Pragmatic Environmentalist of New York Summary Update October 17 – October 30, 2022

This is the latest summary update of my recent posts at Pragmatic Environmentalist of New York. As always, if you do not want to be on this mailing list then let me know. Previous updates are also available. I have not published much in the last two weeks because I got bogged down with a couple of posts that required a lot of evaluation and research. Only one of those got published but the other one will go out early next week.

Replacing Peaking Power Plants with Battery Energy Storage Systems October 24, 2022
The first post that took a lot of work addressed the environmental justice holy writ that peaking power plants are evil. There is no benign way to generate and distribute electricity so every option has drawbacks. I do not believe that the advocates understand that replacing a fossil-fired peaking power plant with their preference for "clean" energy and battery energy storage has risks that are potentially worse than even their overstated neighborhood power plant risks.

This post relied on my earlier evaluation of the the PEAK Coalition report entitled: "Dirty Energy, Big Money" that was based on the technical analysis by Physicians, Scientists, and Engineers (PSE) for Healthy Energy that required three technical posts. I also prepared a simpler summary post that addressed all my concerns. I concluded that the claims that peaking power plants are dangers to neighboring environmental justice communities are based on emotion. In my evaluation, I found that the alleged impacts of the existing peaking power plants over-estimates impact on local communities relative to other sources. The primary air quality health impacts claimed are associated with ozone and inhalable particulates that are secondary pollutants. While some inhalable particulates are emitted directly, most of the particulates and all of the ozone form after they are emitted and transported away from the disadvantaged communities peaking power plant closure is supposed to protect.

Environmental Justice organizations advocate replacing fossil-fired power plants with battery energy storage systems charged using renewable energy. Advocates don't understand that just because a peaking power plant doesn't run much that it might provide electric system services beyond power generation and that replacing a peaking turbine is a lot easier than replacing a peaking a much larger steam electric boiler. The footprint needed for battery energy storage systems is likely unavailable for complete capacity replacement at all the New York City steam electric power plants. Peaking power plants provide dedicated energy where and when it is needed. They cannot be replaced until alternatives are available that provide equivalent energy at the location within the system where it is needed from resources that are dedicated to that service.

I also described the environmental and safety risks of battery systems using today's lithium-ion technology. I presented results of a presentation by Paul Christensen, Professor of Pure and Applied Electrochemistry at Newcastle University in the United Kingdom gave at PV magazine's Insight Australia event in 2021 that describes the risks. Dr. Christensen described battery fires caused by thermal runaway reactions in the systems. He describes the characteristics of the thermal runaway plume and then he shows frightening examples of tests of vapor cloud fires and explosions that I highly

recommend. The intensity of the fires and the toxic gases mean that fire fighters cannot put the fires out safely. They just have to let them burn themselves out and hope that the fires don't destroy anything other than the batteries and their enclosures.

I conclude that until you have a viable alternative, and I submit that the renewable energy battery storage option is not viable, then it is premature to shut down the existing fossil fired peaking generation in New York City and the state. Not only will the closures have minimal effect on health impacts but closure risks far worse health impacts. Until any replacement technology is proven there is a reliability risk. Given the impacts of New York City blackouts I don't believe any threats to current reliability standards should be accepted.

When a leading expert on batteries says "Everybody has to be educated how to use these batteries safely", I think the best course of action is to follow his advice. It is not appropriate to make the residents of the disadvantaged communities near a battery energy storage system become unwilling lab rats to test whether a technology that can generate toxic gases, fires, and explosions is appropriate in an urban setting.

Climate Act Comparison of Generating Resources: Integration Analysis Mitigation Scenarios vs. NYISO Resource Outlook October 30, 2022

At the October 25, 2022 Climate Action Council meeting Carl Mas compared the New York Independent System Operator (NYISO) 2021-2040 System & Resource Outlook and Integration Analysis generating resource projections for the net-zero transition plan required by New York's Climate Leadership and Community Protection Act (Climate Act). I have long advocated for such a comparison but I remain concerned that this is more of an empty gesture than the start of an open and transparent comparison and discussion of the implications of differences in the projections. The presentation was covered in three slides and lasted about 20 minutes with questions.

Mas offered several key takeaways. He said he was "really pleased about amount of similarity" but he did not address potentially significant differences. He admitted that there are some things we can learn but did not make any suggestions how those lessons could be incorporated into the Scoping Plan. The article described the presentation and his takeaway messages. I suppose it is no surprise that I think the amount of similarity is insufficient to not pursue more detailed reconciliation. I also addressed comments and questions by Council members.

I cannot over-emphasize that reconciliation makes a difference. Just because Carl Mas said that there is "close agreement" between the scenarios does not mean that there are no implications. For example, NYISO and I agree that current observed land-based wind capacity is under 25% but the Integration Analysis uses a factor that is 19% higher than observed. Therefore, at a minimum, the Integration Analysis land-based wind capacity projected is 19% lower than necessary to meet the generation requirement. Both analyses use cost estimates to choose the least-expensive solution but neither one has provided any detailed numbers. As far as I am concerned the Hochul Administration is deliberately covering up the costs because I am sure they are going to be eye-watering.

Furthermore, the Council has not responded to any of my technical comments and questions that showed in every instance, the Integration Analysis over-estimated benefits and under-estimated costs. I believe that means that the actual costs will be higher than the Integration Analysis. Add that to the fact that the Scoping Plan does not include a feasibility analysis of the affordability, reliability, and permitting acceptability of the proposed implementation strategies leads me to conclude that the Scoping Plan process could easily lead to negative consequences far greater than any climate change effects attributable to New York GHG emissions.

New York Siting Board Garnet Solar Project Application Decision October 28, 2022
On October 27,2022 the New York State Board on Electric Generation Siting and the Environment (Siting Board) "granted approval to Garnet Energy Center, LLC to build and operate a 200-megawatt (MW) solar farm in the Town of Conquest, Cayuga County, with 20 MWs of battery storage capacity, one of the largest approved to date".

The Garnet Energy Center project approval is an example of the State's net-zero transition unfolding disaster. As NextEra states "Article 10, the State Energy Plan, the CLCPA and the recently enacted Accelerated Renewable Energy Growth and Community Benefit Act do not specify any agricultural standards that must be satisfied" so developers are free to use as much Prime Farmland as they want. Since I started tracking solar development project approvals a total of five applications have been approved for a total of 1,120 MW. The total project areas cover 14,812 acres and the project footprints total 5,728 acres. The Department of Agriculture and Markets staff has argued in every proceeding that their guideline limiting development on the project area to no more than 10% of Prime Farmland should be followed but that limit has been exceeded by every project. The cumulative Prime Farmland area unavailable for farming in these projects totals 3,920 acres or 26% of the combined project areas.

There are other solar implementation problems. There are no solar capability standards so developers are free to install fixed panel racking systems that cost less but do not meet the generation expectations of the Draft Scoping Plan that presume tracking systems. The state has not updated its cumulative environmental impact assessment for the larger renewable energy capacities in the mitigation scenarios so the consequences of the necessary level of development to meet net-zero are unknown. Finally, the State has not released actual cost estimates of their proposed control strategies. To sum up, current state policy does not protect Prime Farmland, unless guidelines are promulgated even more solar capacity will be required causing even more undefined cumulative environmental impacts, and there is no estimate how much this will all cost. What could possibly go wrong?

Climate Act Emissions in Graphical Context October 22, 2022

I previously showed that by any measure New York's complete elimination of GHG emissions is so small that there will not be any effect on the state's climate and global climate change impacts to New York. This post graphically shows New York emissions are negligible compared to global emissions.