will have to come from indirect displacement of fossil-fired energy use or simply reducing fossil-fuel use. If the state investments do not produce the GHG emission reductions necessary to meet the emissions trajectory fossil fuel energy use will be constrained by a lack of allowances.

Climate Act Hidden Costs for Upstate New York February 18, 2023
I know that there are enormous hidden costs to the Climate Leadership and Community Protection Act (Climate Act). A friend sent information that lifts the veil of secrecy enough to get an idea how much money is involved and the impacts to Upstate New York.

North American Wind Power gleefully reported that the "The New York State Public Service Commission has authorized a large number of upstate transmission system upgrades that are designed to alleviate bottlenecks in the grid and allow a higher penetration of renewable energy." The transmission upgrade projects will cost $4.4 billion to support 3.5 GW of renewable energy or $1.26 billion per GW. An additional 2.8 GW is expected by 2025 and another 4.1 GW by 2030 according to Scenario 2 of the Scoping Plan. The ratepayers will be on the hook for a total of $13.05 billion through 2030.

The blog post includes tables from the order approving the transmission upgrades (available for download here) in DPS case 20-E-0197. Ratepayer bills in the RG&E, NYSE&G, and NMPC service territories will increase twice as much as bills for Con Ed ratepayers. Because New York City cannot ever hope to install enough wind and solar generating capacity within the City the primary destination of the power now bottlenecked is New York City. However, the Public Service Commission is saying that it is the responsibility of the upstate utilities and their ratepayers to subsidize the renewable developers who want to build in those areas and sell downstate. It hardly seems equitable that rural New Yorkers have to bear the brunt of the impacts of the massive renewable development necessary for New York State's Climate Act but also have to disproportionately pay for the privilege of having it in their backyards.

Following the Climate Crisis Money February 12, 2023
In response to a reader's question about an organization named ICLEI, I researched New York's Climate Smart program. Every time I look into any aspect of the Climate Act, I find support for my conviction that the primary driver is all about the money.

The Climate Act has prompted an enormous private industry to implement the net-zero transition that has a vested interest in spending as much money as possible as soon as possible all in the name of saving the planet. The private spending is augmented by state funding to provide educational materials and training as recommended by the Climate Act Scoping Plan. There already is a state program in place that addresses this recommendation. The Climate Smart Communities (CSC) program helps local governments take action to reduce greenhouse gas emissions and adapt to a changing climate. Communities that get certified as "climate smart" get benefits including "leadership recognition, free technical assistance, and access to grants".

The reader question came up at a meeting of the Columbia County Climate Smart Communities Task Force when a representative of ICLEI showed up. Originally known as the International Council for Local Environmental Initiative, ICLEI is the first and largest global network of local governments "devoted to solving the world's most intractable sustainability challenges". ICLEI's role in the CSC process is support to help communities prepare components of their certification program.

One of the CSC requirements is for the jurisdiction to adopt a CSC Pledge. I offered a challenge to the local governments that have made this pledge. Go for it, but not just this virtue-signaling public relations gesture to get some money. Francis Menton writing at the Manhattan Contrarian blog wrote that a demonstration project of a mainly renewables-based electrical grid is a common sense prerequisite before there are any more plans or pledges. Climate Smart Communities of New York should prove their bona fides and develop a demonstration project for their community to address the issues he raised.

Finally, the answer to the original question. ICLEI is an organization that provides technical support to local communities who want to "solve" climate change by reducing GHG emissions, in this case, the New York Climate Smart Communities. It would be a good question to ask County legislators whether the costs for ICLEI are covered by NYSERDA or there is some cost-sharing agreement. If NYSERDA picks up the entire tab localities that is one thing. However, if Columbia County does have to contribute funding for ICLEI services, I think it is appropriate to ask what benefits accrue to county residents.

Guest Post – NYS Energy Storage February 11, 2023

Richard Ellenbogen frequently copies me on emails that address various issues associated with New York's Climate Act. On December 28, 2022 the New York Department of Public Service and New York State Energy Research and Development Authority (NYSERDA) released New York's 6 GW Energy Storage Roadmap: Policy Options for Continued Growth in Energy Storage (Roadmap Report). I did a couple of posts (here and here) on the Roadmap Report that concentrated on the costs. I asked his permission to present his analysis of the report because it fills in another part of the story.

Ellenbogen evaluated the feasibility of the proposal. Based on his analysis he concluded that "This is politics disguised under a veneer of technical terms designed to delude the public that won't take the time to read its 104 pages." He found that "It has all of the storage being charged by renewable energy by 2040 which will be impossible based upon NY State's rate of renewable installation and the rate at which loads are being mandated to be added to the system." He found that the projections of renewable energy production compared to loads were unrealistic particularly as it relates to the duration of events when energy storage is needed to cover low renewable resource availability. In addition, he questioned the feasibility of using battery electric vehicles as a source of grid energy storage and the overall cost estimates.

He concluded:

> So basically what they are saying is, "We aren't sure how the economics of this is going to work but we are going to mandate its installation in lieu of fossil fuel plants, with an unknown price structure, increased energy losses when there already isn't enough energy to support the system, insufficient capacity to replace the peaker plants that we are trying to close, rapidly

escalating costs for the battery storage that already is not affordable and are only going to get more expensive in the future, and cross our fingers that this won't make it impossible to complete the installation of 6 GW of energy storage. However, in the interim, we will have shuttered the energy plants that we have for ones that we can't afford to install."

They are pushing forward with it anyway when it is doomed to fail. This goes way beyond money. The inevitable failure is going to cost lives and they don't even seem to care. I was able to produce this analysis in hours. They've had years to ponder these issues. This is insanity and again, it is borderline criminal.
If they gave a damn, they would say, "Wait a minute. This isn't going to work. We're going to kill a bunch of people. Maybe we should rethink this." Unfortunately, they aren't doing that.