Pragmatic Environmentalist of New York Summary Update October 16, 2023 to October 29, 2023

This is the latest summary update of my recent posts at Pragmatic Environmentalist of New York. The last two updates were light because I was crunching numbers for comments on the Regional Greenhouse Gas Initiative third program review and an analysis of the wind is always blowing somewhere presumptions.

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 but 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.

Regional Greenhouse Gas Initiative Third Program Review
Also published at Climate Etc. and Watts Up With That

The Regional Greenhouse Gas Initiative (RGGI) is a carbon dioxide control program in the Northeastern United States. One aspect of the program is a program review that is a "comprehensive, periodic review of their CO2 budget trading programs, to consider successes, impacts, and design elements". This post describes the disconnect between the results of RGGI to date relative to the expectations in the RGGI Third Program Review modeling that I addressed in my comments to RGGI.

I compared modeling projections of the generating resources needed to meet the New York Climate Act emission reduction targets with the projections made for the RGGI states using a different model. I am afraid that the RGGI States are placing so much reliance on their analysis results that they could propose unrealistic allowance reduction trajectories. It is naïve to treat any model projections of the future energy system without a good deal of skepticism because the electric grid is so complex and currently dependent upon dispatchable resources. Replacement of RGGI-affected sources with intermittent and diffuse wind and solar resources that cannot be dispatched is an enormous challenge with likely unintended consequences. Therefore, the RGGI program results should be considered relative to historical observations.

Fuel switching from coal and residual oil to natural gas is the primary cause of historical emission reductions but the opportunities for these fuel switching reductions are diminishing. Future reductions will depend on displacement of RGGI affected sources by wind and solar. It is especially concerning that the RGGI States have not considered a scenario where the proposed implementation schedules for projects that are under contract are delayed.

In this summary I want to highlight one technical issue. The model the RGGI States are using claims affected sources "over-comply". Affected sources purchase allowances to enable compliance for current and possibly the next three-year compliance period. Because they buy allowances for near-term compliance requirements, RGGI sources do not "over-comply". It is not clear how this fundamental

modeling presumption affects the results but it should be addressed before the RGGI Third Program Review is finalized.

Kevin Kilty summed up a rational approach to the use of electric system model results that I fear the RGGI States will ignore: “Beware. Expect Surprises. Expensive Ones”.

The Wind is Always Blowing Somewhere Fallacy

This post has been a long time coming. I have been fed up with rent-seeking capitalists and naïve academics who claim that wind, water, and solar resources are the only ones needed to provide reliable electric power so I have been thinking about an example that would show the challenges for a long time.

In my example, I calculated what new resources would be required to replace the current fossil-fired electricity generating capacity (9, 026 MW) in New York City. There are essentially no opportunities for much additional hydro capacity in New York and solar is useless because the peak load could occur at night. Proponents of the wind is always blowing narrative apparently do not understand that that in order to ensure that New York City has the power it needs that replacement wind power and the transmission go get it there must be dedicated to New York City.

I used a New York Independent System Operator (NYISO) resource that provides 2021 wind production. The data sets list the hourly total wind production for the entire New York Control Area (NYCA). Across New York the wind speeds drop across the entire area frequently. Frequently, as in every time a high-pressure system crosses over the area. As a result, the mean annual average generation availability for all the NYCA onshore wind turbines is only 22% and the median is 16%.

Existing fossil generation capacity in New York City totals 9,026 MW. New York’s Climate Act projected onshore and offshore wind planned capacity is 31,762 MW. The analysis showed that relying on wind only requires another 30,000 MW located “somewhere else”. The fatal flaw to the wind blowing “somewhere else” argument for New York City is that those resources must be dedicated to New York City. In order to have the capacity always available it would be necessary to build 10,000 MW and 500-mile transmission lines for use as backup that will only be used 65% of the time, another 10,000 MW of capacity and 1,000 mile transmission lines for backup 50% of the time, and another 10,000 MW with 1,00 mile transmission lines for backup 25% of the time. The costs to use these resources for a dedicated purpose for these periods would never be viable.

The analysis confirms that the wind is indeed always blowing somewhere and that wind energy resources could replace the existing fossil generation in New York City. However, just because it is possible does not mean it is feasible. The fatal flaw is that New York City requires dedicated resources to replace existing generation when it is needed to keep the lights on and the resources necessary are too large. This is particularly important because the high-pressure systems that characterize low wind availability over large areas also are associated with hottest and coldest periods of the year when the electric load peaks and the need for reliable power is the greatest.

One of the advantages of publishing at Watts Up with That or at Climate Etc. is that many people comment. Mark W. commented with an example that makes the same point simpler:

> Let's assume the world consists of two regions, Region A and Region B.
>
> Under the theory that the wind is always blowing somewhere, we will assume that either Region A or Region B will always have wind.
>
> Therefore, if Region A has no wind, they can be supplied with electricity from Region B, which does have wind. And vice versa.
>
> The unspoken assumption here is that Region A must have enough windmills to power itself and Region B. The same goes for Region B.
>
> This means that both Regions A and B are going to have to build twice as many windmills.
>
> Enough to supply their own needs as well as the other region's needs.
>
> Now for the real world. There are a lot more than 2 regions. Do the math.

A comment by It does not add up points out that you actually need anti-correlation between the regions so that when one region is low the other is low. He referenced a study in Europe that compared different regions. It showed that this anti-correlation was not observed.

The Climate Act Needs a Feasibility Demonstration

I have been writing about the Climate Act for over four years and a constant theme in my work has been concerns about affordability and reliability. For all the analyses and pontification by the State of New York about the net-zero transition, there still is no documentation describing the costs of the control strategies proposed by the Scoping Plan and estimates of how New Yorkers will pay for the transition.

The focus of this post is on reliability. I believe that the only way we can be sure that the plans proposed to operate an electric grid that relies primarily on wind and solar is to prove it with a demonstration project. The project should include all the key elements: wind and solar generation, energy storage, a dispatchable emissions-free resource and any other resources needed to provide necessary ancillary services. This post highlights work by Francis Menton that advocates just such a demonstration project.

Last February I did a post on Climate Smart Communities and I proposed a challenge to the local governments that pledged to be climate smart. Go for it, but not just this virtue-signaling public relations gesture to get some money. I described Francis Menton's article explaining that a demonstration project of a mainly renewables-based electrical grid is a common sense prerequisite before there are any more plans or pledges.

Earlier this month Menton followed up on his February post with What Passes For A "Demonstration Project" Among Our Government Geniuses. I recommend readers check out both articles. His later article explained why the recent announcement of hydrogen hubs and goals for "green" hydrogen demonstrations are insufficient to prove viability of the net-zero transition because the demonstrations

focus on production, storage, transport, and consumption components but not the integrated resource necessary. He notes:

> They are clearly leaving out the critical piece of the puzzle, which is the demonstration of how much of this hydrogen, and capacity to make more of it, will be needed, and at what cost, to get the country — or even some small town — through a full year (or two or five) without need for fossil fuel backup. That completely obvious elephant is not part of this multi-billion dollar "demonstration."

Another aspect of this is that until we have a proof-of-concept demonstration that incorporates all the components needed to get to a reliable system, we cannot know how much it will cost. Menton argues that a rough cost estimate "would come to a multiple (not necessarily a huge one, but nonetheless a multiple) of what our current electricity system costs." He does not bother to make an estimate writing:

> The reason I'm not going to do it is that there as an obvious fact that tells you all you need to know, which is that no one in the country is spending their own private money to build out this system. They are all waiting for the government handouts. If this system could be built profitably at a cost competitive with what we have, there would be investors falling all over themselves to build it. When Thomas Edison built his first electricity plant, he did not go to the government for handouts to build it. Because this is all a fantasy kept alive by government handouts, as soon as the handouts go away or even slow down, the whole thing will dry up and fade away.

Update on Washington State Cap-and-Invest Program Impacts

Paul Fundingsland has been sending me his thoughts on the implementation of Washington State's experiences with their cap-and-invest "putting a price on carbon" scheme. This dispatch from the front lines of the cap-and-invest war on citizens covers three items: the letter he got from Puget Sound Energy about his natural gas bill, an opinion piece describing ways to reduce the cost burden on citizens, and an article explaining how the program is affecting trucking companies. I believe this is what is headed to New York and appreciate the time he has taken sending the information.

Puget Sound Energy was not allowed to document in their utility bills just how much the Washington Climate Commitment Act cap-and-invest tax on energy increased their bills. Paul sent a copy of the letter they sent to ratepayers that explained why their bills went up that is included in the post.

Washington politicians have realized that the law is raising prices, In typical political fashion they have come up with some "fixes". He sums it up well:
He notes:

> Various groups appear to be trying to come up with ways to get funds back out of the state government and returned to the citizens. Let's see: Washington State taxes the companies. The companies pass those costs along to their consumers. Some of those monies are somehow then given from the State back to the citizens. And, of course there will bureaucratic "processing" costs at every level of the monies going in and coming back out.
>
> Can it be any more convoluted? It Probably will if given a chance.

Finally, he sent an article describing a different political solution to the cost problem. The politicians thought that they could protect small businesses if they were offered an exemption to the cap-and-dividend tax. Reality: “they're not going to make a 50-mile round trip out of their way to buy fuel from a supplier who has offered this exemption."

New York City Zero Emission Vehicle Fleet Legislation

Earlier this week there was a post, New York City Goes Pedal to the Metal on Electric Vehicles, at Watts Up with That described new legislation that will require vehicles procured by the City to be zero emissions. The author of the article, Charles Rotter, included a note at the top: “I can’t wait for Francis Menton or Roger Caiazza to weigh in on this.” It was a slow day so I put together a post.

Rotter quoted the Statements made by politicians responsible for the legislation that make benefits claims:

> “New York City continues to lead the country in creating a greener, more sustainable world,” said **Majority Leader Keith Powers**. “Today’s signing of Intro. 279 enacts a historic piece of legislation that will drive down our city’s carbon footprint and advance environmental justice. Starting in just two years, our city’s fleet of over 30,000 vehicles will lead the way towards a zero-emissions future. I am proud to have worked with numerous partners to have made today a reality.”

Looking into the situation I found that the New York City vehicle departments already has a sustainability program in place that tests options for lower emissions and zero emissions vehicles. The key point is that these are the folks responsible for keeping the vehicles necessary to protect the city and provide services and they are working on it. Mind you I think trying to convert the NYC vehicle fleet to zero-emissions is a waste of time and effort that will likely do more harm than good.

Enter the politicians. The legislation does include conditions upon deployment but it appears that the issue is already being addressed. I would bet a lot of money that the fleet staff reacted to the bragging by the politicians who supported this legislation with exasperated sighs and eye-rolling. As far as I can tell this legislation only provides street cred for politician target constituencies and does nothing but get in the way of the people who are trying to get things done.

Articles of Note 29 October 2023

My list of recent articles that I think are of interest but I don’t have time to write an article about had one pertinent article I thought should be highlighted here. An article about the Massachusetts Plan to Meet Its Climate Goals caught my eye because it argues that the first order of business is to analyze what it will cost to achieve its climate goals. The report argues that the cost of inaction are less than the cost of action just like New York but confronts the cost issue that Hochul has avoided:

> Massachusetts has detailed climate goals for 2050, but it has no idea what it will cost to achieve them. So, the first order of business, according to Hoffer’s report, is a comprehensive economy-wide analysis of what the state will need to spend to decarbonize — or dramatically slash planet-warming emissions. This work entails connecting a whole lot more renewable energy to the electric grid, protecting natural lands that suck carbon out of the air, protecting coastal communities and preparing for a future with more extreme weather.