

NARRATIVE

TO: Cynthia Dorrough

FROM: Jada Levers

DATE: March 20, 2025

Facility Name: **Microsoft Corporation – CCO06 Facility**
AIRS No.: 121-00968
Location: Palmetto, GA (Fulton County)
Application #: 29582
Date of Application: January 31, 2025

Background Information

Microsoft Corporation was issued Permit No. 7376-121-0968-S-01-0 on October 26, 2022, to install and operate twenty-one [21] emergency generators at CCO06 Facility, located at 0 Williams Road, Palmetto, Georgia 30268. Permit No 7376-121-0968-S-01-1 was issued on July 10, 2024, for the installation and operation of sixteen [16] additional 3,000 kW emergency generators each with a heat capacity of 28.23 MMBtu/hr and one [1] additional 500 kW emergency generator with a heat capacity of 4.80 MMBtu/hr. Each generator is diesel fueled with renewable hydrocarbon diesel used as an alternative fuel and provides backup power to servers and other electronic equipment in the event of a power outage in buildings 1 and 2.

The facility is located in Fulton County, which is in attainment status for all criteria air pollutants under the National Ambient Air Quality Standards (NAAQS). The facility has a sitewide NO_x emission limit of 99 tons per year to limit the annual fuel usage and remains a synthetic minor source with respect to provisions of 391-3-1-.03(10)(b)1(i) until the startup of new emergency generators in buildings 3 through 5.

Purpose of Application

Application No. 29582 was dated January 31, 2025, and received on February 3, 2025, requesting the installation and operation of eighty [80] 3,000 kW emergency generators each with a heat capacity of 28.22 MMBtu/hr and three [3] 500 kW emergency generator with a heat capacity of 4.66 MMBtu/hr. All generators will be diesel fueled with renewable hydrocarbon diesel used as an alternative fuel and they will provide backup power to servers and other electronic equipment in the event of a power outage in buildings 3 through 5. In this modification, the Permittee has also requested to limit facility wide NO_x emissions from the CCO06 Facility to less than 249 tons per year. Data centers are not part of the 28 listed source categories where the PSD major source threshold is 100 tpy, therefore they have requested a NO_x limit of 249 tons per year to remain a minor source under PSD. The 249 ton per year NO_x limit however will make the CCO06 facility a major source under Title V. The public advisory expired on March 7, 2025, and comments from Sierra Club were received by the Division. Comments on the application received during the Public Advisory period were considered during the drafting of the permit and associated narrative.

Updated Equipment List

Table 1. Equipment List

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
Building 1				
GN1	4.80	500 kW Diesel-Fueled Emergency Generator	2023	2023
GN2 – GN21	28.23	3,000 kW Diesel-Fueled Emergency Generators	2023	2023
Building 2				
GN22	4.80	500 kW Diesel-Fueled Emergency Generator	2025	2025
GN23 – GN38	28.23	3,000 kW Diesel-Fueled Emergency Generators	2025	2025
Building 3				
GN39	4.66	500 kW Diesel-Fueled Emergency Generator	2025	2025
GN40-GN59	28.22	3,000 kW Diesel-Fueled Emergency Generators	2025	2025
Building 4				
GN60	4.66	500 kW Diesel-Fueled Emergency Generator	2025	2025
GN61-GN90	28.22	3,000 kW Diesel-Fueled Emergency Generators	2025	2025
Building 5				
GN91	4.66	500 kW Diesel-Fueled Emergency Generator	2025	2025
GN92-121	28.22	3,000 kW Diesel-Fueled Emergency Generators	2025	2025

Emissions Summary

The facility will limit their annual fuel usage to ensure that NO_x emissions are below the PSD major source threshold. Sitewide emissions are included in Appendix C of Application No. 29582. The facility would like to include Renewable Hydrocarbon Diesel as an alternative fuel for the expansion of the datacenter. Testing data from another Microsoft data center shows that Renewable Hydrocarbon Diesel has lower emission rates than ultra-low sulfur diesel (ULSD) at worst-case emission rates based on manufacturer data. Therefore, the USLD emission rates were used as the worst-case scenario at the facility.

The facility is proposing to track operational data (hours and load rate) measured and recorded to calculate monthly NO_x emissions, each calendar month, from all emergency generators located onsite (buildings 1 and 2). Monthly NO_x emissions from fuel combustion at the facility shall be determined using the following equation:

$$\text{Monthly NO}_x \text{ emissions} \left(\frac{\text{tons}}{\text{month}} \right) = \frac{\sum_{i=0\%}^{100\%} \text{NO}_x \text{ emission rate at load} \left(\frac{\text{lb}}{\text{hr}} \right) \times \text{Monthly Hours of Operation for all Generators at Load} \left(\frac{\text{hrs}}{\text{month}} \right)}{2000 \left(\frac{\text{lb}}{\text{ton}} \right)}$$

Where i = the engine load during the run

With the addition of emergency generators, the facility is still required to comply with the criteria in Georgia Rule (mmm)8 in order to avoid being subject to the NO_x standard of 80 ppm @ 15% O₂.

In order to ensure NO_x emissions remain under 249 tpy to avoid subjection to PSD, the facility will be calculating NO_x emissions based on corresponding operating and also maintaining a 12 month rolling total for NO_x emissions. For runs at 10%, 25%, 50%, 75% or 100% load, the NO_x Emission Rate at Load will be equal to the corresponding emission rate in the table below. For runs at other loads, the NO_x Emission Rate at Load will be equal to the emission rate listed in the table below that corresponds to the next highest load.

Table 2. NO_x emission rates based on corresponding load.

Load Rate	10%	25%	50%	75%	100%
Emission Rate for 500-kW Generator (lb/hr)	1.23	2.07	3.68	7.15	9.71
Emission Rate for 3,000-kW Generators using ULSD (lb/hr)	6.84	10.78	19.42	36.98	60.47

Emissions were calculated using emission rates provided by the generator manufacture for all criteria air pollutants, except for sulfur dioxide, which was calculated using emission factors from *AP-42 Chapter 3.4 – Large Stationary Diesel and All Stationary Dual-fuel Engines* for the 500-kW generator and emission testing data from another facility for the 3,000-kW generators. The manufacturer provided data is provided in Appendix D of Application No. 29582.

Emissions of toxic air pollutants (benzene, toluene, xylene, formaldehyde, acetaldehyde, acrolein, and naphthalene) from combustion in the emergency generators were also calculated using *AP-42 Section 3.4 – Large Stationary Diesel and All Stationary Dual-Fuel Engines*.

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions			Actual Emissions		
	Before Mod.	After Mod.	Emissions Change	Before Mod.	After Mod.	Emissions Change
PM/PM ₁₀ /PM _{2.5}	9.61	12.37	+2.76	1.73	4.36	+3.63
NO _x	549.08	706.30	+157.22	99*	249*	+150
SO ₂	2.07	2.67	+0.60	0.37	0.94	+0.57
CO	35.05	44.83	+9.78	6.32	15.80	+9.48
VOC	13.55	17.43	+3.88	2.44	6.15	+3.71
Max. Individual HAP	0.20	2.56E-01	5.60E-02	3.59E-02	9.02E-02	4.43E-02
Total HAP	0.38	4.92E-01	1.12E-01	6.90E-02	1.73E-01	1.66E-01

Pollutant	Potential Emissions			Actual Emissions		
	Before Mod.	After Mod.	Emissions Change	Before Mod.	After Mod.	Emissions Change
Total GHG (if applicable)	4.18E04	4.88E04	7.00E03	7.02E03	1.72E04	1.02E04

Regulatory Applicability

Georgia Rule 391-3-1.02 (2)(b) – Visible Emissions

Rule (b) limits visible emissions from any air contaminant source to not exceed 40 percent opacity. Emergency generators (Source IDs: GN1-GN121) will be subject to this rule and the facility will comply with this limitation through the exclusive use of ultra-low sulfur diesel (ULSD) fuel and renewable diesel fuel in the proposed generator engines. The opacity standards of Georgia Rule (b) will be subsumed by Subpart IIII.

Georgia Rule 391-3-1.02 (2)(g) – Sulfur Dioxide

Rule (g) limits all fuel burning equipment below 100 MMBtu/hr to burn no more than 2.5% fuel sulfur, by weight. Emergency generators (Source IDs: GN1-GN121) will be subject to this rule and the facility will comply with this limitation through the exclusive use of ultra-low sulfur diesel (ULSD) fuel and renewable diesel fuel in the proposed generator engines. The fuel sulfur standards of Georgia Rule (g) will be subsumed by Subpart IIII.

Georgia Rule 391-3-1.02 (2)(mmm) – NO_x emissions from Stationary Gas Turbines and Stationary Engines Used to Generate Electricity

Rule (mmm) limits NO_x emissions from any stationary engine used to generate electricity, whose capacity is greater than or equal to 100 kilowatts (kW) and is less than or equal to 25 megawatts (MW). Stationary engines at data centers that meet the criteria in 391-3-1-.02(2)(mmm)8 are not subject to the emission limits in this rule. Generators (Source IDs: GN1-GN121) will limit annual operation to less than 500 hours per year per engine to maintain synthetic minor source status and to avoid being subject to the emission standard outlined in Georgia Rule (mmm)1.

40 CFR 60 Subpart IIII – Standards of Performance for New Stationary Sources

Subpart IIII applies to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) that commenced construction after July 11, 2005. Since the facility plans to commence construction of emergency generators (Source IDs: GN1-GN121) in the year 2025, they will be subject to the emission and operating limitations of this subpart.

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Source Categories

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. A stationary RICE is defined as any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. The facility is considered an area source of HAPs because potential HAP emissions are below 10 tpy for any individual HAP and below 25 tpy for combination of HAPs. Emergency generators (Source IDs: GN1-GN121) are considered new emergency stationary RICE under this subpart because a stationary RICE located at an area source of HAPs is considered new if construction of the stationary RICE commenced on or after June 12,

2006. Per 40 CFR 63.6590(c)(1), new emergency generators meet the requirements of Subpart ZZZZ by meeting the emission and operating limitations for stationary CI ICE in 40 CFR 60 Subpart IIII.

Permit Conditions

Condition 2.1 requires the Permittee to limit the opacity of visible emissions to 20% during acceleration mode, 15% during lugging mode, and 50% during peaks in either acceleration or lugging modes from emergency generators (Source IDs: GN1-GN121).

Condition 2.2 requires the Permittee to limit NO_x emissions into the atmosphere to 249 tpy.

Condition 2.3 establishes operating standards and limitations for emergency generators (Source IDs: GN1-GN121) subject to 40 CFR 60 Subpart IIII.

Condition 2.4 establishes fuel sulfur limitations from 40 CFR 60 Subpart IIII and subsumed from Georgia Rule (g) in emergency generators (Source IDs: GN1-GN121).

Condition 2.5 outlines the criteria for emergency generators (Source IDs: GN1-GN121) at data centers to operate to be exempt from the NO_x emission standard per Georgia Rule (mmm) during ozone season. In the event the engine(s) do not meet the criteria, they are subject to the NO_x emission standard outlined in Georgia Rule (mmm).

Condition 2.6 requires the Permittee to comply with 40 CFR 60 Subpart A and 40 CFR 63 Subpart ZZZZ for internal combustion engines (Source IDs: GN1-GN121).

Condition 2.7 requires the Permittee to comply with 40 CFR 60 Subpart A and 40 CFR 60 Subpart IIII for the internal combustion engines (Source IDs: GN1-GN121).

Condition No. 2.8 requires the Permittee to use diesel fuel oil in all emergency generators and establishes ASTM D975-24 fuel standards for the diesel fuel used for combustion.

Condition 3.1 requires the Permittee comply with precautions to prevent fugitive emissions of air contaminants.

Condition 4.1 requires the Permittee to operate the emergency generators according to the manufacturer specifications.

Condition 5.1 establishes hours and load monitoring requirements for emergency generators (Source IDs: GN1-GN121).

Condition 5.2 requires the Permittee to operate and maintain emergency generators (Source IDs: GN1-GN121), including air pollution control and monitoring equipment in accordance with 40 CFR 63.6605(b).

Condition 5.3 requires the Permittee to verify each shipment of diesel fuel oil received for combustion in each emergency generator (Source IDs: GN1-GN121) complies with the requirements of Condition No. 2.8.

Condition 6.1 requires the Permittee to conduct a performance test at any specified emission point when directed by the Division.

Condition 7.1 requires the Permittee to maintain monthly operating records for each emergency generator (Source IDs: GN1-GN121) in emergency and non-emergency service.

Condition 7.2 requires the Permittee calculate monthly the twelve-month rolling total of operating time for each of the emergency generators (Source IDs: GN1-GN121) and notify the Division if operating hours exceed 500 hours during a 12 consecutive month period.

Condition 7.3 requires the Permittee to calculate monthly the twelve-month rolling total of the non-emergency service operating time for the generators (Source IDs: GN1-GN121).

Condition 7.4 provides the equation to calculate the monthly total NO_x emissions and requires the Permittee to notify the Division in writing if the monthly total NO_x emissions equal or exceed **20.75** tons during any calendar month.

Condition 7.5 requires the Permittee to use monthly records to calculate the twelve-month rolling total of NO_x emissions from generators (Source IDs: GN1-GN121) for each calendar month. The Division should be notified if any of the twelve-month rolling totals of the NO_x emissions equals or exceeds **249** tons.

Condition 7.6 requires the Permittee to demonstrate compliance with emission standards in 40 CFR 60 Subpart IIII for emergency generators (Source IDs: GN1-GN121) by purchasing an engine certified to the emission standards of 40 CFR 60.4205(b).

Condition 7.7 requires the Permittee to maintain a copy of the manufacturer's written operating and maintenance instructions for emergency generators (Source IDs: GN1-GN121) per 40 CFR 60 Subpart IIII.

Condition 7.8 requires the Permittee to keep records verifying that the fuel oil received complies with Condition 2.4.

Condition 7.9 requires the Permittee to submit an annual report according to the requirements of 40 CFR 63.6650(h) if the Permittee operates the emergency generators (Source IDs: GN1-GN121) according to Condition No. 2.3.c.i.

Condition 8.1 establishes the Division reserves the right to amend the provisions of this Permit pursuant to the Division's authority as established in the Georgia Air Quality Act and the rules adopted pursuant to this Act.

Condition 8.2 requires the Permittee calculate and pay an annual Permit fee to the Division in accordance with the “Procedures for Calculating Air Permit Application & Annual Permit Fees.”

Condition 8.3 requires the Permittee to submit a Title V permit application within 12 months of startup of emergency generators (Source Codes: GN39 through GN121)

Condition 8.4 revokes all permits and associated permit amendments previously issued to facility.

Toxic Impact Assessment

The GEPD’s Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions (hereinafter referred to as “the Guideline”) provides requirements for assessing the impacts of toxic air pollutant (TAP) emissions from a proposed project. If a facility’s emissions of a specific TAP are less than the minimum emission rate (MER) provided for that TAP in Appendix A of the Guideline, no further analysis is required for that TAP. Otherwise, an air dispersion modeling analysis is required to demonstrate that the facility’s

emissions of that TAP will not exceed the acceptable ambient concentration (AAC) provided for that TAP in Appendix A of the Guideline. A comparison of each potential TAP emission expected to be emitted by the Facility to the applicable MERs is provided in Table 3, which indicates that a Toxic Impact Assessment (TIA) was required only for benzene and acrolein.

Table 3. Comparison of Facility-Wide TAP Emissions to Georgia MERs

Pollutants	Facility-Wide Potential Emissions (lb/yr)	Georgia MER (lb/yr)	Toxic Impact Analysis (TIA) Required?
Benzene	511.70	31.63	Yes
Toluene	185.29	1,216,650	No
Xylenes	127.27	24,333	No
Formaldehyde	52.03	267	No
Acetaldehyde	16.62	1,107	No
Acrolein	5.20	4.87	Yes
Naphthalene	85.72	729.99	No

A TIA was conducted for benzene and acrolein using the USEPA's SCREEN3 modeling software (version 13043), which calculates maximum 1-hour average impacts. A model run was prepared for a single emergency generator engine from each group, based on the engine at the site in that group located nearest the fence line and an emission rate of 1 g/s for each engine.

Per Appendix A of the Guideline, benzene and acrolein each have both a short-term (i.e., 15-minute average) AAC and a long-term (i.e., annual average) AAC. As such, separate short-term and long-term modeled emission rates were developed since the generators will not operate continuously throughout the year. The short-term average emission rate provided to the model was the maximum potential hourly emission rate for a single generator (lb/hr/gen). The long-term average emission rate was calculated based on the assumption that each generator will operate for a maximum of 200 hours per year using the following equation:

$$\text{Long - Term Modeled Emission Rate per generator} \left(\frac{\text{lb}}{\text{hr}} \right) = \frac{\text{Short - Term Emission Rate} \left(\frac{\text{lb}}{\text{hr - gen}} \right) \times 200 \left(\frac{\text{hr}}{\text{yr}} \right)}{8,760 \left(\frac{\text{hr}}{\text{yr}} \right)}$$

These calculated emission rates were converted from units of lb/hr to g/s for entry to the model. The maximum 1-hour average ambient impact attributable to the Facility was calculated for benzene and acrolein using the single-generator 1-hour average concentration predicted by the model as follows:

$$\text{Facility - wide Maximum 1 hour impact} \left(\frac{\mu\text{g}}{\text{m}^3} \right) =$$

$$\text{Max. 1 - hr from a single generator at } 1 \frac{\text{g}}{\text{s}} \left(\frac{\mu\text{g}}{\text{m}^3} \right) \times \text{Number of generators} \times \text{Emission rate per generator} \left(\frac{\text{g}}{\text{gen}} \right)$$

Maximum predicted 1-hour concentrations were developed for both the short-term and long-term averaging periods, and individual model runs were conducted for each Group of engine type, respectively. In accordance with the Guideline, the concentration predicted by the model for the short-term averaging period was summed for the two engine types and converted to a 15-minute average concentration by multiplying the 1-hour concentration by a factor of 1.32. A similar procedure was used for the long-term averaging

period, except that a factor of 0.08 was used to convert the 1-hour average concentration to an annual average.

SCREEN3 modeling was performed for benzene and acrolein to determine that the Maximum Ground-Level Concentration (MGLC) was less than the Acceptable Ambient Concentration (AAC). Further discussion for the Toxic Impact Analysis (TIA) is provided in Section 4.0 of Application No. 29582. The results of the TIA are presented in Table 4 below and demonstrate that benzene and acrolein impacts from the facility will be less than the AACs. Results and documentation for the TIA are also provided in Appendix E of Application No. 29582.

Table 4. Comparison of Modeled TAP Impacts with the AACs

Pollutant	Averaging Period	Modeled Impact (µg/m³)	AAC (µg/m³)	Exceeds AAC?
Benzene	15-minute	41.94	1,600	No
	Annual	0.06	0.13	No
Acrolein	15-minute	0.43	23	No
	Annual	5.89E-04	0.02	No

Summary & Recommendations

Based on the above considerations, I recommend issuing Permit 7376- 121-0968-E-02-0 for the installation and operation of one hundred and sixteen [116] 3,000 kW emergency generators and five [5] 500 kW emergency generators at CCO06 Facility, Buildings 1 through 5. The facility is a synthetic minor source for PSD (40 CFR 52.21) but will become a major source under Title V (40 CFR 70) and are required to submit an initial Title V Permit application within 12 months of the startup of generators (Source Codes: GN39 through GN121). The Mountain District (Atlanta) office will continue compliance responsibility and receiving report submittals.

Addendum to Narrative

The 30-day public review started on April 9, 2025, and ended on May 9, 2025. Comments were received by the Division.

Comments were received from the Sierra Club on behalf of itself, and it's 9,000 Georgia members. The second letter was received during the Draft Permit Public Notice on May 9, 2025, and was signed by Dori Jaffe, Managing Attorney.

Please refer to Appendix A to view the entire comments. EPD will only address the comments relevant to the draft permit below.

Comment 1:

“EPD has not adequately considered the Sierra Club’s comments, submitted on March 7, 2025.¹ Although the Permit Narrative acknowledges receiving them, noting that “comments from Sierra Club were received by the Division”², it fails to respond to the issues Sierra Club presented. This raises concerns about whether EPD is adequately reviewing and incorporating public input into its permitting process...”

EPD Response to Comment 1:

Comments received during the public advisory period concerning the permit application do not necessitate formal response. Comments made during the public advisory period are considered for a formal response at the discretion of the Division. The Division acknowledged receipt of comments as stated in the above comment and were reviewed during the permitting process which satisfies the Division’s public advisory policy.

Comment 2:

Comment No. 1: The Draft Permit fails to fully consider public comments.

EPD Response to Comment 2:

Public comments are formally addressed upon the conclusion of the public notice period. Comments during the public notice period were received from the Sierra Club on Friday, May 9, 2025, at 3:54 EDT which is prior to the conclusion of the public comment period.

Comment 3:

Comment No. 2: The Draft Permit will allow local air quality to be degraded.

EPD Response to Comment 3:

The Division regulates toxic air pollutant (TAP) emissions to protect public health under the provisions of Georgia Air Quality Rule 391-3-1-.02(2)(a)3(ii). Procedures governing the Division’s review of TAP emissions as part of air permit reviews are contained in EPD’s *Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions*. The facility performed a Toxic Impact Analysis (TIA) assessment, and the results were well below the acceptable ambient concentrations (AACs); therefore, there is no concern with TAP emissions from the project.

The Division issues an enforceable permit that adheres to the requirements of the Clean Air Act, federal regulations, and Georgia air quality regulations to assure that the facility will maintain its emissions to the standards required by federal and state regulations, and which will protect public health and the environment.

Comment 4:

Comment No. 3: Batteries are a better, cleaner alternative that should be considered before a Final Permit is issued.

EPD Response to Comment 4:

The Division is responsible for protecting Georgia's air quality through the regulation of emissions from industrial and mobile sources according to state and federal regulations. The Division cannot dictate to the facility how to design or build the facility.

Notwithstanding the previous paragraph, the Division believes that batteries alone are not yet a viable replacement for diesel generators. The facility must have an adequate footprint to install a battery. Batteries that remain fully charged waiting for an extended outage will result in accelerated degradation over time. It is complex and costly to maintain the grid infrastructure needed to charge these batteries after an extended outage while simultaneously powering a data center.

Comment 5:

Comment No. 4: In the alternative, the Final Permit should require Microsoft to use diesel generators with the most stringent emissions control technology.

EPD Response to Comment 5:

The Division is responsible for protecting Georgia's air quality through the regulation of emissions from industrial and mobile sources according to state and federal regulations. For this permit application, the use of diesel generators with the most stringent emissions control technology is not required by any state or federal regulations, nor is it necessary to protect public health.

Comment 6:

Comment No. 5: The Draft Permit should be considered in the larger context of Georgia's growing number of data centers.

EPD Response to Comment 6:

The Division is aware of and monitoring the new developments in the Atlanta MSA. The Division required the performance of a Toxic Impact Assessment (TIA) of the project TAP emissions from the source. The applicant performed the TIA, and the results were well below the AACs. The Division issues enforceable air permits that adhere to the requirements of the Clean Air Act, federal regulations, and Georgia air quality regulations to assure that the facility will maintain its emissions to the standards required by federal and state regulations, and which will protect public health and the environment.

APPENDIX A

WRITTEN COMMENTS RECEIVED DURING COMMENT PERIOD



March 7, 2025

BY ELECTRONIC FILING
epd.comments@dnr.ga.gov

Georgia Dept. Natural Resources
Environmental Protection Division
Air Protection Branch
4244 International Parkway, Suite 120,
Atlanta, Georgia 30354

Re: SIP Air Permit Application - Microsoft CCO06 Data Center

On behalf of its nearly 9,000 Georgia members, the Sierra Club submits these comments on Microsoft's SIP Air Permit Application for expansion of a data center located in Palmetto, Georgia. The Application is requesting to build three new buildings with an additional 83 backup diesel generators to be used during power outages. Microsoft seeks to emit more than is necessary for operation and its emissions limits should be lowered. Its diesel generators will endanger the state and county's air quality and particularly affect the children who attend the 22+ schools located within five miles of the Microsoft data center. Battery backups are a better alternative that would prevent Microsoft from experiencing any interruption in service and prevent significant impacts to air quality and thus public health. If battery backups are not available to provide all of Microsoft's necessary backup power, then the Georgia Environmental Protection Division (EPD) should require Microsoft to install diesel generators with more stringent emissions control technology such as Tier 4 or Tier 2 with selective catalytic reduction (SCR). EPD should also consider the cumulative impacts that Microsoft's diesel generators will have on a metropolitan area that already has at least 96 data centers. The issues addressed below are based on publicly available materials, including Microsoft's application, and online materials cited within this comment letter.

MICROSOFT'S APPLICATION

Microsoft submitted an air permit application in January 2025 to expand its data center in Palmetto, within Fulton County, Georgia. If granted, the Application will allow Microsoft to

install an additional 83 Tier 2 diesel backup generators¹, bringing the facility total to 121 diesel generators.²

Georgia Air Quality Rule 391-3-1-.03(10)(b)1(i) sets the major source threshold for each criteria pollutant at 100 tons per year. Microsoft's proposed expansion would raise facility NOx emissions to 249 tpy, making it a major source for NOx but allowing it to avoid PSD requirements.³ In the Application, Microsoft sets a new enforceable NOx limit of less than 250 tpy and states they will be applying for a Title V Operating Permit.⁴ Before issuing a permit, EPD should adopt the recommendations suggested in this comment letter.

Comment No. 1: Microsoft seeks to emit more than is necessary for operation and its emission limit should be lowered.

Georgia EPD must take a hard look at Microsoft's requested emissions limits and not automatically grant Microsoft the emissions limits they seek without a thorough assessment. That assessment should include running all necessary calculations to permit only the amount that Microsoft actually needs. If the 83 backup generators that Microsoft is planning to install are only intended for use during power outages, the requested permit limit is excessive. In Virginia, Microsoft obtained a Title V permit for 165 generators with a NOx limit of 243.2 tpy, yet Microsoft seeks a higher limit of 249 tpy for only 121 generators in Georgia.⁵ This inconsistency raises important questions about whether Microsoft's proposed emissions limits reflect genuine operational needs or whether they are willing to sacrifice the health and well-being of Georgians.

Allowing Microsoft to operate with such a high NOx limit would result in emissions that exceed those of many utility-scale generation facilities in Georgia. Several facilities, such as the Chattahoochee Energy Facility, shown in Table 1, produce less than 249 tpy of NOx.⁶ It is difficult to justify granting Microsoft a permit that allows greater emissions than these power stations, especially given the implications for local air quality and public health.

¹ Microsoft Corp., Construction Permit Application (Jan. 2025) [hereinafter "Application"] at 2, PDF 6.

² *Id.* at PDF 26.

³ *Id.* at PDF 20.

⁴ *Id.* at 4, 6, PDF 8, 10.

⁵ Va. Dept. of Env'tl. Quality., Microsoft Corp – East Coast Data Center Initial TV Permit, Permit No. PRO-21527, (Apr. 24, 2024), available at:

<https://www.deq.virginia.gov/home/showpublisheddocument/25642/638627842668970000>.

⁶ Env't Prot. Agency, 2023 and 2024 Quarterly Power Plant Emissions (2024), available at: <https://www.epa.gov/power-sector/latest-emission-comparisons-pollution-controls>.

Table 1: Quarterly NOx Power Plant Emissions⁷

2023 and 2024 Quarterly Power Plant Emissions, All Units, NO _x			
EPA's Clean Air and Power Division, Data Current as of November 12, 2024			
Facility Name	State	Calendar Quarter	2023 NO _x Emissions (tons)
Chattahoochee	GA	1	31.8
Chattahoochee	GA	2	28.9
Chattahoochee	GA	3	28.0
Chattahoochee	GA	4	24.1

To further protect the neighboring community, EPD should impose clear limitations on how long Microsoft is allowed to operate each of its 83 additional generators. These limits should apply both cumulatively and within specific time periods. Such restrictions would help prevent overuse of the diesel generators, which has already been a problem in Georgia. Data centers like QTS, have overused their permitted diesel generators, facing only small penalties.⁸ According to EPD's enforcement order, QTS was found liable for the following infractions:

Not retaining records on the generators for 5 years; not tracking the times the generator was running during the months of May through September; not maintaining the reason for operating the generators; going over the allowed 50 hours of non-emergency use by failing to calculate operating hours during refurbishments of the building and not including the switchgear run hours as part of non-emergency operation; failure to maintain the records giving the reason the generator was operated and records for generator output load; not performing the NO_x testing on the specified generator engines; failing to have the required NO_x emissions records on site and ready for inspection; failing to have the diesel fuel oil receipts, certifications, or analysis on site and ready for inspection.⁹

Based on these permit violations, similar overuse and non-compliance risks exist with Microsoft's operations.

In addition, EPD should set the hourly limitations to be consistent with the final fuel allowances and annual emissions limits. These measures would enhance transparency and provide the impacted communities a better understanding of how frequently Microsoft is operating its diesel generators.

⁷ *Id.*

⁸ Ga. Env'tl. Prot. Div., Enforcement Order EPD-AQC-7419 (2025), available at: <https://enfo.gaepd.org/Details/75108> [hereinafter "EPD Order on QTS Violation"].

⁹ *Id.*

Comment No. 2: The Application, if approved, will allow local air quality to be degraded.

If finalized, the Application will allow Microsoft to install an additional 83 Tier 2 diesel generators, raising concerns about local air quality and public health. Diesel generators generate many harmful pollutants,¹⁰ including “greenhouse gases, particulate matter (PM), volatile organic compounds (VOCs), nitrous oxides (NOx), and sulfur dioxide (SO₂).”¹¹ Compared to power plants, backup generators “can emit several times more pollution from each unit of fuel burned and unit of electricity delivered.”¹² This is precisely why, to protect public health, the developed world relies primarily on large, utility-scale generation rather than distributed fossil generation.

Not only will Microsoft’s diesel generators emit more pollutants per unit of fuel than utility scale generation, such pollutants can also have acute localized effects. Diesel generator pollutants “can create smog and exacerbate respiratory conditions, like asthma, chronic obstructive pulmonary disease, and lung cancer, especially for children and older adults.”¹³ These localized problems occur because, unlike large generation sources, these generators do not have a tall smokestack to disperse the pollutants far above the air that residents breathe or other pollution control equipment that utility-scale facilities must have. This is particularly problematic because “[d]iesel generators tend to be located close to where people live, work, and attend school.”¹⁴ This is true of Microsoft’s data center, which is located within five miles of 22+ schools.¹⁵ The proposed expansion in the Application will add another 83 Tier 2 diesel generators to those already permitted, making localized health effects particularly acute for the students and their families in the area.

¹⁰ Neil D. Strachan & Alexander E. Farrell, Emissions from Distributed Generation, Carnegie Mellon Elec. Indus. Center (2004), available at: <https://bit.ly/3ZVVq8N> (“Uncontrolled diesel engines, such as those from emergency backup generators are not evaluated because previous research has already shown their emissions are very high and regulations typically preclude their use as baseload generation.” *Id.* at 3 (Emphasis original)).

¹¹ M.Cubed, Diesel Back-Up Generator Population Grows Rapidly in the Bay Area and Southern California (2021), available at: <https://bit.ly/3LENog4> [hereinafter “Diesel Back-Up Generation Growth in California”].

¹² Int’l Fin. Corp., The Dirty Footprint of the Broken Grid (Sept. 2019), available at: <https://www.ifc.org/content/dam/ifc/doc/mgrt/20190919-full-report-the-dirty-footprint-of-the-broken-grid.pdf>, at 23, PDF 33.

¹³ Diesel Back-Up Generation Growth in California.

¹⁴ *Id.*

¹⁵ According to Google Maps, Microsoft’s proposed datacenter is within 2 miles of Bear Creek Middle School; within 3 miles of ABC Another Bright Creation, Evoline C. West Elementary School, Palmetto Elementary School, Creekside High School; within 4 miles of Odyssey Montessori Child Care Center, Hopewell UMC Tyrone Preschool, Harvest Rain Early Learning Academy, A Step At A Time Early Learning Academy, Evoline C. West Elementary School, The Right Start Early Learning Center, Robert J. Burch Elementary School, Flat Rock Middle School, Sandy Creek High School; within 5 of miles Precious Ones Daycare, Walk Leap Grow Early Learning Center, Olympus Early Learning Academies, Campbell Elementary School, Canongate Elementary School, Blake Bass Middle School, Global Impact Academy STEM Magnet High School, Northgate High School.

The Microsoft CCO06 data center is located in Fulton County, near communities in the 77th percentile for low income.¹⁶ Thus, these localized emissions are also more likely to affect those of lesser means than data centers in more affluent areas.¹⁷

Georgians need only look to California to see potential impacts to communities by allowing extended generator use. There, increasing wildfire-related outages have led many businesses and residents to rely more heavily on diesel backup.¹⁸ Two districts in California have the generator capacity to power about 15% of California's grid. New research shows that this proliferation in diesel generators will cause \$136 million in annual health costs, "due to increases in mortalities, heart attacks, hospital visits and other adverse consequences."¹⁹ These emissions will also occur during power outages, when low-income individuals are already vulnerable. For instance, during a power outage in the summer, low-income individuals who live near Microsoft's CCO06 data center will be without air conditioning *and* will be faced with a decision of whether to open their windows and be exposed to unnecessarily high emissions or keep their windows shut and bear the brunt of the heat.

We urge EPD to consider the broader cumulative impacts of approving this Application, particularly in an area already burdened with air quality issues and vulnerable populations. We recommend that a more comprehensive health risk assessment be conducted, with special attention to how the proposed generators will impact local communities.

Comment No. 3: Batteries are a better, cleaner alternative that should be considered before the Application is granted.

Microsoft does not need to use diesel generators as much, if at all, to ensure no interruption in service. Because Microsoft's Application admitted that the company does not intend to run its generators but for a short period of time while service is interrupted, battery backups combined with renewable energy is a better, cleaner alternative for Microsoft while protecting the community's air quality.

Renewable energy and battery storage is an investment, but it will pay for itself over time. And that payback period could be shortened considerably when the alternative is considered: running diesel generators that have costly and often volatile fuel prices.²⁰ Battery storage would provide

¹⁶ Env'tl Data & Governance Inst., Climate and Economic Justice Screening Tool (2025), available at: <https://edgi-govdata-archiving.github.io/j40-cejst-2/en/>.

¹⁷ Impoverished individuals are already more likely to have health problems and are also less able to gain access to healthcare should they become sick from localized air pollution. *See* Poverty, U.S. Dep't Of Health And Hum. Services, available at: <https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/poverty>.

¹⁸ Business Wire, New Study Shows a Rapid Increase of Diesel-Fueled Backup Generators Across California (Oct. 6, 2021), available at: <https://bwnews.pr/3yVGc7L>.

¹⁹ *Id.*

²⁰ Chris Isidore & Christopher Hickey, Gas Prices Had a Wild Ride This Year, Making 2023 Tough to Predict, CNN Business (Dec. 29, 2022), available at: <https://cnn.it/3yWlpRE>.

the same dispatchable firm capacity value as a diesel generator, and batteries are readily available and cost-competitive today. Some data centers have been able to use renewable energy and battery storage to operate data centers without grid power usage and without interruptions in power supply.²¹ Others, like Google, are using battery-based systems to replace their back-up diesel generators.²²

From the information available in the Application, it does not appear that battery backup or renewable energy was even considered as a viable alternative, but it should be before permitting diesel generators. For those reasons, we ask that EPD perform an alternative analysis that would study the feasibility of replacing Microsoft's diesel generators with batteries and/or on-site renewable energy and how that would impact emissions.

Comment No. 4: In the alternative, Microsoft should be required to use diesel generators with the most stringent emissions control technology.

Microsoft proposes to purchase diesel generators that comply only with EPA's Tier 2 emissions standards.²³ Tier 2 emissions standards come up short on protecting public health, especially for a project within five miles of 20+ schools. Tier 2 technology allows for massive amounts of NOx emissions, while other technologies –like Tier 4 or Tier 2 with SCR– have more efficient controls that reduce emissions. SCR involves injecting ammonia into exhaust gas where it reacts with NOx to form nitrogen and water, decreasing NOx emissions substantially.²⁴ Tier 4 is a more stringent EPA standard introduced in 2004 for non-road diesel engines that reduces emissions limits for various air pollutants like NOx and particulate matter.²⁵ As shown in Table 2 below, Tier 2 diesel generators emit ten times more NOx pollution than Tier 4 generators or Tier 2 with SCR.

²¹ Eaton, Eaton Provides Webxys' New Eco-Designed Data Center With a Complete Energy Storage & Management System (Nov. 2016), available at: <https://eaton.works/3JThlqz>.

²² Google, 24/7 Carbon-Free Energy: Powering up new clean energy projects across the globe (Apr. 21, 2022), available at: <https://bit.ly/407WUwW>.

²³ Application at 6, PDF 10.

²⁴ Aaron Larson, Understanding Selective Catalytic Reduction Systems and SCR Design Considerations, Power Magazine (Nov. 1, 2023), available at: <https://www.powermag.com/understanding-selective-catalytic-reduction-systems-and-scr-design-considerations/>.

²⁵ 68 Fed. Reg. 38958 (June 29, 2024).

Table 2: Engine Technology Hierarchy²⁶

Table 1: Engine Technology Hierarchy				
Type	Classification		Maximum Operating Service	NO _x Emissions
	State	Federal		
DIESEL ENGINES				
Tier II	Emergency	Emergency	Limit all operation to less than major source levels	18.0 lb/MW
Tier II + SCR*	Non-emergency	Emergency	Limit all operation to less than major source levels	1.8 lb/MW
Tier IV	Non-emergency	Non-emergency	Limit all operation to less than major source levels	1.8 lb/MW
NATURAL GAS ENGINES				
EPA Compliant	Emergency	Emergency	Limit all operation to less than major source levels	6.0 lb/MW
EPA Compliant	Non-emergency	Non-emergency	Limit all operation to less than major source levels	3.0 lb/MW
EPA + Controlled	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.3-1.5 lb/MW
NATURAL GAS SIMPLE CYCLE COMBUSTION TURBINES				
Low-NOx	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.3-0.5 lb/MW
Low-NOx with SCR	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.1 lb/MW
*Where SCR = Selective Catalytic Reduction system = an active air pollution control system that reduces NO _x emissions; a Tier II engine equipped with an add-on SCR is sometimes referred to as a "Tier IV equivalent" engine				

As mentioned in Comment 3, Georgia EPD can protect air quality for Georgians by requiring data centers to install battery storage and renewables as their backup generation instead of diesel generators. But, to the extent they cannot secure all of their backup capacity through renewables, EPD should require that Microsoft incorporate Tier 4 generators or Tier 2 generators with SCR, both of which would reduce harmful emissions and better protect the public.

Virginia, the state with the largest number of data centers in the world,²⁷ recently released a guidance document recommending that data centers incorporate “controlled” generators (Tier 2 with SCR or Tier 4 emissions controls) into their backup generator mix.²⁸ For data centers with a large number of backup generators, they suggested that “100% controlled generators” may be required.²⁹ At least one data center in Virginia has installed this technology. Microsoft Corporation’s datacenter in Warrenton, VA has 13 diesel generators with SCR installed³⁰ and according to the permit, the SCR technology reduces NO_x emissions from the generators by

²⁶ Va Dep’t of Env’tl. Quality, Data Center Air Permit Guidelines (Jan. 17, 2025), available at: <https://www.deq.virginia.gov/home/showpublisheddocument/27424> [hereinafter “Virginia DEQ Guidelines”] at 2.

²⁷ Joint Legis. Audit & Rev. Comm’n, Data Centers in Virginia (2023), available at: <https://jlarc.virginia.gov/landing-2024-data-centers-in-virginia.asp#:~:text=Northern%20Virginia%20is%20the%20largest,of%20capacity%20in%20the%20Americas>.

²⁸ Virginia DEQ Guidelines at 3.

²⁹ *Id.*

³⁰ Va Dep’t of Env’tl. Quality, Stationary Source Permit to Modify and Operate, Registration No.: 74201 (Feb. 8, 2023), available at: <https://www.deq.virginia.gov/home/showpublisheddocument/25952/638633854222530000> at 4, PDF 6.

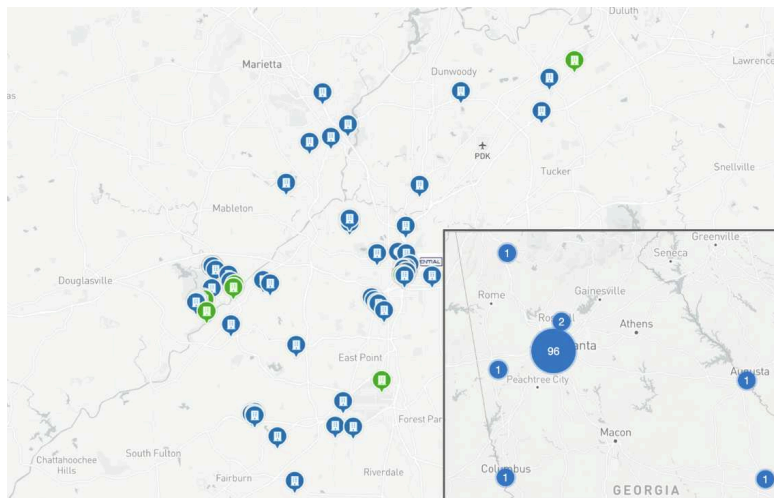
around 90%.³¹ Microsoft should be required to do the same at its CCO06 facility in Georgia, and protect the 22+ nearby schools and their communities.

Georgia needs to act now to ensure the anticipated wave of data center development does not lead to unnecessarily high emissions, which could have catastrophic impacts on communities and schools. With numerous data centers expected to be built in the near future, it is crucial to implement stringent emissions controls from the outset. By requiring the use of Tier 4 or Tier 2 with SCR technology, Georgia can protect public health and the environment while accommodating the growing demand for data centers. Adopting these technologies proactively will help mitigate the impact of increased emissions and set a strong precedent for future developments in the region. While EPD should first require emission-free technologies like battery storage, if Microsoft cannot meet 100% of their backup power needs through batteries and renewable energy, then Microsoft should be required to install either Tier 4 or Tier 2+SCR backup generators to better protect public health. With better technology available, there is no reason to permit greater emissions than necessary.

Comment No. 5: The Application should be considered in the larger context of Georgia's growing number of data centers.

This Application should not be considered in a vacuum. Rather, EPD should take a hard look into the number of data centers in Georgia. The number, particularly in the greater Atlanta area, is growing rapidly. As Figure 1 below shows, Georgia currently has at least 103 data centers, 96 of which are in Atlanta.

*Figure 1: Data Centers in Atlanta*³²



³¹ *Id.* at 10, PDF 12.

³² Data Ctr. Map, Georgia Data Centers (2025), available at: <https://www.datacentermap.com/usa/georgia/>.

While the emissions limits in the Application may not seem high enough to affect the State's air quality, if every data center is allowed similar or higher emissions limits, the State's air quality would be in serious jeopardy. For example, if just 100 data centers in Atlanta were allowed 99.9 tons per year NOx emissions limits per year for their facilities, they would be allowed to emit 9,990 tons of NOx each year. Non-compliant data centers, facing only small penalties, could drive emissions even higher.³³ EPD should at least do a cumulative impact analysis of the permitted emissions from all backup generators at all 96 data centers in the greater Atlanta area so the public can be better informed of the effects of the emissions from such facilities if they ran their generators at the maximum permitted levels during a power outage.

The data centers are also driving load growth, bringing more polluting generation online that degrades air quality. Georgia Power's 2023 IRP Update indicated that "large load projects correspond to the...influx of new businesses coming to Georgia [including] data centers... These projects' sizes far exceed historical annual norms, with some surpassing 1,000 MW".³⁴ To meet this growing demand, Georgia Power plans to build three combustion turbine plants (also called "gas peaker plants"), which will run on oil during peak times when gas is not available. In response to discovery during the 2023 IRP Update before the Georgia Public Service Commission, Georgia Power explained that the new gas peaker plants "will primarily run on fuel oil during peak winter and summer periods when the pipeline is constrained. No [firm transportation] or additional gas capacity is being proposed to support these units since these units can burn oil year around".³⁵

More recently, Georgia Power submitted a load forecast update with the Georgia Public Service Commission showing that these numbers have increased yet again:

As of September 30, 2024, the total pipeline of economic development projects through the mid-2030s has increased by 12,200 MW to 36,500 MW. Of this, 34,600 MW represent large load economic development projects (...) Looking towards the near-term winter of 2028/2029, just as the longer-term total economic development pipeline has grown, the large load pipeline has increased by 6,000 MW now totaling 19,900 MW.³⁶

Finally, Georgia Power's 2025 IRP, filed in January, projects more than 2,200 MW of additional load growth over estimates from just a year ago, driven in large part by data centers.³⁷ Due to this

³³ See EPD Order on QTS Violation.

³⁴ Ga. Power Co., 2023 IRP Update (Oct. 2023), available at: <https://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/2023-irp-update-main-document.pdf> at 9, PDF 13.

³⁵ Ga. Power Co., Response to Public Disclosure Data Request # STF-JKA-2-22 (d).

³⁶ Ga. Pub. Serv. Comm'n Docket No. 55378: Georgia Power Company's 2023 Integrated Resource Plan, Update Large Load Economic Development Report Q3 2024 at 1.

³⁷ Ga. Pub. Serv. Comm'n Docket No. 56002: Georgia Power Company's 2025 Integrated Resource Plan, 2025 Integrated Resource Plan PD at 1.

load growth, Georgia Power plans to continue operating the coal-burning Plants Scherer and Bowen, heavy producers of NOx emissions.³⁸

EPD must take into consideration not only the diesel generators proliferating around Atlanta, but also air pollution from the three new gas peakers plants and the coal plants staying online. The peaker plants are less than 40 miles outside of Atlanta and run on oil during peak times, driving emission from NOx and other pollutants twice as high as if they were run on gas. Coal plants are also extreme NOx polluters. Plant Scherer emitted 7,217 tons of NOx in 2024 alone,³⁹ while Plant Bowen, located just 45 miles north of Atlanta, emitted 1,809 tons of NOx in 2024.⁴⁰ With all the polluting generation coming and staying online in the state, EPD must consider whether issuing permits for uncontrolled backup diesel generation near Atlanta is at all advisable for public health.

CONCLUSION

For these reasons, EPD should not issue a draft permit based on the Application as written. Rather, EPD should first conduct a cumulative impact analysis of the permitted emissions, as well as an alternative impact analysis that considers replacing some or all of Microsoft's Tier 2 diesel generators with backup batteries or renewable energy. In the alternative, EPD should require the installation of Tier 4 diesel generators (or Tier 2 with SCR), which contain pollution controls to protect public health. Sierra Club appreciates the opportunity to comment on this Application.

Sincerely,



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³⁸ *Id.* at 2.

³⁹ Env't Prot. Agency, Clean Air Markets Program Data (2024), available at: <https://campd.epa.gov>.

⁴⁰ *Id.*



May 9th, 2025

BY ELECTRONIC FILING

Air-Permits.Comments@dnr.ga.gov

Georgia Department of Natural Resources
Environmental Protection Division
Air Protection Branch
4244 International Parkway, Suite 120,
Atlanta, Georgia 30354

Re: SIP Draft Air Permit - Microsoft CCO06 Data Center

On behalf of its nearly 9,000 Georgia members, the Sierra Club submits these comments on Georgia Environmental Protection Division's (EPD) Draft Permit for an expansion of Microsoft's CCO06 data center in Palmetto, Georgia. The Draft Permit would allow Microsoft to install and operate 83 additional backup diesel generators to be used in the event of a power outage.

EPD has not adequately considered the Sierra Club's comments, submitted on March 7, 2025.¹ Although the Permit Narrative acknowledges receiving them, noting that "comments from Sierra Club were received by the Division"², it fails to respond to the issues Sierra Club presented. This raises concerns about whether EPD is adequately reviewing and incorporating public input into its permitting process. This comment letter reiterates and adds to our objections to Microsoft CCO06's Application. The 83 diesel generators will endanger the state and locality's air quality and particularly affect the children who attend the 22+ schools located within five miles of the CCO06 data center. Battery backups are a better alternative that would prevent Microsoft from experiencing any interruption in service without significant impacts to public health and air quality. If battery backups are not available to provide all of the necessary backup power, then EPD should require Microsoft to install diesel generators with more stringent emissions control technology such as Tier 4 or Tier 2 with selective catalytic reduction (SCR). EPD should consider the cumulative impacts that Microsoft's diesel generators will have on the Atlanta

¹ Sierra Club Comments on Microsoft CCO06 - EPD Air Permit Application (Mar. 7, 2025), attached as Exhibit 1.

² Ga. Env'tl. Prot. Div., Air Quality Permit Narrative, Permit No. 7376-121-0968-E-02-0 (Apr. 9, 2025) [hereinafter "Draft Permit Narrative"] at 1.

metropolitan area that already has at least 130 proposed or constructed data centers. The issues addressed below are based on publicly available materials, including the Draft Permit, Microsoft CCO06's Application, and online materials cited in this comment letter.

MICROSOFT'S APPLICATION AND DRAFT PERMIT

Microsoft submitted an Air Permit Application in January 2025 to add an additional 83 Tier 2 diesel backup generators³ to its data center in Palmetto, bringing the facility total to 121 backup generators.⁴ On April 7, 2025, Georgia EPD released a Draft Permit, granting the request.⁵ The Draft Permit would allow Microsoft a NOx emissions limit of 249 tpy, making it a Title V major source for NOx but allowing it to avoid PSD requirements.⁶ Before issuing a Final Permit, EPD should adopt the recommendations in this comment letter.

Comment No. 1: The Draft Permit fails to fully consider public comments.

On March 7th, 2025, the Sierra Club submitted comments on Microsoft's Application.⁷ The Permit Narrative acknowledges that the Sierra Club submitted comments, but does not respond to the concerns we raised. The final page of the Permit Narrative includes a template for an "Addendum to Narrative," that is supposed to include details on comments received by EPD. This section has been left blank. This oversight raises concerns about the adequacy of the permit review process.

According to EPD's own guidelines,⁸ the agency is obligated to consider public comments in the air permit application process. This requirement ensures not only transparency but also an acknowledgement that the final decision to issue a permit reflects comprehensive stakeholder input. Public participation is a critical component of environmental decision-making, and the failure to address comments undermines the integrity of the process. We request that EPD address all public comments, including the Sierra Club's, to ensure that the final permit reflects a comprehensive evaluation of all stakeholder input. Any changes made to the Draft Permit—or lack thereof—in response to comments should be documented.

³ Microsoft Corp., Construction Permit Application (Jan. 2025) [hereinafter "Application"] at 2, PDF 6.

⁴ *Id.* at PDF 26.

⁵ Ga. Env'tl. Prot. Div., Air Quality Permit, Permit No. 7376-121-0968-E-02-0 (Apr. 9, 2025) [hereinafter "Draft Permit"].

⁶ Draft Permit Narrative at 1.

⁷ *See* Exhibit 1.

⁸ Georgia Rule 391-3-1-.03 (2)(i) requires that the public "be notified and given a chance for comment" before EPD issues "any federally enforceable operating permit." Ga. Comp. R. & Regs. 391-3-1-.03 (2)(i).

Comment No. 2: The Draft Permit will allow local air quality to be degraded.

If finalized, the Draft Permit will allow operation of 83 additional diesel generators, raising concerns about local air quality and public health. Diesel generators generate many harmful pollutants,⁹ including “greenhouse gases, particulate matter (PM), volatile organic compounds (VOCs), nitrous oxides (NOx), and sulfur dioxide (SO₂).”¹⁰ Compared to power plants, backup generators “can emit several times more pollution from each unit of fuel burned and unit of electricity delivered.”¹¹ This is precisely why, to protect public health, the developed world relies primarily on large, utility-scale generation rather than distributed fossil generation.

Not only will Microsoft CCO06’s diesel generators emit more pollutants per unit of fuel than utility scale generation, such pollutants can also have acute localized effects. Diesel generators’ pollutants “can create smog and exacerbate respiratory conditions, like asthma, chronic obstructive pulmonary disease, and lung cancer, especially for children and older adults.”¹² These localized problems occur because, unlike large generation sources, these generators do not have a tall smokestack to disperse the pollutants far above the air that residents breathe or other pollution control equipment that utility-scale facilities must have. This is particularly problematic because “[d]iesel generators tend to be located close to where people live, work, and attend school.”¹³ This is true of Microsoft’s CCO06 data center, which is located within five miles of 22+ schools.¹⁴

Georgians need only look to California to see potential impacts to communities by allowing extended generator use. There, increasing wildfire-related outages have led many businesses and residents to rely more heavily on diesel backup.¹⁵ Two districts in California have the generator capacity to power about 15% of California’s grid. New research shows that this proliferation in

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We urge EPD to consider the broader cumulative impacts of finalizing this Draft Permit. We recommend that a more comprehensive health risk assessment be conducted, with special attention to how the proposed generators will impact local communities.

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Renewable energy and battery storage is an investment, but it will pay for itself over time. Battery prices have reached record lows in recent years.¹⁷ The payback period could also be shortened considerably when the alternative is considered: running diesel generators that have costly and often volatile fuel prices.¹⁸ Battery storage would provide the same dispatchable firm capacity value as a diesel generator, and batteries are readily available and cost-competitive today. Some data centers have been able to use renewable energy and battery storage to operate data centers without grid power usage and without interruptions in power supply.¹⁹ Others, like Google, are using battery-based systems to replace their back-up diesel generators.²⁰

From the information available in the Application and Draft Permit, it does not appear that battery backup or renewable energy was even considered as a viable alternative, but it should be before allowing diesel-fueled generators. For those reasons, we ask that EPD perform an alternative analysis that would study the feasibility of replacing Microsoft CCO06’s diesel

¹⁶ *Id.*

¹⁷ BloombergNEF, Lithium-Ion Battery Pack Prices See Largest Drop Since 2017, Falling to \$115 per Kilowatt-Hour (Dec. 10, 2024), available at: <https://about.bnef.com/blog/lithium-ion-battery-pack-prices-see-largest-drop-since-2017-falling-to-115-per-kilowatt-hour-bloombergnef/>.

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²¹ Draft Permit at 1.

²² Aaron Larson, Understanding Selective Catalytic Reduction Systems and SCR Design Considerations, Power Magazine (Nov. 1, 2023), available at: <https://www.powermag.com/understanding-selective-catalytic-reduction-systems-and-scr-design-considerations/>.

²³ 68 Fed. Reg. 38958 (June 29, 2024).

²⁴ Va Dep't of Env'tl. Quality, Data Center Air Permit Guidelines (Jan. 17, 2025), available at: <https://www.deq.virginia.gov/home/showpublisheddocument/27424> [hereinafter "Virginia DEQ Guidelines"] at 2.

As mentioned in Comment 3 above, Georgia EPD can protect air quality for Georgians and the children who attend the 22+ schools in the area, by requiring Microsoft CCO06 to install battery storage and renewables as their backup generation instead of diesel generators. To the extent they cannot secure all of their backup capacity through renewables, EPD should require Microsoft to install Tier 4 generators or Tier 2 generators with SCR, both of which would reduce harmful emissions and better protect the public and the communities surrounding this data center.

Virginia, the state with the largest number of data centers in the world,²⁵ recently released a guidance document recommending that data centers incorporate “controlled” generators (Tier 2 with SCR or Tier 4 emissions controls) into their backup generator mix.²⁶ For data centers with a large number of backup generators, they suggested that “100% controlled generators” may be required.²⁷

Diesel backup generators for data centers across the country are already being equipped with more stringent emissions control technology. In Indiana, Mississippi, and even Georgia, Amazon has proposed to install SCR on backup diesel generators for its data centers.²⁸ Microsoft’s own data center in Warrenton, Virginia includes 13 diesel generators with SCR installed²⁹ and according to the permit, the SCR technology reduces NOx emissions from the generators by around 90%.³⁰ If Microsoft can install more stringent emissions control technology on its diesel generators in Virginia, it seems reasonable to expect it to do so in Georgia.

Georgia needs to act now to ensure the wave of data center development does not lead to unnecessarily high emissions, which could have catastrophic impacts on communities and schools. It is crucial to implement stringent emissions controls from the outset. By requiring the use of Tier 4 or Tier 2 with SCR technology, Georgia can protect public health and the environment while accommodating the growing demand for data centers.

While Georgia EPD should first require emission-free technologies like battery storage, if Microsoft CCO06 cannot meet 100% of its backup power needs through batteries and renewable energy, then Microsoft should be required to install either Tier 4 or Tier 2 with SCR backup

²⁵ Joint Legis. Audit & Rev. Comm’n, Data Centers in Virginia (2023), available at: <https://jlarc.virginia.gov/landing-2024-data-centers-in-virginia.asp#:~:text=Northern%20Virginia%20is%20the%20largest,of%20capacity%20in%20the%20Americas>.

²⁶ Virginia DEQ Guidelines at 3.

²⁷ *Id.*

²⁸ In. Dept. of Env’tl. Mgmt., Preliminary Findings Regarding a New Source Construction and Part 70 Operating Permit, Permit No.: T141-48298-00650, (Feb. 12, 2025) at PDF 7, available at: https://ecm.idem.in.gov/cs/idcplg?IdcService=GET_FILE&dID=83758295&dDocName=83762338&Rendition=web&allowInterrupt=1&noSaveAs=1; Miss. Dep’t Env’tl. Quality, State of Mississippi Air Pollution Control Permit, Permit No. 1720-00099 (Jan. 28, 2025); Amazon ATL068 and 078, SIP Permit Application (Mar. 2025).

²⁹ Va Dep’t of Env’tl. Quality, Stationary Source Permit to Modify and Operate, Registration No.: 74201 (Feb. 8, 2023), available at: <https://www.deq.virginia.gov/home/showpublisheddocument/25952/638633854222530000> at 4, PDF 6. <https://www.deq.virginia.gov/home/showpublisheddocument/25952/638633854222530000> at 4, PDF 6.

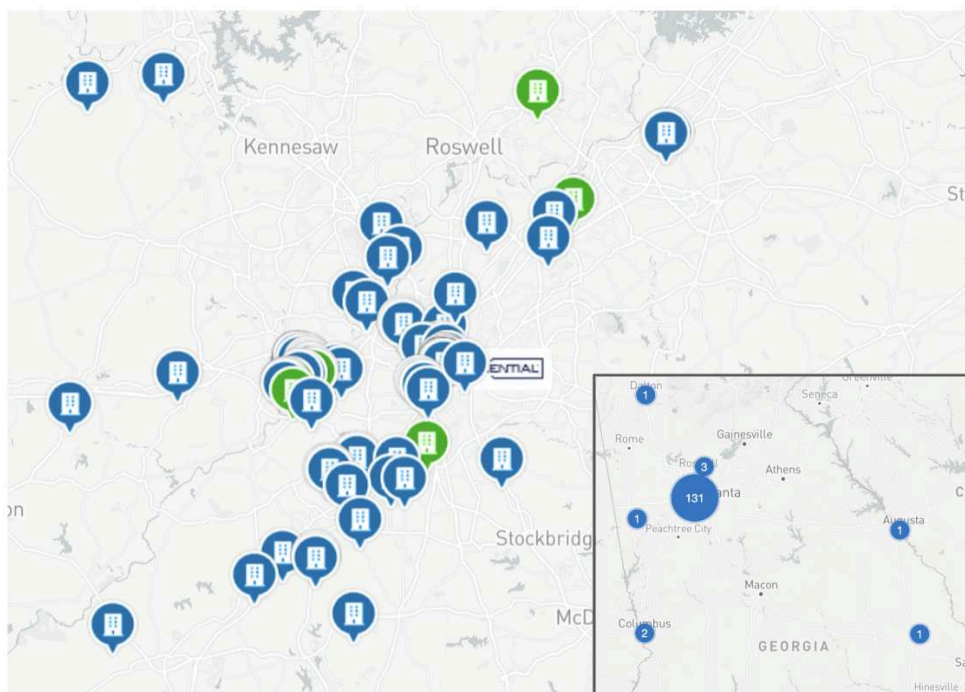
³⁰ *Id.* at 10, PDF 12.

generators to better protect public health. With better technology available, there is no reason to permit greater emissions than necessary.

Comment No. 5: The Draft Permit should be considered in the larger context of Georgia’s growing number of data centers.

The Draft Permit should not be considered in a vacuum. Rather, EPD should take a hard look into the number of data centers proliferating throughout Georgia. That number, particularly around the greater Atlanta area, is growing rapidly. As Figure 1 below shows, Georgia currently has 140 data centers, 131 of which are in the Atlanta area. 32 new Atlanta area data centers have been added to the Data Center Map site in the two months since Sierra Club submitted comments on Microsoft’s Application.³¹ The rate of growth is concerning and EPD cannot ignore the potential for huge NOx emissions in the Atlanta area.

Figure 1: Data Centers in Atlanta³²



Air quality in Atlanta is already deteriorating, with the American Lung Association giving it a failing grade in its 2025 “State of the Air” annual report.³³ While the emissions limits in the Draft

³¹ See Exhibit 1.

³² Data Ctr. Map, Georgia Data Centers (2025), available at: <https://www.datacentermap.com/usa/georgia/>.

³³ Stanley Dunlap, Atlanta air quality gets failing grade in new American Lung Association national ranking, Georgia Recorder (April 23, 2025), available at:

Permit may not seem high enough to affect the State's air quality, if every data center is allowed similar or higher emissions limits, the State's air quality would be in serious jeopardy. For example, if 100 data centers in Atlanta were allowed 249 tons per year NOx emissions limits per year for their facilities, they would be allowed to emit 24,900 tons of NOx each year. Non-compliant data centers, facing only small penalties, could drive emissions even higher.³⁴ EPD should at least do a cumulative impact analysis of the permitted emissions from all backup generators at all 131 data centers in the greater Atlanta area so the public can be better informed of the effects of the diesel generator emissions if they ran at the maximum permitted levels during a power outage.

The data centers are also driving load growth, bringing more polluting generation online that degrades air quality. Georgia Power's 2023 IRP Update indicated that "large load projects correspond to the...influx of new businesses coming to Georgia [including] data centers... These projects' sizes far exceed historical annual norms, with some surpassing 1,000 MW".³⁵ To meet this growing demand, Georgia Power plans to build three combustion turbine plants (also called "gas peaker plants"), which will run on oil during peak times when gas is not available. In response to discovery during the 2023 IRP Update before the Georgia Public Service Commission, Georgia Power explained that the new gas peaker plants "will primarily run on fuel oil during peak winter and summer periods when the pipeline is constrained. No [firm transportation] or additional gas capacity is being proposed to support these units since these units can burn oil year around".³⁶

More recently, Georgia Power submitted a load forecast update with the Georgia Public Service Commission showing that these numbers have increased yet again:

As of September 30, 2024, the total pipeline of economic development projects through the mid-2030s has increased by 12,200 MW to 36,500 MW. Of this, 34,600 MW represent large load economic development projects (...) Looking towards the near-term winter of 2028/2029, just as the longer-term total economic development pipeline has grown, the large load pipeline has increased by 6,000 MW now totaling 19,900 MW.³⁷

<https://georgiarecorder.com/briefs/atlanta-air-quality-gets-failing-grade-in-new-american-lung-association-national-ranking/>.

³⁴ See Ga. Env'tl. Prot. Div., Enforcement Order EPD-AQC-7419 (2025), available at: <https://enfo.gaepd.org/Details/75108>.

³⁵ Ga. Power Co., 2023 IRP Update (Oct. 2023), available at: <https://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/2023-irp-update-main-document.pdf> at 9, PDF 13.

³⁶ Ga. Power Co., Response to Public Disclosure Data Request # STF-JKA-2-22 (d).

³⁷ Ga. Pub. Serv. Comm'n Docket No. 55378: Georgia Power Company's 2023 Integrated Resource Plan, Update Large Load Economic Development Report Q3 2024 at 1.

Finally, Georgia Power’s 2025 IRP, filed in January, increased projected load yet again, with an additional 2,200 MW of load growth from just last year, driven in large part by data centers like Microsoft CCO06.³⁸ Georgia Power admitted that around 80% of the massive load growth is attributable to large load customers like data centers.³⁹ To keep up with this load growth, Georgia Power plans to continue operating the coal-burning Plants Scherer and Bowen, heavy emitters of NO_x.⁴⁰

EPD must take into consideration not only the diesel generators proliferating around Atlanta but also air pollution from the three new gas peakers plants and the coal plants staying online. The peaker plants are less than 40 miles outside of Atlanta and run on oil during peak times, driving emission from NO_x and other pollutants twice as high as if they were run on gas. Coal plants are also extreme NO_x polluters. Plant Scherer emitted 7,217 tons of NO_x in 2024 alone,⁴¹ while Plant Bowen, located just 45 miles north of Atlanta, emitted 1,809 tons of NO_x in 2024.⁴² Moreover, as EPD is well aware, Georgia Power recently filed an Air Permit Application for four combined cycles units at Plant Bowen.⁴³ While the amount of megawatts these units will have is undisclosed, emissions are expected to be massive, as indicated below:⁴⁴

Table 1-1: Project Emissions Increases

Pollutant	Potential Emissions Increases (tons/year)	PSD Significant Emission Rate (tons/year)	Subject to PSD Review (Y/N)
NO _x	929.0	40	Y
SO ₂	157.2	40	Y
VOC	649.6	40	Y
CO	1,047.8	100	Y
PM (TSP)	279.2	25	Y
PM ₁₀	519.4	15	Y
PM _{2.5} Total	517.4	10	Y
CO ₂ e	12,388,934	75,000	Y
Lead	0.16	0.6	N

³⁸ Ga. Pub. Serv. Comm’n Docket No. 56002: Georgia Power Company’s 2025 Integrated Resource Plan, 2025 Integrated Resource Plan PD at 1.

³⁹ Ga. Pub. Serv. Comm’n Hearing for Docket #56002: Georgia Power Company’s 2025 Integrated Resource Plan, Docket #56003: Georgia Power Company’s 2025 Application for the Certification, Decertification, and Amended Demand-Side Management Plan, Day 1 (Mar. 25, 2025), available at: <https://www.youtube.com/watch?v=Yyf7f8IsHCE>.

⁴⁰ *Id.* at 2.

⁴¹ Env’t Prot. Agency, Clean Air Markets Program Data (2024), available at: <https://campd.epa.gov>.

⁴² *Id.*

⁴³ Georgia Power Company, Title V Permit Application: PSD Application Plant Bowen Units 7-10, Submittal ID: 905935 (Mar. 5, 2025), available at: https://geos.epd.georgia.gov/GA/GEOS/Public/Client/GA_GEOS/Public/Pages/PublicApplicationList.aspx.

⁴⁴ *Id.* at 5.

With all the polluting generation coming and staying online in the state, EPD must consider whether issuing permits for uncontrolled backup diesel generation near Atlanta is at all advisable for public health.

CONCLUSION

For these reasons, EPD should not finalize the Draft Permit as written. First, EPD should respond to the public comments that were submitted as part of the permitting process. Second, EPD should conduct a cumulative impact analysis of the emissions from the Microsoft CCO06 data center combined with other permitted, and pending, diesel generators in the Atlanta area, as well as an alternative impact analysis that considers replacing some or all of Microsoft CCO06's generators with backup batteries or renewable energy. In the alternative, EPD should require the installation of Tier 4 diesel generators (or Tier 2 with SCR), which contain pollution controls to protect public health.

Sierra Club appreciates the opportunity to comment on this Draft Permit.

Sincerely,

/s/ Isabella Ariza

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Exhibit 1



March 7, 2025

BY ELECTRONIC FILING
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Georgia Dept. Natural Resources
Environmental Protection Division
Air Protection Branch
4244 International Parkway, Suite 120,
Atlanta, Georgia 30354

Re: SIP Air Permit Application - Microsoft CCO06 Data Center

On behalf of its nearly 9,000 Georgia members, the Sierra Club submits these comments on Microsoft's SIP Air Permit Application for expansion of a data center located in Palmetto, Georgia. The Application is requesting to build three new buildings with an additional 83 backup diesel generators to be used during power outages. Microsoft seeks to emit more than is necessary for operation and its emissions limits should be lowered. Its diesel generators will endanger the state and county's air quality and particularly affect the children who attend the 22+ schools located within five miles of the Microsoft data center. Battery backups are a better alternative that would prevent Microsoft from experiencing any interruption in service and prevent significant impacts to air quality and thus public health. If battery backups are not available to provide all of Microsoft's necessary backup power, then the Georgia Environmental Protection Division (EPD) should require Microsoft to install diesel generators with more stringent emissions control technology such as Tier 4 or Tier 2 with selective catalytic reduction (SCR). EPD should also consider the cumulative impacts that Microsoft's diesel generators will have on a metropolitan area that already has at least 96 data centers. The issues addressed below are based on publicly available materials, including Microsoft's application, and online materials cited within this comment letter.

MICROSOFT'S APPLICATION

Microsoft submitted an air permit application in January 2025 to expand its data center in Palmetto, within Fulton County, Georgia. If granted, the Application will allow Microsoft to

install an additional 83 Tier 2 diesel backup generators¹, bringing the facility total to 121 diesel generators.²

Georgia Air Quality Rule 391-3-1-.03(10)(b)1(i) sets the major source threshold for each criteria pollutant at 100 tons per year. Microsoft's proposed expansion would raise facility NOx emissions to 249 tpy, making it a major source for NOx but allowing it to avoid PSD requirements.³ In the Application, Microsoft sets a new enforceable NOx limit of less than 250 tpy and states they will be applying for a Title V Operating Permit.⁴ Before issuing a permit, EPD should adopt the recommendations suggested in this comment letter.

Comment No. 1: Microsoft seeks to emit more than is necessary for operation and its emission limit should be lowered.

Georgia EPD must take a hard look at Microsoft's requested emissions limits and not automatically grant Microsoft the emissions limits they seek without a thorough assessment. That assessment should include running all necessary calculations to permit only the amount that Microsoft actually needs. If the 83 backup generators that Microsoft is planning to install are only intended for use during power outages, the requested permit limit is excessive. In Virginia, Microsoft obtained a Title V permit for 165 generators with a NOx limit of 243.2 tpy, yet Microsoft seeks a higher limit of 249 tpy for only 121 generators in Georgia.⁵ This inconsistency raises important questions about whether Microsoft's proposed emissions limits reflect genuine operational needs or whether they are willing to sacrifice the health and well-being of Georgians.

Allowing Microsoft to operate with such a high NOx limit would result in emissions that exceed those of many utility-scale generation facilities in Georgia. Several facilities, such as the Chattahoochee Energy Facility, shown in Table 1, produce less than 249 tpy of NOx.⁶ It is difficult to justify granting Microsoft a permit that allows greater emissions than these power stations, especially given the implications for local air quality and public health.

¹ Microsoft Corp., Construction Permit Application (Jan. 2025) [hereinafter "Application"] at 2, PDF 6.

² *Id.* at PDF 26.

³ *Id.* at PDF 20.

⁴ *Id.* at 4, 6, PDF 8, 10.

⁵ Va. Dept. of Env'tl. Quality., Microsoft Corp – East Coast Data Center Initial TV Permit, Permit No. PRO-21527, (Apr. 24, 2024), available at:

<https://www.deq.virginia.gov/home/showpublisheddocument/25642/638627842668970000>.

⁶ Env't Prot. Agency, 2023 and 2024 Quarterly Power Plant Emissions (2024), available at: <https://www.epa.gov/power-sector/latest-emission-comparisons-pollution-controls>.

Table 1: Quarterly NOx Power Plant Emissions⁷

2023 and 2024 Quarterly Power Plant Emissions, All Units, NO _x						
EPA's Clean Air and Power Division, Data Current as of November 12, 2024						
Facility Name	State	Calendar Quarter	2023 NO _x Emissions (tons)			
Chattahoochee	GA	1	31.8			
Chattahoochee	GA	2	28.9			
Chattahoochee	GA	3	28.0			
Chattahoochee	GA	4	24.1			

To further protect the neighboring community, EPD should impose clear limitations on how long Microsoft is allowed to operate each of its 83 additional generators. These limits should apply both cumulatively and within specific time periods. Such restrictions would help prevent overuse of the diesel generators, which has already been a problem in Georgia. Data centers like QTS, have overused their permitted diesel generators, facing only small penalties.⁸ According to EPD's enforcement order, QTS was found liable for the following infractions:

Not retaining records on the generators for 5 years; not tracking the times the generator was running during the months of May through September; not maintaining the reason for operating the generators; going over the allowed 50 hours of non-emergency use by failing to calculate operating hours during refurbishments of the building and not including the switchgear run hours as part of non-emergency operation; failure to maintain the records giving the reason the generator was operated and records for generator output load; not performing the NO_x testing on the specified generator engines; failing to have the required NO_x emissions records on site and ready for inspection; failing to have the diesel fuel oil receipts, certifications, or analysis on site and ready for inspection.⁹

Based on these permit violations, similar overuse and non-compliance risks exist with Microsoft's operations.

In addition, EPD should set the hourly limitations to be consistent with the final fuel allowances and annual emissions limits. These measures would enhance transparency and provide the impacted communities a better understanding of how frequently Microsoft is operating its diesel generators.

⁷ *Id.*

⁸ Ga. Env'tl. Prot. Div., Enforcement Order EPD-AQC-7419 (2025), available at: <https://enfo.gaepd.org/Details/75108> [hereinafter "EPD Order on QTS Violation"].

⁹ *Id.*

Comment No. 2: The Application, if approved, will allow local air quality to be degraded.

If finalized, the Application will allow Microsoft to install an additional 83 Tier 2 diesel generators, raising concerns about local air quality and public health. Diesel generators generate many harmful pollutants,¹⁰ including “greenhouse gases, particulate matter (PM), volatile organic compounds (VOCs), nitrous oxides (NOx), and sulfur dioxide (SO₂).”¹¹ Compared to power plants, backup generators “can emit several times more pollution from each unit of fuel burned and unit of electricity delivered.”¹² This is precisely why, to protect public health, the developed world relies primarily on large, utility-scale generation rather than distributed fossil generation.

Not only will Microsoft’s diesel generators emit more pollutants per unit of fuel than utility scale generation, such pollutants can also have acute localized effects. Diesel generator pollutants “can create smog and exacerbate respiratory conditions, like asthma, chronic obstructive pulmonary disease, and lung cancer, especially for children and older adults.”¹³ These localized problems occur because, unlike large generation sources, these generators do not have a tall smokestack to disperse the pollutants far above the air that residents breathe or other pollution control equipment that utility-scale facilities must have. This is particularly problematic because “[d]iesel generators tend to be located close to where people live, work, and attend school.”¹⁴ This is true of Microsoft’s data center, which is located within five miles of 22+ schools.¹⁵ The proposed expansion in the Application will add another 83 Tier 2 diesel generators to those already permitted, making localized health effects particularly acute for the students and their families in the area.

¹⁰ Neil D. Strachan & Alexander E. Farrell, Emissions from Distributed Generation, Carnegie Mellon Elec. Indus. Center (2004), available at: <https://bit.ly/3ZVVq8N> (“Uncontrolled diesel engines, such as those from emergency backup generators are not evaluated because previous research has already shown their emissions are very high and regulations typically preclude their use as baseload generation.” *Id.* at 3 (Emphasis original)).

¹¹ M.Cubed, Diesel Back-Up Generator Population Grows Rapidly in the Bay Area and Southern California (2021), available at: <https://bit.ly/3LENog4> [hereinafter “Diesel Back-Up Generation Growth in California”].

¹² Int’l Fin. Corp., The Dirty Footprint of the Broken Grid (Sept. 2019), available at: <https://www.ifc.org/content/dam/ifc/doc/mgrt/20190919-full-report-the-dirty-footprint-of-the-broken-grid.pdf>, at 23, PDF 33.

¹³ Diesel Back-Up Generation Growth in California.

¹⁴ *Id.*

¹⁵ According to Google Maps, Microsoft’s proposed datacenter is within 2 miles of Bear Creek Middle School; within 3 miles of ABC Another Bright Creation, Evoline C. West Elementary School, Palmetto Elementary School, Creekside High School; within 4 miles of Odyssey Montessori Child Care Center, Hopewell UMC Tyrone Preschool, Harvest Rain Early Learning Academy, A Step At A Time Early Learning Academy, Evoline C. West Elementary School, The Right Start Early Learning Center, Robert J. Burch Elementary School, Flat Rock Middle School, Sandy Creek High School; within 5 of miles Precious Ones Daycare, Walk Leap Grow Early Learning Center, Olympus Early Learning Academies, Campbell Elementary School, Canongate Elementary School, Blake Bass Middle School, Global Impact Academy STEM Magnet High School, Northgate High School.

The Microsoft CCO06 data center is located in Fulton County, near communities in the 77th percentile for low income.¹⁶ Thus, these localized emissions are also more likely to affect those of lesser means than data centers in more affluent areas.¹⁷

Georgians need only look to California to see potential impacts to communities by allowing extended generator use. There, increasing wildfire-related outages have led many businesses and residents to rely more heavily on diesel backup.¹⁸ Two districts in California have the generator capacity to power about 15% of California's grid. New research shows that this proliferation in diesel generators will cause \$136 million in annual health costs, "due to increases in mortalities, heart attacks, hospital visits and other adverse consequences."¹⁹ These emissions will also occur during power outages, when low-income individuals are already vulnerable. For instance, during a power outage in the summer, low-income individuals who live near Microsoft's CCO06 data center will be without air conditioning *and* will be faced with a decision of whether to open their windows and be exposed to unnecessarily high emissions or keep their windows shut and bear the brunt of the heat.

We urge EPD to consider the broader cumulative impacts of approving this Application, particularly in an area already burdened with air quality issues and vulnerable populations. We recommend that a more comprehensive health risk assessment be conducted, with special attention to how the proposed generators will impact local communities.

Comment No. 3: Batteries are a better, cleaner alternative that should be considered before the Application is granted.

Microsoft does not need to use diesel generators as much, if at all, to ensure no interruption in service. Because Microsoft's Application admitted that the company does not intend to run its generators but for a short period of time while service is interrupted, battery backups combined with renewable energy is a better, cleaner alternative for Microsoft while protecting the community's air quality.

Renewable energy and battery storage is an investment, but it will pay for itself over time. And that payback period could be shortened considerably when the alternative is considered: running diesel generators that have costly and often volatile fuel prices.²⁰ Battery storage would provide

¹⁶ Env'tl Data & Governance Inst., Climate and Economic Justice Screening Tool (2025), available at: <https://edgi-govdata-archiving.github.io/j40-cejst-2/en/>.

¹⁷ Impoverished individuals are already more likely to have health problems and are also less able to gain access to healthcare should they become sick from localized air pollution. *See* Poverty, U.S. Dep't Of Health And Hum. Services, available at: <https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/poverty>.

¹⁸ Business Wire, New Study Shows a Rapid Increase of Diesel-Fueled Backup Generators Across California (Oct. 6, 2021), available at: <https://bwnews.pr/3yVGc7L>.

¹⁹ *Id.*

²⁰ Chris Isidore & Christopher Hickey, Gas Prices Had a Wild Ride This Year, Making 2023 Tough to Predict, CNN Business (Dec. 29, 2022), available at: <https://cnn.it/3yWlpRE>.

the same dispatchable firm capacity value as a diesel generator, and batteries are readily available and cost-competitive today. Some data centers have been able to use renewable energy and battery storage to operate data centers without grid power usage and without interruptions in power supply.²¹ Others, like Google, are using battery-based systems to replace their back-up diesel generators.²²

From the information available in the Application, it does not appear that battery backup or renewable energy was even considered as a viable alternative, but it should be before permitting diesel generators. For those reasons, we ask that EPD perform an alternative analysis that would study the feasibility of replacing Microsoft's diesel generators with batteries and/or on-site renewable energy and how that would impact emissions.

Comment No. 4: In the alternative, Microsoft should be required to use diesel generators with the most stringent emissions control technology.

Microsoft proposes to purchase diesel generators that comply only with EPA's Tier 2 emissions standards.²³ Tier 2 emissions standards come up short on protecting public health, especially for a project within five miles of 20+ schools. Tier 2 technology allows for massive amounts of NOx emissions, while other technologies –like Tier 4 or Tier 2 with SCR– have more efficient controls that reduce emissions. SCR involves injecting ammonia into exhaust gas where it reacts with NOx to form nitrogen and water, decreasing NOx emissions substantially.²⁴ Tier 4 is a more stringent EPA standard introduced in 2004 for non-road diesel engines that reduces emissions limits for various air pollutants like NOx and particulate matter.²⁵ As shown in Table 2 below, Tier 2 diesel generators emit ten times more NOx pollution than Tier 4 generators or Tier 2 with SCR.

²¹ Eaton, Eaton Provides Webxys' New Eco-Designed Data Center With a Complete Energy Storage & Management System (Nov. 2016), available at: <https://eaton.works/3JThlqz>.

²² Google, 24/7 Carbon-Free Energy: Powering up new clean energy projects across the globe (Apr. 21, 2022), available at: <https://bit.ly/407WUwW>.

²³ Application at 6, PDF 10.

²⁴ Aaron Larson, Understanding Selective Catalytic Reduction Systems and SCR Design Considerations, Power Magazine (Nov. 1, 2023), available at: <https://www.powermag.com/understanding-selective-catalytic-reduction-systems-and-scr-design-considerations/>.

²⁵ 68 Fed. Reg. 38958 (June 29, 2024).

Table 2: Engine Technology Hierarchy²⁶

Table 1: Engine Technology Hierarchy				
Type	Classification		Maximum Operating Service	NO _x Emissions
	State	Federal		
DIESEL ENGINES				
Tier II	Emergency	Emergency	Limit all operation to less than major source levels	18.0 lb/MW
Tier II + SCR*	Non-emergency	Emergency	Limit all operation to less than major source levels	1.8 lb/MW
Tier IV	Non-emergency	Non-emergency	Limit all operation to less than major source levels	1.8 lb/MW
NATURAL GAS ENGINES				
EPA Compliant	Emergency	Emergency	Limit all operation to less than major source levels	6.0 lb/MW
EPA Compliant	Non-emergency	Non-emergency	Limit all operation to less than major source levels	3.0 lb/MW
EPA + Controlled	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.3-1.5 lb/MW
NATURAL GAS SIMPLE CYCLE COMBUSTION TURBINES				
Low-NOx	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.3-0.5 lb/MW
Low-NOx with SCR	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.1 lb/MW
*Where SCR = Selective Catalytic Reduction system = an active air pollution control system that reduces NO _x emissions; a Tier II engine equipped with an add-on SCR is sometimes referred to as a "Tier IV equivalent" engine				

As mentioned in Comment 3, Georgia EPD can protect air quality for Georgians by requiring data centers to install battery storage and renewables as their backup generation instead of diesel generators. But, to the extent they cannot secure all of their backup capacity through renewables, EPD should require that Microsoft incorporate Tier 4 generators or Tier 2 generators with SCR, both of which would reduce harmful emissions and better protect the public.

Virginia, the state with the largest number of data centers in the world,²⁷ recently released a guidance document recommending that data centers incorporate “controlled” generators (Tier 2 with SCR or Tier 4 emissions controls) into their backup generator mix.²⁸ For data centers with a large number of backup generators, they suggested that “100% controlled generators” may be required.²⁹ At least one data center in Virginia has installed this technology. Microsoft Corporation’s datacenter in Warrenton, VA has 13 diesel generators with SCR installed³⁰ and according to the permit, the SCR technology reduces NO_x emissions from the generators by

²⁶ Va Dep’t of Env’tl. Quality, Data Center Air Permit Guidelines (Jan. 17, 2025), available at: <https://www.deq.virginia.gov/home/showpublisheddocument/27424> [hereinafter “Virginia DEQ Guidelines”] at 2.

²⁷ Joint Legis. Audit & Rev. Comm’n, Data Centers in Virginia (2023), available at: <https://jlarc.virginia.gov/landing-2024-data-centers-in-virginia.asp#:~:text=Northern%20Virginia%20is%20the%20largest,of%20capacity%20in%20the%20Americas>.

²⁸ Virginia DEQ Guidelines at 3.

²⁹ *Id.*

³⁰ Va Dep’t of Env’tl. Quality, Stationary Source Permit to Modify and Operate, Registration No.: 74201 (Feb. 8, 2023), available at: <https://www.deq.virginia.gov/home/showpublisheddocument/25952/638633854222530000> at 4, PDF 6.

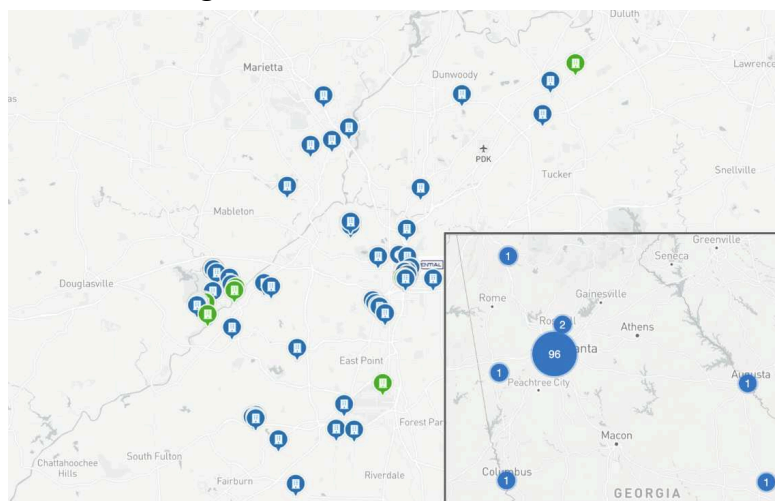
around 90%.³¹ Microsoft should be required to do the same at its CCO06 facility in Georgia, and protect the 22+ nearby schools and their communities.

Georgia needs to act now to ensure the anticipated wave of data center development does not lead to unnecessarily high emissions, which could have catastrophic impacts on communities and schools. With numerous data centers expected to be built in the near future, it is crucial to implement stringent emissions controls from the outset. By requiring the use of Tier 4 or Tier 2 with SCR technology, Georgia can protect public health and the environment while accommodating the growing demand for data centers. Adopting these technologies proactively will help mitigate the impact of increased emissions and set a strong precedent for future developments in the region. While EPD should first require emission-free technologies like battery storage, if Microsoft cannot meet 100% of their backup power needs through batteries and renewable energy, then Microsoft should be required to install either Tier 4 or Tier 2+SCR backup generators to better protect public health. With better technology available, there is no reason to permit greater emissions than necessary.

Comment No. 5: The Application should be considered in the larger context of Georgia's growing number of data centers.

This Application should not be considered in a vacuum. Rather, EPD should take a hard look into the number of data centers in Georgia. The number, particularly in the greater Atlanta area, is growing rapidly. As Figure 1 below shows, Georgia currently has at least 103 data centers, 96 of which are in Atlanta.

*Figure 1: Data Centers in Atlanta*³²



³¹ *Id.* at 10, PDF 12.

³² Data Ctr. Map, Georgia Data Centers (2025), available at: <https://www.datacentermap.com/usa/georgia/>.

While the emissions limits in the Application may not seem high enough to affect the State's air quality, if every data center is allowed similar or higher emissions limits, the State's air quality would be in serious jeopardy. For example, if just 100 data centers in Atlanta were allowed 99.9 tons per year NOx emissions limits per year for their facilities, they would be allowed to emit 9,990 tons of NOx each year. Non-compliant data centers, facing only small penalties, could drive emissions even higher.³³ EPD should at least do a cumulative impact analysis of the permitted emissions from all backup generators at all 96 data centers in the greater Atlanta area so the public can be better informed of the effects of the emissions from such facilities if they ran their generators at the maximum permitted levels during a power outage.

The data centers are also driving load growth, bringing more polluting generation online that degrades air quality. Georgia Power's 2023 IRP Update indicated that "large load projects correspond to the...influx of new businesses coming to Georgia [including] data centers... These projects' sizes far exceed historical annual norms, with some surpassing 1,000 MW".³⁴ To meet this growing demand, Georgia Power plans to build three combustion turbine plants (also called "gas peaker plants"), which will run on oil during peak times when gas is not available. In response to discovery during the 2023 IRP Update before the Georgia Public Service Commission, Georgia Power explained that the new gas peaker plants "will primarily run on fuel oil during peak winter and summer periods when the pipeline is constrained. No [firm transportation] or additional gas capacity is being proposed to support these units since these units can burn oil year around".³⁵

More recently, Georgia Power submitted a load forecast update with the Georgia Public Service Commission showing that these numbers have increased yet again:

As of September 30, 2024, the total pipeline of economic development projects through the mid-2030s has increased by 12,200 MW to 36,500 MW. Of this, 34,600 MW represent large load economic development projects (...) Looking towards the near-term winter of 2028/2029, just as the longer-term total economic development pipeline has grown, the large load pipeline has increased by 6,000 MW now totaling 19,900 MW.³⁶

Finally, Georgia Power's 2025 IRP, filed in January, projects more than 2,200 MW of additional load growth over estimates from just a year ago, driven in large part by data centers.³⁷ Due to this

³³ See EPD Order on QTS Violation.

³⁴ Ga. Power Co., 2023 IRP Update (Oct. 2023), available at: <https://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/2023-irp-update-main-document.pdf> at 9, PDF 13.

³⁵ Ga. Power Co., Response to Public Disclosure Data Request # STF-JKA-2-22 (d).

³⁶ Ga. Pub. Serv. Comm'n Docket No. 55378: Georgia Power Company's 2023 Integrated Resource Plan, Update Large Load Economic Development Report Q3 2024 at 1.

³⁷ Ga. Pub. Serv. Comm'n Docket No. 56002: Georgia Power Company's 2025 Integrated Resource Plan, 2025 Integrated Resource Plan PD at 1.

load growth, Georgia Power plans to continue operating the coal-burning Plants Scherer and Bowen, heavy producers of NOx emissions.³⁸

EPD must take into consideration not only the diesel generators proliferating around Atlanta, but also air pollution from the three new gas peakers plants and the coal plants staying online. The peaker plants are less than 40 miles outside of Atlanta and run on oil during peak times, driving emission from NOx and other pollutants twice as high as if they were run on gas. Coal plants are also extreme NOx polluters. Plant Scherer emitted 7,217 tons of NOx in 2024 alone,³⁹ while Plant Bowen, located just 45 miles north of Atlanta, emitted 1,809 tons of NOx in 2024.⁴⁰ With all the polluting generation coming and staying online in the state, EPD must consider whether issuing permits for uncontrolled backup diesel generation near Atlanta is at all advisable for public health.

CONCLUSION

For these reasons, EPD should not issue a draft permit based on the Application as written. Rather, EPD should first conduct a cumulative impact analysis of the permitted emissions, as well as an alternative impact analysis that considers replacing some or all of Microsoft's Tier 2 diesel generators with backup batteries or renewable energy. In the alternative, EPD should require the installation of Tier 4 diesel generators (or Tier 2 with SCR), which contain pollution controls to protect public health. Sierra Club appreciates the opportunity to comment on this Application.

Sincerely,



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³⁸ *Id.* at 2.

³⁹ Env't Prot. Agency, Clean Air Markets Program Data (2024), available at: <https://campd.epa.gov>.

⁴⁰ *Id.*