

Caiazza Personal Comment on Astoria Repowering Application and the Draft Scoping Plan

Summary

This submittal references [comments](#) I submitted on the New York State Department of Environmental Conservation (DEC) decision to deny the NRG Astoria Gas Turbine Power Replacement Project Title V Permit Application. In my comments I argued that the Climate Act has the obligation to not impede the provision of safe and adequate electric service. DEC's denial of the Astoria Gas Turbine Title V application because it: "Does not demonstrate compliance with the requirements of the Climate Leadership and Community Protection Act" is at odds with that mandate. The Climate Action Council should step in and make sure that agencies are not prematurely enacting policies or making decisions that could be at odds with the Final Scoping Plan.

The bottom line is that New York State should be grateful that someone is willing to come in and provide an interim solution that will guarantee New York City electric system reliability standards are maintained. All that DEC needs to do is to add a permit condition that makes it clear that the operating certificate will be pulled if certain conditions are met. If technology is proven available to replace the proposed Astoria Replacement Project on the Climate Act schedule, then the facility gets shut down at that time. If it turns out that the "zero-emissions" technology solution is hydrogen combustion in a turbine designed to burn that fuel as well as natural gas as proposed by the applicant, then the facility can continue to operate with that fuel. It is not clear how DEC can reconcile throwing away these reliability options when there is no other option available.

I believe that the Climate Action Council should develop criteria for schedule implementation. A collective crossing of fingers that a new technology will maintain existing standards of reliability and affordability is inappropriate. In this instance, DEC's decision to disapprove two proven interim solutions eliminates reliability options when there is no other commercially proven option available. The Scoping Plan should establish the milestones and conditions that have to be met before any existing technology is dismantled.

NRG Astoria Peaking Generation

The proposed project is [described by NRG](#) as follows:

NRG is taking measures to fight climate change while minimizing costs and maximizing benefits to New York through the Astoria Replacement Project (the Project). The Project is expected to replace 50-year old power generators in 2023 with state-of-the-art technology reducing the total generating capability of the site and lowering on-site peak air emission rates by up to 99% per hour, while continuing to provide reliable power to New Yorkers when they need it most. This critical infrastructure project will be constructed at no cost to taxpayers or ratepayers. The Project modifies a previously proposed configuration, which was fully approved by the state. In support of New York's leading efforts to fight climate change, the Project will use technology that can be fully converted to zero-carbon fuel in the future.

In 1999, NRG acquired the 15-acre Astoria Gas Turbines site from Con Edison, which is situated within a larger 300+ acre complex. This complex has hosted electrical generation, transmission, distribution and associated energy activities since the 1890s and remains exclusively a major electric generating and manufacturing complex. In 1999, the site consisted of 33 gas turbine units with total generating capacity of 646 MW. In 2010, NRG proposed to replace the units with a 1,040 MW combined cycle facility. NRG's modified 2020 Project proposes to replace the 24 remaining units with a single new state-of-the-art simple cycle GE combustion turbine generator having a total generating capability of 437 MW.

Policy Issues

There is a problem because the DEC is making decisions based on how they believe the Climate Act implementation plan will work before it is complete. For example, the Department of Environmental Conservation proposed DAR-21 policy to deal with air permit applications is based on compliance with the Climate Act. I recently submitted [comments](#) to DEC that argued that the guidance should be revised to incorporate electric system reliability considerations. My comments showed there are reliability concerns related to existing electrical generators so the guidance must not preclude continued operation of existing units. I also argued that DEC should not prevent operators from developing modern generating units that are more reliable than the existing aging units. Finally, I explained the State has to consider the mandate for safe and adequate electric service as well as the Climate Act requirements.

DEC's proposed air permitting policy incorporating Climate Act considerations before implementing regulations are promulgated is putting the cart before the horse. Incredibly last year DEC rejected permits for the Danskammer Energy Center and Astoria Gas Turbine Power Project replacement generating facilities because they were inconsistent with the Climate Act. Clearly, making that decision before a policy was developed was putting the cart before the horse was purchased. In any event that decision precipitated lawsuits from the developers of both facilities. I missed the opportunity to comment on the Danskammer permit but did submit comments for Astoria.

Reliability Comments

I was able to develop a set of comments very quickly because of previous work. With regards to reliability concerns I essentially re-packaged my [comments](#) submitted on the DEC guidance document.

I noted that the rejection of the permit application is especially troubling because in the DEC's "Notice of Denial of Title V Air Permit" for the Astoria Gas Turbine Power Project (DEC ID: 2-6301-00191/00014), DEC rejected the use of both hydrogen and renewable natural gas (RNG) as a 2040 compliance mechanism. The rationale was because the DEC labeled them "speculative" and "aspirational". However, the Draft Scoping Plan's placeholder for a dispatchable, emission-free resource is hydrogen. Governor Hochul's recent State of the State address proposes that New York position itself to compete for nearly \$10 billion in federal funding for green hydrogen R&D under the federal infrastructure bill. Obviously, it is in the state's best interest to preserve the option to use hydrogen in the future. In the meantime, the options to supplant the dispatchable energy from those facilities with energy storage and renewable energy alternatives are no less "speculative" and "aspirational". DEC's decision to reject the permit on this basis is a serious threat to reliability.

A key component of my comments is that there is a Public Service Commission mandate that overrides the Climate Act requirements. [Public Service \(PBS\) CHAPTER 48, ARTICLE 4, § 66-p. Establishment of a renewable energy program](#) (4) states:

The commission may temporarily suspend or modify the obligations under such program provided that the commission, after conducting a hearing as provided in section twenty of this chapter, makes a finding that the program impedes the provision of safe and adequate electric service; the program is likely to impair existing obligations and agreements; and/or that there is a significant increase in arrears or service disconnections that the commission determines is related to the program.

I interpret that to mean that the Climate Act has to meet the obligation to not impede the provision of safe and adequate electric service (i.e., reliability). DEC's focus on meeting the Climate Act targets in its rejection of the Astoria permit ignores this obligation.

The [DEC decision letter](#) claimed that "the Project would be inconsistent with or would interfere with the attainment of the Statewide greenhouse gas (GHG) emission limits established in Article 75 of the Environmental Conservation Law (ECL)". Because DEC was unable to satisfy elements required by Section 7(2) of the Climate Leadership and Community Protection Act" the application was denied. However, it seems to be a stretch to claim that the permit has to be denied when the only current regulations associated with the Climate Act specify the GHG emissions targets. Nothing has been promulgated to specify how the State will meet those limits so I believe it is premature to speculate how future regulations could impact the application.

Air Quality Impacts

The [DEC decision letter](#) noted that DEC reviewed information submitted by Astoria, including in the initial Title V air permit application as well as supplemental materials provided in response to requests for additional information, the Supplemental Draft Environmental Impact Statement prepared for the Project, and over 6,600 public comments received from individuals or organizations during the public comment period. In my opinion, the 6,600 public comments were a primary driver for the decision because I believe most of them argued that the continued operation of the facility was an environmental justice issue. Unfortunately, the basis for that claim is weak.

The [National Ambient Air Quality Standards](#) (NAAQS) "provide public health protection, including protecting the health of 'sensitive' populations such as asthmatics, children, and the elderly". According to the [EPA nonattainment/maintenance status summary](#), there are multiple counties in New York that do not attain the NAAQS for ozone and New York County does not meet the coarse particulate matter standard. Note that all of New York State meets the inhalable particulate NAAQS. All the other pollutants are in attainment. My career is based on the presumption that air quality that meets the NAAQS is acceptable.

Despite the fact that New York City is in attainment for inhalable particulates, this pollutant is used as a rationale for shutting down peaking power plants because of claims that reducing inhalable air quality impacts is beneficial. For example, the New York City Department of Health and Mental Hygiene's

(DOHMH) [Air Pollution and the Health of New Yorkers report](#) is often referenced in this regard. The DOHMOH report concludes: “Each year, PM_{2.5} pollution in [New York City] causes more than 3,000 deaths, 2,000 hospital admissions for lung and heart conditions, and approximately 6,000 emergency department visits for asthma in children and adults.” These conclusions are for average air pollution levels in New York City as a whole over the period 2005-2007 of 13.9 µg/m³.

At this time, New York State energy and environmental policy is more about optics than facts. Nowhere is this more apparent than the recent spate of [opinion pieces](#), [reports](#), and [policy proposals](#) related to peaking power plants and the alleged health impacts of inhalable particulates. In 2020 the [PEAK Coalition](#) released a report entitled: “[Dirty Energy, Big Money](#)” that has been used by environmental justice organizations to vilify all New York City’s peaking power plants, including the Astoria Gas Turbines. I have described this work in three posts on my blog [Pragmatic Environmentalist of New York](#). I published a [post](#) that provided information on the primary air quality problem associated with these facilities, the organizations behind the report, the State’s response to date, the underlying issue of environmental justice and addressed the motivation for the analysis. The [second post](#) addressed the rationale and feasibility of the proposed plan to replace these peaking facilities with “renewable and clean energy alternatives” relative to environmental effects, affordability, and reliability. Finally, [I discussed](#) the [Physicians, Scientists, and Engineers \(PSE\) for Healthy Energy](#) report [Opportunities for Replacing Peaker Plants with Energy Storage in New York State](#) that provided technical information used by the PEAK Coalition.

In my comments I showed that the 2018-2020 average PM_{2.5} concentration was 7.4 µg/m³ which is substantially lower than the DOHMOH goal of reaching 10.9 µg/m³. All the inhalable particulate health impact projections are based on epidemiological models that have not been validated. If they are correct, then because inhalable particulate levels have come down uniformly across the country then there should be significant observed health benefits. Until such time that the projected health impacts are validated with observed data, I remain skeptical.

Furthermore, even if you accept the inhalable particulate health benefit premise, I don’t think that the arguments made by activists makes a convincing case that the peaking power plants are the primary driver of environmental burdens on neighboring communities. The ultimate problem with this approach is that the peak unit justification relies on environmental burdens from ozone and particulate matter air quality impacts. However, ozone is a secondary air pollutant and the vast majority of ambient PM_{2.5} from power plants is also a secondary pollutant. As a result, there is a lag between the time emissions are released and creation of either ozone or PM_{2.5}. That means that the peaking power plants do not create the air quality impact problems alleged to occur to the environmental justice communities located near the plants. In fact, because [NOx scavenges ozone](#) the peaker plants reduce local ozone if they have any effect at all. DEC knows this and the fact that they don’t acknowledge it does not reflect well on their scientific rigor.

Conclusion

The comments I submitted on the Astoria permit application argued that the Climate Act has the obligation to not impede the provision of safe and adequate electric service. DEC's denial of the Astoria Gas Turbine Title V application because it: "Does not demonstrate compliance with the requirements of the Climate Leadership and Community Protection Act" is at odds with that mandate. The Climate Action Council should step in and make sure that agencies are not prematurely enacting policies or making decisions that could be at odds with the Final Scoping Plan.

DEC's transparent appeasement of the many commenters who submitted comments based on misleading air quality impacts from the grey literature [PEAK Coalition "Dirty Energy, Big Money"](#) report is ill conceived. The alleged health impacts are all due to secondary ozone and inhalable particulates. Because they are secondary pollutants they are not formed until they have been transported away from the immediate neighborhoods that Peak Coalition claims are affected. Unfortunately, there is no currently available technology that has been proven at the scale necessary that can replace fossil-fired generation in New York City reliably and affordably. With all due respect to the environmental justice organizations like the Peak Coalition, they have no reliability or affordability responsibilities so their priorities differ. If reliability and affordability are not prioritized it could easily result in an electric system that does not maintain current standards. This should be a primary driver for the Climate Action Council too. Problems with affordability and reliability will impact disadvantaged communities more than other communities so they should be the over-arching priority.

The bottom line is that New York State should be grateful that someone is willing to come in and provide an interim solution that will guarantee New York City electric system reliability standards are maintained. All that DEC needs to do is to add a permit condition that makes it clear that the operating certificate will be pulled if certain conditions are met. If technology is proven available to replace the proposed Astoria Replacement Project on the Climate Act schedule, then the facility gets shut down at that time. If it turns out that the "zero-emissions" technology solution is hydrogen combustion in a turbine designed to burn that fuel as well as natural gas as proposed by the applicant, then the facility can continue to operate with that fuel.

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I am a retired air pollution meteorologist with over 40 years-experience analyzing the relationship between air quality and environmental standards. I submitted these comments based on my familiarity with the NRG Astoria Gas Turbine facility, the role of the facility as a provider of necessary peaking power, and the history of various attempts to re-power it since NRG Energy purchased the facility. Before I retired from NRG in 2010, I was responsible for compliance with the NOx RACT averaging plan

and worked with a couple of re-powering applications. Although I had no involvement whatsoever in the latest re-powering plan, I think my background is unique. I have [written extensively](#) on implementation of the Climate Act because I believe the ambitions for a zero-emissions economy outstrip available renewable technology such that it will adversely affect [reliability](#) and [affordability, risk safety, affect lifestyles](#), will have [worse impacts on the environment](#) than the purported effects of climate change in New York, and [cannot measurably affect global warming](#) when implemented. The opinions expressed in this document do not reflect the position of any of my previous employers or any other company I have been associated with, these comments are mine alone.

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