



# Air Quality Program Policy

Policy Title: **AQP-POL-2022 Data Center Permitting**  
Date initially issued: **June 16, 2021**  
Date last revised: **October 19, 2022**

**Authority:** Chapter 173-400 WAC

## Policy on Data Center Permitting

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### Purpose:

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This policy directs Ecology engineers permitting data centers to include conditions for data center permits while providing operational flexibility to the permittee and ensuring public health protection. The intent of this policy is to provide consistency across our regions.

### Applicability:

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This policy applies to data centers in Ecology's air quality jurisdiction. Data centers that are subject to this policy have emergency engines with a cumulative 2000 break horsepower (bhp) or greater and are used primarily for data storage purposes.

### General Assumptions:

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1. Use worst-case load conditions: Ecology recommends using worst-case scenario assumptions for dispersion modeling including scenarios where equipment is potentially not operating as indicated/documentated in the equipment specification sheets such as with SCR at low loads (possibly by including temperature or flowrate buffers to modeled emissions based on test data). If the worst-case assumptions show compliance with air quality permitting requirements, then actual conditions (most likely not worst-case) will also comply with air quality requirements. Accordingly, Ecology engineers permitting data centers will:
  - Identify emission rates: For each pollutant, identify emission rates at various loads by looking at manufacturer "Not-To-Exceed" (NTE) or "site variation" values. Use the worst-case load emission rate for dispersion modeling and include cold start factors. The worst-case load conditions can be found under the "Not-To-Exceed" (NTE) or

“site variation” section of the manufacturer specification sheets in units of mechanical megawatts (MWm) or break horsepower (bhp).

- Identify impacts: For short-term and long-term impacts, identify and model the load that produces the highest ambient impacts per averaging period, taking into account emission rate, flow rate, and temperature at that load.
- Specific operating temperatures, flow rates, and individual load limits, should not be listed as conditions in the permit, unless the engineer deems it necessary and provides justification in the TSD.

## 2. Modeling:

- Use this approach to determine the amount of time (in days) that must be modeled emergency engine use to account for unplanned electrical outage:
  - Double the product of the highest Customer Average Interruption Duration Index (CAIDI) and the highest System Average Interruption Frequency Index (SAIFI) over the most recently available 5-year period.<sup>1</sup>

Example: if the SAIFI value in the last 5 years is 3, and the longest amount of time for any individual outage (CAIDI) is 75 minutes (1.25 hours), the amount of hours modeled would be 8 hours/year (3 times 1.25 = 3.75, rounded up to 4 times 2)<sup>2</sup>.

- Or work with the permittee to decide on a similar approach, if the listed resources (CAIDI and SAIFI) are not available.
- Description of local background details for modeling:
  - Ecology permitting staff should be consulted to determine the most representative background concentration for each pollutant of interest.
  - Permitting staff will recommend some combination of regional backgrounds from the [NW-AIRQUEST tool](#),<sup>3</sup> [EPA’s NATA tool](#),<sup>4</sup> and/or explicit modeling of selected sources nearby.

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<sup>1</sup> Maximum of the average number of outages in any year over the last 5 years for the area [include site specific factors if applicable (ex: facility has its own transformer, etc.) multiplied by (longest duration of any individual outage)] and then round this value up to integer hours and multiply by a buffer factor of 2.

<sup>2</sup> Work with Ecology modelers to determine the appropriate number of days to model.

<sup>3</sup> <https://idahodeq.maps.arcgis.com/apps/MapSeries/index.html?appid=0c8a006e11fe4ec5939804b873098dfe>

<sup>4</sup> <https://www.epa.gov/national-air-toxics-assessment>

- For diesel engine exhaust, particulate (DEEP) and NO<sub>2</sub> in Quincy: Refer to hyper-local backgrounds contributed by all sources, including regional background.<sup>1</sup>
- If an applicant uses Ecology's Monte Carlo post-processing script<sup>2</sup> to model NO<sub>2</sub> for NAAQS compliance purposes, the script will also output an NO<sub>2</sub> Tier I screening metric. The applicant should forward this output to Ecology's toxicologist to determine if an NO<sub>2</sub> Tier II demonstration is required.
- Permitting: The permit must have a total hourly limit so that Title V is not triggered. If emissions from the facility do trigger Title V, the facility has 1 year to address Title V requirements.

### 3. Source Testing

- Initially: as soon as possible after commissioning, test at least one representative engine for each size engine from each manufacturer using the full 5-mode test. The testing is meant to demonstrate compliance with the applicable tier emission limits and to account for site specific parameters. The selection of the engine(s) to be tested is subject to prior approval by Ecology and must be defined in the source test protocol submitted to Ecology no less than 30 days in advance of any compliance-related stack sampling.
- 60 months after the initial testing is performed, and every 60 months thereafter, test at least one engine using the full 5-mode test, including the engine with the most operating hours as long as it is a different engine from that which was tested during the previous 60-month interval testing. The testing is meant to demonstrate compliance with the applicable tier emission limits. The selection of the engine(s) to be tested is subject to prior approval by Ecology and must be defined in the source test protocol submitted to Ecology no less than 30 days in advance of any compliance-related stack sampling.
- Preconditioning engines for source testing:
  - The amount of preconditioning allowed for a source test must be preapproved by Ecology as part of the source test protocol.
  - Preconditioning approaches may vary depending on facility. The Ecology inspector will decide what level of preconditioning best matches the intent of engine preconditioning for a specific facility source test as stated in 40

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<sup>1</sup> <https://waecy.maps.arcgis.com/apps/MapSeries/index.html?appid=12d296d4ce9c41ffba73175b76ad8716>

<sup>2</sup> Contact Ecology modelers for the latest version.

C.F.R. 1065.518(b), which is “to manage the representativeness of emissions and emission controls over the duty cycle and to reduce bias.”

- Post source test not-to-exceed (NTE) factors of any kind (these NTE factors are different than manufacturer specification sheet NTE values listed in part 1 of this document), must not be applied to exhaust emission results from source tests or to permit emission limits. This includes, but is not limited to the following NTE factors:
  - New Source Performance Standards (NSPS) 40 CFR 60 Subpart IIII NTE value of 1.25 for Tier 2 and Tier 3 engines found in [40 CFR 60.4212 \(c\)](#)
  - NTE value of 1.5 for Tier 4 engines found in [40 CFR 1039.101\(e\)\(3\)](#)

### **Deviation from this Policy:**

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Deviations from this policy may result in more stringent permit requirements that for the applicant. than those recommended by this policy Any such deviations from this policy will be documented in writing at or before the time of permit issuance.

### **Additional Best Engineering Practice Recommendations:**

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Ecology also recommends the following best engineering practices:

Occasional auditing or review of stack test data (by the minor NSR workgroup or subtask group) can be helpful. This could include but is not necessarily limited to comparing specification temperature/flowrates to actual stack test temperature/flowrates. Although measured temperature during a stack test is not expected to match the modeled temperature (because site configuration is different from manufacturer configuration on spec sheets), the ratio could provide a signature (or f-factor) for that type of engine that can inform future decisions. Care should be taken from drawing conclusions from such an audit because a stack test is just one snapshot in time. Over time, and with multiple stack tests however, such information could be useful.

## Policy Document History

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This policy rescinds all previous guidance/policy documents on data centers.

## Approval Authority

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Rob Dengel  
Air Quality Program,  
Deputy Program Manager

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## ADA Accessibility

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The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

To request an ADA accommodation, contact Ecology by phone at 360-407-6831 or email at [ecyadacoordinator@ecy.wa.gov](mailto:ecyadacoordinator@ecy.wa.gov). For Washington Relay Service or TTY call 711 or 877-833-6341. Visit [Ecology's website](#) for more information.