Suraj Mirpuri

In Oregon, when data centers seek permitting for these kinds of backup generator systems, there are incentives that fast track permitting if the operators install catalytic convertors, filters, and scrubbers / other technological mitigations (example included via attached screenshots).

Have the operators been asked to install such mitigations such that when backup power is enabled the environmental impact is mimimal, as a condition of permitting; and that the public cost of bearing air pollution externalities are addressed somewhat via the operator's increased capital expenditure?

Before this was even requested, has the operator been asked to invest the same capital expenditure in solar with backup systems or other rewnewable sources?

Furthermore, has noise pollution been studied? What are the results and have mitigations been requested so as not to disturb local residents or wildlife?

Since 2018, Oregon has seen a rapid expansion of data centers that aligns with trends seen throughout country and around the world. As of 2025, Oregon has over 40 data centers either permitted or proposed which includes 6,000 megawatt (MW) of backup electrical generating capacity which is double the average MW usage of all the homes in Oregon.

At present, all data centers in Oregon rely on the typical electrical grid for their primary power needs, but also use diesel-powered engines to provide backup power in the event of an electrical outage. Most existing data centers in Oregon use EPA Tier 2 certified engines (Tier 0 engines emit the most pollution while Tier 4 emit the least). These Tier 2 engines do not use pollution controls and emit Diesel Particulate Matter (DPM), Fine Particulate Matter ($PM_{2.5}$), Nitrogen Oxides (NOx), Volatile Organic Compounds (VOC) and other pollutants. Newer technology is now available that controls DPM, NOx and VOC. With use of these control devices, Tier 2 engines can meet Tier 4 emission standards, reducing emissions of toxic air contaminants and criteria pollutants, which leads to greater protection of public health and the environment.

Therefore, DEQ is incentivizing the installation of Tier 2 engines with these controls (Tier 4 emissions equivalent) at data centers by providing efficiencies to the application and permitting processes and decreasing processing timelines. DEQ's approach eliminates the need for facility-specific dispersion modeling for short-term NAAQS compliance and the Cleaner Air Oregon Level 3 risk assessment process. DEQ believes these permits will be protective of public health and the environment and result in emissions reductions.

Three Process Components

The proposed approach is only for data centers installing Tier 2 engines with pollution controls (operating at Tier 4 emission levels).

- **Short-term NAAQS Compliance:** (See DEQ's Short-Term NAAQS webpage for more information about these standards)
    - **1-hour NO_2 NAAQS:** The pollutant of concern for Tier 4 compliant backup engines is NO_X, since it takes approximately 15 - 20 minutes for Selective Catalytic Reduction (SCR, NO_X controls) to reach a desirable temperature to become fully functional. DEQ established a data center specific significant emission threshold (SET) of 50 pounds/hour NO_X for regularly scheduled testing and maintenance scenarios. This excludes emergency operation or commissioning (initial startup of a new engine). This SET incorporates the intermittent operation of these engines and deemed protective of the short-term standard. When facility-wide hourly emissions are below the 50 pounds/hour level, refined dispersion modeling for short-term NO_2 NAAQS compliance is not required.
    - **$PM_{2.5}$ NAAQS:** DEQ determined that a SET for $PM_{2.5}$ is not necessary because any data center who wishes to use this expedited permit process will be required to install Diesel Particulate Filters (DPF) on the Tier 2 engines. DPFs can control $PM_{2.5}$ emissions immediately upon startup of the engine. Further, DEQ determined that a facility in compliance with the Data Center SET for NO_X, will also be in compliance with the 24-hour $PM_{2.5}$ NAAQS.
    - **SO2 NAAQS:** SO_2 emissions are expected to be in compliance with NAAQS since sulfur content of fuel is limited by federal standards (New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines, NSPS IIII) and back up engines can only run on ultra-low sulfur fuel. Therefore, DEQ determined that a facility in compliance with the Data Center SET for NOx, will also be in compliance with the 1-hour SO_2 NAAQS.
- **Cleaner Air Oregon Risk Assessment:** DEQ developed a CAO Data Center Tool that conducts a risk assessment and produces annual and daily fuel limits based on stack and building heights, engine fuel usage and meteorology corresponding to a specific facility. This tool meets the criteria of a Level 2 Risk Assessment.
- **Tier 4 Data Center Permit Template:** DEQ created a data center permit template to standardize permit conditions for the data center facilities with Tier 4 compliant engines and to expedite permit drafting.

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Three Process Components

Qualification

A data center applying for a permit using this expedited process should expect the following permit conditions:

- All critical-load backup engines[1] are required to be EPA Tier 2 certified[2].
- All critical-load backup engines are required to have control technologies, including but not limited to:
    - Selective catalytic reduction (SCR), diesel oxidation catalyst (DOC) and diesel particulate filter (DPF);
      OR
    - SCR and catalyzed DPF (cDPF).
- Data centers can choose to demonstrate compliance with SET using one of the following two options:
    - A Testing and Maintenance (T&M) plan and SET analysis.
        - A SET analysis demonstrates how the facility will keep their emissions below the 50 lbs/hour NO_x SET. For example, a facility might elect to calculate hourly emissions below the 50 pounds/hour of NO_x by only operating two engines at a time. Calculations showing emissions below the 50 pounds/hour NO_x SET at all operating scenarios of the T&M have to be included.
          OR
    - Calculation of the maximum number of emergency generator engines that can be operated during one hour, using the equation in the permit template that DEQ developed for the short-term NAAQS compliance demonstration. This equation will be incorporated as a permit condition.

[1] "Critical-load engine" is used here to refer to a stationary engine that supplies emergency backup power to equipment in one or more data center rooms. "Non-critical-load engines," by contrast, do not supply emergency backup power to equipment in data center rooms, but instead may be used onsite for ancillary facility-power needs, such as to back up load for cooling, security, or interior/exterior lighting.
[2] Certified to Tier 2 emission standards and 40 CFR 60 subpart III.