

P.O. Box 160
Quaker Street, NY 12141

Jeffery Schmitt, Chairman
Planning Board
Town of Duanesburg
5853 Western Turnpike
Duanesburg, NY 12056

November 8, 2021

Re: PFAS Concerns at Oak Hill Solar 1, LLC and Oak Hill Solar 2, LLC

Dear Chairman Schmitt and the Planning Board,

I am writing to supplement my prior letters and reports to the Town of Duanesburg's ("the Town") Planning Board for three specific reasons. First, during the recent October 21, 2021 Planning Board ("Board") meeting, there were several comments made by a representative from New York State Energy Research and Development Authority ("NYSERDA") as well as a representative from Amp Solar that need to be responded to. Second, I would like to supplement my prior letters to the Planning Board with EPA documents that were released after the October 21, 2021 meeting that directly relate to the PFAS issues we are considering. Third, I would like the Planning Board to consider an example from Endicott, New York in which PFAS precautionary principles were followed to protect the town from a proposed project that might have led to PFAS pollution in the town and region.

I care deeply about the Town, the community, its natural resources and beauty, and I am concerned that failing to take simple steps now in 2021 may have devastating consequences a few years in the future from an environmental pollution standpoint. As you saw in my letter to the Town dated October 19, 2021 and Saving Greene's report to the Town dated October 15, 2021, there are three simple steps that I strongly feel will protect the Town if it decides to move forward with the solar project: (1) require the Applicant to provide written verification from the manufacturers of the solar panels that none of the panels or components contain PFAS; (2) require the Applicant to conduct pre- and post-construction soil and water testing to ensure that no PFAS contamination occurred during construction; and (3) require the Applicant to do an annual test of soil and water for the lifetime of the project to ensure that PFAS runoff issues are either of no concern or, if detected, can be addressed immediately.

Responses To October 21, 2021 Board Meeting

PFAS Concerns Are Not Two Years Old

The NYSERDA representative that spoke to the Planning Board meeting began by suggesting that PFAS concerns only began to emerge when news of PFAS pollution concerns hit the media in 2018, which subsequently caused PFAS to be considered an environmental risk. In addition, some of his comments suggested that areas such as the Cape Fear River are the only areas that the EPA is concerned about with respect to PFAS due to the fact that a PFAS manufacturing plant is located adjacent to the river. Both of these assertions are simply not true. The EPA has been investigating PFAS issues since at least 1998, as is evidenced by the EPA's Consent Orders with DuPont from 2006 and 2009 regarding PFOA (one type of PFAS) pollution in West Virginia.¹ There was, in fact, a civil lawsuit filed in 2001 in Parkersburg, West Virginia regarding the PFAS pollution by the PFAS manufacturer, which the EPA was well aware of because Attorney Rob Bilott, who represented the plaintiffs, was constantly providing documents to the EPA with respect to PFAS and pollution concerns.²

The EPA Is Not Only Targeting A Select Few Industries For PFAS

Similarly, the NYSERDA representative indicated that in 2020, the EPA targeted certain industries with respect to PFAS, including metal plating, landfills, firefighting foam users, and a few others. He went on to suggest to the Board that these industries are the only ones that the EPA is concerned about with respect to PFAS. This is simply not true. The initiative that the NYSERDA representative is referencing is the EPA's "Multi Industry PFAS Study – 2021 Preliminary Report."³ However, the purpose of the EPA's study of these industries was that the EPA believes that they are contributing to PFAS pollution of the environment ***by way of direct effluent discharge into rivers***. That is not an issue for the Town with respect to the solar project, but as my letter of October 19, 2021 makes clear, the EPA and President Biden's initiatives with respect to PFAS go well beyond industry types and focus on avenues of PFAS pollution, including drinking water, soil contamination, air pollution, and surface water. Below is a more detailed discussion of the EPA's Strategic Roadmap For PFAS, which was released on October 19, 2021, and explicitly states that one of the EPA's core missions with respect to PFAS in the

¹ <https://www.epa.gov/sites/default/files/2016-05/documents/dupont-fs0309.pdf>

² See Attorney Rob Bilott's book "Exposure: Poisoned Water, Corporate Greed, and One Lawyer's Twenty-Year Battle Against DuPont", 2019.

³ https://www.epa.gov/system/files/documents/2021-09/multi-industry-pfas-study_preliminary-2021-report_508_2021.09.08.pdf

next three years is to “hold polluters accountable.” There is no limitation on the industry types that the EPA will target, as the NYSERDA representative indirectly suggested.

NYSERDA’s “Three-Part Test”

Next, there was a discussion regarding factors that would need to be explored before NYSERDA’s representative would apparently be comfortable recommending not to proceed with the solar panel project. In short, he created a three-part test to consider:

1. Evidence of PFAS content in the solar panels;
2. Evidence that the PFAS type in the panels is toxic to human health; and
3. Evidence that the PFAS in the panels will erode off the panels to a degree that they would pollute water and soil.

He concluded this portion of the discussion by saying that all of these elements are “virtually unknown.”

PFAS In Solar Panels and Components

The entire reason that the above elements that NYSERDA laid out are “virtually unknown” is because the Applicant is not being required to, nor are they providing, any evidence from the solar panel and component manufacturers that the products either do or do not contain PFAS. That is the starting point from which all preventative planning for the Town must begin, and it is a simple, cost-free step that places no burden on the Town whatsoever. If the panels and components truly have no PFAS in them whatsoever, shouldn’t it be easy enough for the manufacturer to represent that in writing to alleviate concerns that the Town may have? The fact that the manufacturers are refusing to put a “PFAS free” statement in writing should tell us all something, as should their refusal to disclose that their products contain PFAS (and if so, what type of PFAS).

Instead, we were presented with a statement at the Board meeting from Amp Solar’s representative that they have in writing from the manufacturer a statement that there are “no toxic components in the anti-reflective coating” that they use.⁴ This is a smokescreen that everyone should be skeptical of and the Town simply cannot rely on. “No toxic components” by whose standards? The EPA’s? The Chinese government, since panel parts, including the glass with anti-reflective coating, are being sourced from Dongguan CSG Solar Glass Company Ltd, a

⁴ As a side point, any letters with any such statements must be provided to the Town and entered into the record. Simply relying on Amp Solar’s verbal representations about what documents do or do not say from the manufacturer is not sufficient.

Chinese company? By the company's own judgment about what is or is not "toxic"? The manufacturer can get away with a statement about "non-toxic" because at this time, the EPA has not yet established enforceable standards for PFAS; however, as I detailed in the October 19th letter and as detail further below with respect to the Strategic Roadmap by the EPA, those standards are unquestionably coming very soon. Instead of relying on subjective and artfully crafted language about toxicity from a manufacturer with every interest in having this project proceed, we must insist that the manufacturer what equates to "no PFAS" (or, if there are PFAS, which types).

In addition, throughout the Board meeting, multiple references were made by NYSERDA's representative and Amp Solar's representative to a generalized information sheet from the Graham Sustainability Institute at the University of Michigan that solar panels do not customarily use PFAS.⁵ Why are we relying on a broad-sweeping statement by a specialized department that is funded by a grant from Department of Energy to support solar? The University has likely never tested the solar panels being used for the project in our Town's instance to determine whether or not they do contain PFAS. Why are we relying on statements about what is "customarily" done, when that leaves open the possibility (which was in fact supported by the NYSERDA representative when he stated that certain solar panels do indeed have PFAS) that the Town's panels may fall within an exception that could have significant consequences? We should not be so willing to rely on a single statement by an unconnected third party that was not specific to the Town's situation to consider our due diligence obligation satisfied. Instead, we must insist that the manufacturers put in writing assurances that the products that will be used in the Town are PFAS free, or, if not, what specific PFAS they contain.

PFAS Toxicity To Human Health

NYSERDA's representative opined that no one really knows the toxicity to human health of PFAS, and he suggested that as a result, the solar panel project should not be denied due to a "virtually unknown." This is absolutely not the case and the Town needs to consider the well-established and recognized information readily available that shows clear toxicity connections to human health for certain PFAS.

First, as I mentioned above, a lawsuit was filed in 2001 in West Virginia over PFAS pollution. As part of that lawsuit, an agreement was reached that approximately 70,000 citizens would undergo medical testing, paid for by the PFAS manufacturer, and an agreed-upon neutral science panel of experts would study the blood of the citizens, their medical history, and reach conclusions about possible health effects of one type of PFAS (PFOA) on humans. The science panel was referred to as the C8 Science Panel (C8 being a name by which PFOA is referred to). They conducted

⁵ <http://graham.umich.edu/media/pubs/Facts-about-solar-panels--PFAS-contamination-47485.pdf>

their studies for eight years and their findings were released publicly.⁶ The findings are crystal clear: "...the Science Panel concluded that there was a probable link to C8 exposure [and the following diseases]: diagnosed high cholesterol, ulcerative colitis, thyroid disease, **testicular cancer**, **kidney cancer**, and pregnancy-induced hypertension." (emphasis added)

Given the long-standing above concerns about PFOA and toxicity effects, PFAS manufacturers created new PFAS types, which were so-called GenX PFAS. They differed slightly in their chemical composition, but were marketed as equally as effective as PFOA and other original PFAS types. On October 25, 2021, the EPA released its human health toxicity study findings with respect to GenX chemicals (note that the EPA has also released human health toxicity findings with respect to other types of PFAS, including PFOA, PFOS, and PFBS, all of which conclude that those PFAS types are toxic to human health in various ways).⁷ The EPA's GenX PFAS toxicity assessment concludes that GenX have several potential health effects, including on the liver, kidneys, the immune system, development of offspring, and an association with **liver and pancreatic cancer**, with the liver being especially susceptible to oral exposure from GenX chemicals.

Taking this into consideration, the EPA established what it calls chronic and subchronic reference doses (RfDs) for GenX chemicals. The EPA defines these terms as follows: "a reference dose is an estimate of the amount of a chemical a person can ingest daily over a lifetime (chronic RfD) or less (subchronic RfD) that is unlikely to lead to adverse health effects in humans." The RfDs that the EPA established for GenX were as follows:

Subchronic RfD (mg/kg/day)	Chronic RfD (mg/kg/day)
0.00003	0.000003

To put these numbers into context, they are lower than any of the other three PFAS toxicity assessment RfDs released to date, with the GenX numbers coming in at 100 times less than the RfD for PFBS. The EPA points out in its toxicity assessment that it is currently re-assessing the PFOA and PFOS RfDs, suggesting that new RfDs for either or both may in fact be less than the GenX RfD.

Contrary to the statements made during the Town's Board meeting by NYSERDA, there is well-established and unrefuted science that clearly shows that certain types of PFAS are toxic to human health. Why are we not insisting on disclosures from the solar panel and components manufacturers as to what types of PFAS their products contain? We absolutely need to know this information and only then can we determine the toxicity information available about those chemical types. To simply state that we do not know if PFAS (a class of over 9,000 chemicals)

⁶ <http://www.c8sciencepanel.org/>

⁷ https://www.epa.gov/system/files/documents/2021-10/genx-chemicals-toxicity-assessment_tech-edited_oct-21-508.pdf

are toxic to human health is simply not supported by science, and we certainly can determine if any PFAS used on solar panels in the Town are toxic to human health **if only** we first have the necessary information – that being, what types of PFAS are in or on the panels.

PFAS Erosion From Solar Panels

NYSERDA's representative noted that "the solar industry hasn't been studied yet" with respect to PFAS runoff from the panels, making that comment seemingly to suggest that there are no studies that should alarm the Town specific to PFAS. He is correct – the solar industry is just beginning to study PFAS erosion concerns. The cumulative surface area of photovoltaic panels in utility scaled solar projects is significant. The absence of evidence at this time should not result in the Town simply approving the project hoping that no such studies will eventually be done or that PFAS contamination from solar panels comes to light. The neighbors, whose only source of drinking water is from wells drilled on properties adjacent to the Project site, want the Board to consider the long term purity of the ground water and aquifer. The fact that Duanesburg's water table is so high that properties must elevate their septic systems may mean that the risk of contamination of the aquifer is greater than normal. NYSERDA's representative responded to one of the Town's questions regarding panel degradation by agreeing that the anti-glare component of the panels "can degrade over time."

My prior letters to the Board show that there are existing patents for solar anti-glare materials that contain PFAS. All of this should lead the Town to have concerns over the possibility of PFAS runoff from the solar panels, which would then naturally find their way into the soil and water. This is one of the primary reasons why I have repeatedly asked the Town to require the Applicant to conduct pre- and post-construction soil and water testing, as well as annual testing of the soil and water. If no studies currently exist, why not take the prudent preventative step of placing the burden on the Applicant to conduct this simple testing? Capital Region Environmental Lab performs water testing including tests for PFAS. I had a professional collect samples from my well in October and I am waiting on the results. There is no burden to the Town whatsoever by requiring these due diligence steps.

Finally, NYSERDA's representative references a "study" from New Hampshire, which he represented shows that there were no PFAS found at three solar sites in that state. This is an inaccurate representation of the "study." The state's own presentation on the issue⁸ shows that what the state actually said was that PFAS are used in some solar panels and no PFAS have been detected ***near*** three solar panel sites in the state. The size of the solar projects and the number of panels is not provided. Oak Hill Solar may have more than 43,400 panels for the anticipated 40 year lifetime of the Project. Due to the degradation of panels they may be economical to replaced

⁸ https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/environmental_health/private_wells/2018-Downloads/7-050218-Kernen-PFAS-CT.pdf

the panels every 15 years.⁹ The state did NOT test the actual solar panel sites referenced. Further, the state indicated that it had not “...specifically studied run-off near solar panel installations.” In other words, the “study” that NYSERDA’s representative referenced as support for his position that evidence seems to suggest that there are no PFAS runoff concerns relating to solar panels is completely unfounded. The New Hampshire study is in fact not applicable to the point, since it never tested for runoff and did not even test the solar project sites themselves.

EPA’s PFAS Strategic Roadmap 2021-2024

On October 19, 2021, the EPA released it’s PFAS Strategic Roadmap for 2021-2024.¹⁰ The document is highly significant in that it clearly lays out the EPA’s 30+ steps that it intends to take with respect to PFAS in a short three-year time period. At the forefront of the actions the EPA will take are setting enforceable limits for PFAS in drinking water, designating some PFAS as “hazardous substances” under CERCLA, and aggressively pursuing cleanup of PFAS polluted land. As I detailed in my October 19, 2021 letter, the drinking water regulations and CERCLA designations are enormously important to tracts of land that may have PFAS pollution issues, and thereby may be polluting drinking water. I will not reiterate here the significant costs that could stem from being subject to enforcement actions for these types of PFAS remediation, but I provide this information for the Town because my original letter did not have firm deadlines for the EPA’s targeted actions. Now we do, as the EPA intends to take some of these actions as soon as one year from now. As I pointed out in my prior letter, once these regulations take effect, polluted tracts of land in New York could find themselves subject to enforcement action from now only the New York Department of Environmental Conservation, but the federal EPA, as well.

PFAS Lessons From Endicott, NY

In 2019, a Korean lithium-ion battery recycling company, SungEel MCC, applied to the state of New York for permitting to bring a battery recycling facility to Endicott, NY. Applications were filed with the Department of Environmental Conservation (“DEC”) and the DEC granted the company’s permit for the project in March 2020.¹¹ However, shortly after the permit was granted, concerns were raised to the DEC about the potential PFAS content in some lithium-ion batteries, and the community was concerned that the recycling process might release PFAS into the air and the surrounding community. The DEC temporarily revoked SungEel’s permit so that

⁹ <https://hbr.org/2021/06/the-dark-side-of-solar-power>

¹⁰ https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf

¹¹ <https://wbng.com/2020/05/21/sungeel-endicott-mayor-respond-to-dec-letter-on-endicott-battery-recycling-facility/>

assurances could be obtained with respect to the PFAS content of the batteries that would be recycled at the facility. SungEel agreed to cooperate with the DEC by, among other things, getting information from the battery manufacturers as to whether the items had PFAS. They also agreed to do testing at their facility if the company was allowed to operate to determine whether any PFAS residue was resulting from the recycling processes that SungEel conducted. By June of 2020, due to evidence that confirmed that some lithium-ion batteries do indeed contain PFAS, the DEC indicated that it was conducting its own formal investigation of the issue.¹² The DEC also requested SungEel to monitor its facilities in Korea that recycle lithium ion batteries to determine if PFAS emissions were a result of the operations.

By January of 2021, SungEel had still not responded to the DEC's requests for proof from the battery manufacturers that the batteries were PFAS free, had not provided any data from their Korean facility as to PFAS emissions, and had provided no details whatsoever regarding PFAS concerns over its operations.¹³ Instead, the tenor of SungEel's statements changed to suggestions that they would simply abandon the project entirely. By March of 2021, this is precisely what happened, as the company chose to abandon its plans for Endicott entirely having never provided any information about the PFAS issues raised by the town and DEC.¹⁴

There are significant lessons that we can learn from Endicott's example of persisting for assurances before the project even began that there were no PFAS issues to worry about, or that the PFAS air emissions would be adequately controlled. In fact, the town and the DEC acted by temporarily revoking SungEel's permit without even first receiving proof that the batteries that would be recycled at the facility do contain PFAS. Instead, they acted proactively based on reliable information that some of the batteries might have PFAS, similar to the evidence I and Saving Greene have presented to this Board with respect to solar panels. Additionally, the Board should consider PFAS contamination from the thousands upon thousands of lithium ion batteries Amp wants to add to the Oak Hill Solar Project. While SungEel agreed to cooperate and be forthcoming with information regarding PFAS, it never did. If the citizens of Endicott had not banded together and demanded assurances from the entity in the best position to provide information and disclose PFAS information (the applicant, SungEel), the community would have been faced with a battery recycling facility operating and potentially polluting the surrounding community with PFAS.

I reiterate that the Town must make the same types of demands of the Applicant as Endicott did of SungEel - (1) require the Applicant to provide written verification from the manufacturers of

¹² <https://www.pressconnects.com/story/news/local/2020/06/01/indicott-battery-recycler-getting-fresh-look/5309681002/>

¹³ <https://www.binghamtonhomepage.com/news/update-on-endicott-battery-recycling-project/>

¹⁴ <https://spectrumlocalnews.com/nys/binghamton/business/2021/03/22/company-abandons-plan-for-battery-recycling-plant-in-endicott>

the solar panels that none of the panels or components contain PFAS; (2) require the Applicant to conduct pre- and post-construction soil and water testing to ensure that no PFAS contamination occurred during construction; and (3) require the Applicant to do an annual test of soil and water for the lifetime of the project to ensure that PFAS runoff issues are either of no concern or, if detected, can be addressed immediately. These steps burden the Town in no way. The only burden to the Applicant is an added trivial cost in comparison to the millions of dollars they stand to gain from the completion of the project. Requiring them to invest a few thousand dollars as an assurance to the Town is the prudent thing to do in order to protect the Town's future.

Thank you for your time and consideration.

Respectfully,
Lynne Bruning
Susan Liss Biggs

Cc: Roger Tidball, Supervisor Town of Duanesburg
Bill Wenzel, Town Board Member