The Trident Generator Yard in Plain Language

Author: Raymond L. Czaplewski, Ph.D.; Environmetrika; October 28, 2026
Project: Trident Data Center at Windler (Application DA-1707-46)
Applicant: Vantage Data Centers Management Company, LLC
Baseline document: *Trident Generator Yard* (Third Resubmittal), Environmental Justice (EJ) review

Public-Interest & Public-Record Notice: This document is a non-commercial civic summary prepared for public education, journalism, and municipal/state permitting review on a matter of public concern. All factual citations are drawn directly from official public records on file with the City of Aurora and the Colorado Department of Public Health and Environment (CDPHE). All runtime and fuel-burn totals are explicitly labeled hypothetical mathematical projections based on disclosed assumptions, not assertions of actual or permitted operation. See the full *Legal Notice & Public-Record Disclaimer* at the end of this preface.

Why this document exists

The Trident Data Center would be built as two large buildings, called **CO21** (south, Phase 1) and **CO22** (north, Phase 2), along the east side of N. Tibet Road. Like most data centers, it needs backup power. If the electric grid fails, large diesel generators start up so the computers keep running.

Summary of Key Findings: The proposed Trident Data Center at Windler (Application DA-1707-46) is a hyperscale campus spanning roughly 862,000 square feet across two large buildings—CO21 (Phase 1, south) and CO22 (Phase 2, north)—along N. Tibet Road in Aurora. The campus is designed for **334 megawatts (MW) of IT compute capacity and approximately 500 MW of total electrical demand** once cooling plants, lighting, and auxiliary systems are included (*Source:* public statements by Vantage Data Centers VP of Global Marketing Mark Freeman). To keep servers and cooling systems operating during power outages, the facility relies on industrial 3.0-MW diesel backup generators, each equipped with a 5,600-gallon belly fuel tank and a 30-foot-8-inch enclosure and exhaust stack assembly.

Public records currently show three different generator counts without reconciling them: public company statements cite **28 generators** (84 MW total capacity; 160,000 gallons of stored diesel), the applicant's site plan drawings depict **80 generator pads** across the two buildings (240 MW; 450,000 gallons), and a pre-application filing with the Colorado Department of Public Health and Environment (CDPHE) evaluates up to **209 generators** (630 MW; 1.2 million gallons).

This analysis assumes routine maintenance testing (40 hours/year) alongside expected (50 to 100 hours/year) and worst-case (500 hours/year) emergency outage scenarios. Depending on the final fleet size (28, 80, or 209 generators) and annual runtime (40 maintenance hours up to 500 emergency hours), total annual emissions could range from **0.74 to 9.2 tons/year of fine particulate matter (PM2.5)** and **22 to 280 tons/year of nitrogen oxides (NOx)** for 28 generators, **2.1 to 26 tons/year of PM2.5** and **63 to 790 tons/year of NOx** for 80 generators, and up to **5.5 to 69 tons/year of PM2.5** and **170 to 2,100 tons/year of NOx** under the 209-generator layout. Because the site lies in a state-designated Socioeconomically Vulnerable Community, CDPHE expects pre-application community engagement before a formal air permit application is filed.

Questions this baseline helps the community ask

1. Which number of industrial sized diesel generators is correct: 28, 80 or 209? Which will the applicant be held to in the permit?
2. If more pads are drawn than the permit allows, what limits the actual count?
3. Has Vantage held the community meeting the state expects before applying? When, where, in which languages, and with what notice?
4. Will Vantage offer air monitoring, home air filters, or other measures the state suggests?
5. How will the screen wall look from the road and from neighboring homes?
6. How are 450,000 or more gallons of diesel stored and protected on site?

Sources: the applicant's Site Plan (Sheets 7–9, 66–104) and the CDPHE EJ Concur file dated May 5, 2026 (letter and the applicant's April 2026 submission).

The short version

- **The Site Plan for the Trident Data Center at Windler, submitted to the City of Aurora on September 28, 2026, draws 80 generator locations.** There are 40 for each building. Each building has 32 in a long "generator yard" on its west side, facing Tibet Road, and 8 more beside its cooling plant. The Trident campus is designed for

approximately 500 MW of total electrical demand.

- **Three different counts are in circulation:**

Source	Generators	What it means
Vantage Data Centers public statement (VP Mark Freeman)	**28**	The figure reported in the media. This statement is not in the state EJ file and was not independently verified here.
Applicant's site plan drawings	**80** (40 per building)	What is physically drawn on the plan
Applicant's consultant (Ramboll) memo in the state EJ file*	**209** (178 Tier 2 + 31 Tier 4 engines) **or 28** (all Tier 2) for the **whole facility**	Two contradictory designs submitted by Vantage Data Centers and their contractor

*Source: *EJ Concur_4-21-2026_85953599_4-21-2026.pdf* (p. 14, Ramboll Americas Engineering Solutions, Inc. memorandum submitted on behalf of Vantage Data Centers Management Company, LLC).

- **Each generator is very large.** The memo describes a 3-megawatt MTU diesel engine with a 5,600-gallon fuel tank built into its base.
- **The documents do not explain why the counts differ.** The site plan has no written total. The 80 comes from counting drawn pads. Reconciling 28, 80 and 209 is a question for the applicant and the regulators.

What the totals could add up to

These are simple multiplications from the per-unit figures (3 MW and 5,600 gallons per generator) for the 500MW Trident campus. They are not measured values from the application.

Scenario	Generators	Backup power	Diesel on site	Fuel truck deliveries required per year*
Smaller design (Freeman public statements)	28	84 MW	160,000 gal	20 trucks
Site plan layout	80	240 MW	450,000 gal	56 trucks
Larger design (Ramboll memo)	209	630 MW	about 1.2 million gal	150 trucks

*Assumes each generator's 5,600-gallon sub-base belly tank is filled to 100% capacity using standard highway diesel tanker trucks carrying 8,000 gallons per delivery (rounded to 2 significant digits).

How big and how visible

These dimensions come **only from the site plan** (Sheet 99), not from the state EJ file. The generator cutsheet is stamped "Conceptual Only."

- Each generator housing is about **47 feet long, 13 feet wide and 15 feet tall**. Exhaust stacks add another **15 feet**, for a total of about **30 feet 8 inches** above the pad.
- Generators are placed in **nose-to-nose pairs**. Each pair is about **94 feet long** and has four exhaust stacks.
- Each generator yard is about **699 feet long**, roughly two football fields. The two yards together run about **1,400 feet** (2 city blocks) along Tibet Road.
- A **perforated metal screen wall** about **30 to 31 feet tall** would face the road. The generator stacks rise only about 8 inches above it. The wall is about 40% open, so it softens the view but does not fully hide the equipment or provide any mitigation of high-energy low-frequency and infrasound fugitive emissions.

How long could the generators run, and how much diesel would that burn?

Neither the baseline nor the state EJ file states how many hours the generators would run. The hours below are **planning assumptions, not filed numbers**. The actual limits would be set in the air permit application, which is not part of the administrative record.

How the figures were calculated:

- Fuel burn is about **203 gallons per hour per generator at full load**. This is an engineering benchmark from the project's analysis reports. It is not a Vantage figure.

- Real loads are often lower. At about 75% load, burn would be roughly 20% lower.
- Each generator's built-in tank holds **5,600 gallons**, which lasts about **27 hours** at full load. Longer runs would need fuel deliveries.

Two kinds of running

- **Maintenance and testing** is routine running to keep the equipment ready. This preface assumes **40 hours per generator per year**, the figure used in the project's analysis reports. Vantage told the state it would do testing and maintenance in **daytime hours only**.
- **Emergency power** is running during a real grid outage. It happens only when the grid fails. Federal rules for emergency engines generally cap testing and maintenance hours but do not cap true emergency running. This general description has not been confirmed against the Trident permit.

Emergency run-hour scenarios (per generator, per year)

Scenario	Emergency hours	Diesel fuel per generator (rounded to 2 sig. digits)
Expected, low	**50 hours**	**10,000 gal/yr**
Expected, high	**100 hours**	**20,000 gal/yr**
Worst case	**500 hours**	**100,000 gal/yr**

Annual air pollutant emissions (tons per year, separated by operating-hour and fleet assumptions)

(All emission totals below are rounded to 2 significant digits.)

Pollutant & Fleet Assumption	40 hours/year (Maintenance)	50 hours/year (Expected, low)	100 hours/year (Expected, high)	500 hours/year (Worst case)
Fine particulate matter (PM2.5)[1] — Per generator	**0.026 tons/yr**	**0.033 tons/yr**	**0.066 tons/yr**	**0.33 tons/yr**
Fine particulate matter (PM2.5)[1] — 28 generators	**0.74 tons/yr**	**0.93 tons/yr**	**1.9 tons/yr**	**9.2 tons/yr**
Fine particulate matter (PM2.5)[1] — 80 generators (site plan)	**2.1 tons/yr**	**2.6 tons/yr**	**5.3 tons/yr**	**26 tons/yr**
Fine particulate matter (PM2.5)[1] — 209 generators	**5.5 tons/yr**	**6.9 tons/yr**	**14 tons/yr**	**69 tons/yr**
Nitrogen oxides (NOx)[2] — Per generator	**0.79 tons/yr**	**0.99 tons/yr**	**2.0 tons/yr**	**9.9 tons/yr**
Nitrogen oxides (NOx)[2] — 28 generators	**22 tons/yr**	**28 tons/yr**	**56 tons/yr**	**280 tons/yr**
Nitrogen oxides (NOx)[2] — 80 generators (site plan)	**63 tons/yr**	**79 tons/yr**	**160 tons/yr**	**790 tons/yr**
Nitrogen oxides (NOx)[2] — 209 generators	**170 tons/yr**	**210 tons/yr**	**410 tons/yr**	**2,100 tons/yr**

[1] **Fine particulate matter (PM2.5) assumptions:** Calculated for 3.0 MW (≈4,000 bhp) diesel generators operating at 100% full load under standard EPA Tier 2 emergency standby certification (0.20 g/kWh or 0.15 g/bhp-hr, yielding 0.00066 tons/hr per generator; 40 CFR § 89.112 / Subpart IIII). Nearly all diesel particulate matter (DPM) consists of fine particles ≤2.5 microns in diameter (PM2.5). Per the Ramboll EJ memo, 100% of the 28-engine option and 178 of the 209 engines in the larger option are EPA Tier 2. *(If fitted with Tier 4 Final active Diesel Particulate Filters at 0.03 g/kWh, single-generator PM2.5 emissions would be ≈0.0040 tons/yr at 40 hr, ≈0.0050 tons/yr at 50 hr, ≈0.010 tons/yr at 100 hr, and ≈0.050 tons/yr at 500 hr.)*

[2] **Nitrogen oxides (NOx) assumptions, smog/surface ozone formation, and Denver Metro national rankings:** Calculated for 3.0 MW (3,000 kWe) diesel generators operating at 100% full load under EPA Tier 2 certification at an emission factor of 6.0 g NOx/kWh (yielding 0.020 tons/hr per generator, within the 6.4 g/kWh NMHC+NOx Tier 2 limit under 40 CFR § 89.112). *(For the 31 engines in the 209-engine option equipped with EPA Tier 4 Final Selective Catalytic Reduction [SCR] at 0.67 g NOx/kWh, single-generator NOx emissions would be ≈0.089 tons/yr at 40 hr, ≈0.11*

tons/yr at 50 hr, ≈0.22 tons/yr at 100 hr, and ≈1.1 tons/yr at 500 hr.) **Role in "smog" and surface ozone & national rankings:** Nitrogen oxides (NOx) are primary chemical precursors to ground-level (tropospheric) ozone—the main component of photochemical **"smog."** In sunlight and warm temperatures, NOx reacts with volatile organic compounds (VOCs) to form surface ozone, a corrosive respiratory irritant that triggers asthma attacks, aggravates chronic lung and heart disease, and impairs lung development in children. The U.S. EPA has classified the Denver Metro / North Front Range airshed (including Aurora) as a **"Severe" Nonattainment Area** for federal 8-hour ozone standards, where the Clean Air Act Title V Major Source threshold is 25 tons/year of NOx. Nationally, the Denver–Aurora metropolitan region consistently ranks among the **6th to 8th worst metropolitan areas in the United States for ground-level ozone (smog) pollution** and among the **top 15 to 20 worst U.S. metropolitan areas for short-term fine particulate matter (PM2.5) spikes** (American Lung Association, *State of the Air* reports).

Total annual diesel consumption for the entire Trident campus (gallons per year)

The table below shows total diesel fuel burned in **gallons per year (`gal/yr`) across the entire Trident campus** (CO21 and CO22 combined), assuming every generator runs at full load for the stated annual hours. Emergency hours are in addition to the 40 annual maintenance hours. *(All fuel totals below are rounded to 2 significant digits.)*

Annual Scenario (Entire Trident Campus)	28 generators (campus total, gal/yr)	80 generators — site plan (campus total, gal/yr)	209 generators (campus total, gal/yr)
Maintenance and testing only (40 hr/yr)	230,000 gal/yr	650,000 gal/yr	1,700,000 gal/yr
Emergency 50 hr/yr	280,000 gal/yr	810,000 gal/yr	2,100,000 gal/yr
Emergency 100 hr/yr	570,000 gal/yr	1,600,000 gal/yr	4,200,000 gal/yr
Emergency 500 hr/yr (worst case)	**2,800,000 gal/yr**	**8,100,000 gal/yr**	**21,000,000 gal/yr**

Adding the 40 maintenance hours to each generator's annual emergency run gives about 18,000 gallons/year (90 hours/year), 28,000 gallons/year (140 hours/year), and 110,000 gallons/year (540 hours/year) per generator.

For scale, a standard fuel tanker truck carries about 8,000 gallons. The 28-generator worst case of about 2.8 million gallons per year across the entire Trident campus would require roughly 350 tanker truck loads in a single year.

Why it matters: the number of generators and the number of hours multiply together. Fuel use, exhaust emissions and noise all scale with both. The answers to "28, 80 or 209?" and "how many hours?" together set the size of the impact.

About the state "EJ Concur" document

The file *EJ Concur_4-21-2026_85953599_4-21-2026.pdf* is **not an air permit**. It is a **pre-application Environmental Justice (EJ) review**. Colorado requires it before a company applies for an air construction permit. It has three parts:

1. **A May 5, 2026 letter from the Colorado Department of Public Health and Environment (CDPHE)** to Vantage (EJ Verification No. 85953599). It confirms the site is in a **Disproportionately Impacted, Socioeconomically Vulnerable** community. State screening flagged high levels of housing cost burden, people of color, air toxics, asthma hospitalizations, children under five, and linguistically isolated residents.
2. **The EJ form Vantage submitted on April 21, 2026.** It describes a construction permit for "an increase in emissions" at "Project Trident Data Center," near the NW corner of 48th Ave and E-470 in Aurora. The facility has never held an air permit.
3. **A memo from Vantage's consultant, Ramboll.** This is where the 28-engine and 209-engine options come from. It describes a "synthetic minor source" permit and emergency-only generators. Vantage said it would limit generator testing and maintenance to daytime hours. It would also add Tier 4 engines with emission controls (selective catalytic reduction), but **only in the larger design**.

Summary of Pollution, Health, and Social Indicators (Pages 21–22 of the *EJ Concur* File)

Appendix 2 of *EJ Concur_4-21-2026_85953599_4-21-2026.pdf* (pages 19–24) contains CDPHE's official **Colorado EnviroScreen 2.0 Environmental Justice Report** for the project area (Adams County Census Block Group 080010083541). Under Air Quality Regulation 3, the neighborhood is designated in red on page 19 as a **Disproportionately Impacted, Socioeconomically Vulnerable Community** because **62% of residents are people of color** (exceeding the 40% regulatory threshold) and **61% of households are housing-cost burdened** (exceeding the 50% threshold), with an overall Demographics vulnerability score at the **84th percentile** (page 20).

On **pages 21 and 22**, the report breaks down individual **Pollution and climate indicators** and **Health and social indicators**. CDPHE **redlines (highlights in red) every indicator above the 80th percentile**, flagging metrics where the neighborhood already carries a heavier burden than at least 80% of Colorado communities and where heightened permitting scrutiny is warranted:

- **Redlined "Pollution and climate indicators" (Page 21):** Three environmental burdens exceed the 80th-percentile redline cutoff, led by **Impaired streams and rivers (99th percentile)** and **Air toxics emissions (99th percentile)** —placing the neighborhood in the worst ~1% of Colorado communities for existing air-toxics exposure—along with **Other air pollutants (86th percentile)**. In addition, **Fine particle pollution (PM2.5)** sits just below the redline cutoff at the **77th percentile**, alongside **Floodplains (76th percentile)** and **Proximity to hazardous waste facilities (74th percentile)**.
- **Redlined "Health and social indicators" (Page 22):** Six of the fifteen health and demographic indicators are redlined above the 80th percentile, and five exceed the **94th percentile** statewide:
  - **Asthma hospitalization rate: 97th percentile** (worse than nearly 97% of Colorado neighborhoods)
  - **Population under five years of age: 96th percentile** (young children with developing lungs)
  - **Housing cost burdened: 96th percentile** (households spending >30% of income on housing)
  - **Linguistic isolation: 95th percentile** (underscoring the need for translated notices and interpretation)
  - **Diabetes index: 94th percentile** (adult diabetes prevalence)
  - **People of color: 88th percentile**

Together, pages 21 and 22 show that the proposed generator yards would introduce new diesel NOx and PM2.5 exhaust into a neighborhood already redlined in the **worst 2% statewide for air toxics** and the **worst 4% statewide for both asthma hospitalizations and children under age five**.

Recommended community outreach

CDPHE recommends outreach in three tiers. Examples:

- **Baseline:** a public listening session; **translation** (for example Spanish) of materials and meetings; plain-language summaries; meetings on weekday evenings or weekends in accessible places; hybrid or virtual options; **30 days' notice**; a website with frequently asked questions; **printed information to homes within 1 mile**; and a phone line and email for comments.
- **Midpoint:** notices at community centers, health centers and libraries **within 1 mile**; notice to childcare facilities and school parent-teacher groups within 1 mile; plain-language materials on **health risks**; childcare stipends; interpreters; surveys; and open houses.
- **Advanced:** investment in **health clinics and air monitoring** near vulnerable people such as schools and nursing homes; **free home air filters or monitors**; outreach to school districts; and one-on-one stakeholder meetings.

Is the outreach mandatory, and when must it occur?

- **The detailed list is recommended, not required.** The letter says Vantage "should strongly consider" outreach before it applies.
- **One thing is stated as an expectation.** "At a minimum," the state expects **at least one community meeting before the permit application is submitted.** The letter uses the word "expects," not "requires." It cites no penalty and does not say the application would be denied without it.
- **Timing:** outreach is meant to happen **before the permit application is submitted**. If it is still planned or ongoing, Vantage may add updates and documentation to the application afterward. Anything added becomes part of the permit record.
- **What is required:** the application must **include the full EJ Concur document**, and Vantage is asked to attach documentation of any outreach it did. The letter warns that an application without the EJ document "may be rejected as incomplete."
- **What the state regulation says (Colorado Air Quality Control Commission Regulation 3, Part B, Section III.B.5):** it requires a verified EJ Summary before a construction permit application in these cases. It also has the applicant report any outreach that is planned or done. Based on secondary summaries of the rule, it does not appear to make a pre-application public meeting a legal prerequisite. The primary rule text could not be retrieved for this preface, so confirm the wording with CDPHE or the regulation itself.
- **Vantage's own commitments:** its form says it will hold regular neighborhood town halls and keep meeting with the Windler master plan community and neighboring landowners. On whether it had done enhanced outreach before applying, it answered **"Planned, in progress, or to be determined."** That form does not show whether any

meeting has happened.

- **Air monitoring:** the letter notes that new **community air-monitoring fees may apply** because the site is in a vulnerable community. Whether they apply depends on the permit application.

Things to keep in mind

- **Names and details differ between documents.** The state file calls the project "Project Trident" and also "CO-2 Data Center." The site plan uses CO21 and CO22. The CDPHE letter lists census block group **080010083541**, while the Ramboll memo lists **080010083531**. The state file never cites application number DA-1707-46. These appear to describe the same project but are worth confirming with staff.
- **Phase 2 is future construction.** The CO22 layout mirrors CO21, and the plan notes that some of its details are "to be similar to CO21."
- **Final models and dimensions could change** because the generator drawings are conceptual.
- **This document does not say how many hours the generators would run.** That information would be in the permit application itself.

Legal Notice, Public-Record Disclosure & First Amendment / Anti-SLAPP Statement

1. **Protected Public Participation and Petitioning Activity:** This preface and the attached baseline index are published solely for non-commercial public education, news reporting, neighborhood awareness, and civic participation regarding matters of significant public concern pending before executive and legislative bodies of the City of Aurora (Planning & Development Services Application No. DA-1707-46) and the State of Colorado (Colorado Department of Public Health and Environment, Air Pollution Control Division, Environmental Justice Verification No. 85953599). This publication constitutes constitutionally protected speech and petitioning activity under the First and Fourteenth Amendments to the United States Constitution, Article II, Section 10 of the Colorado Constitution, the *Noerr-Pennington* doctrine, and Colorado's anti-SLAPP statute, **C.R.S. § 13-20-1101**.
2. **Fair and Accurate Report of Official Public Records:** All descriptions of project plans, generator pad counts, equipment dimensions, engine specifications, and environmental justice screening indicators are good-faith, substantially accurate summaries of official government records and filings submitted by or issued to the applicant (*Trident Data Center_Site Plan.pdf* and *EJ Concur_4-21-2026_85953599_4-21-2026.pdf*), and are protected by the common-law and statutory fair-report privilege. Readers are encouraged to inspect the underlying public records directly.
3. **Disclosed-Facts Opinion and Mathematical Scenarios Only:** Where this document presents aggregate electrical capacity, diesel storage volume, annual operating-hour scenarios (40, 50, 100, and 500 hours/year), or fuel-consumption estimates (at an engineering benchmark of ~203 gallons/hour), those figures are **explicitly disclosed arithmetic projections and analytical hypotheses**, not assertions of undisclosed fact or representations of the applicant's actual or permitted operating schedule. Under settled First Amendment law (*Milkovich v. Lorain Journal Co.*, 497 U.S. 1 (1990); *NBC Subsidiary (KCNC-TV), Inc. v. Living Will Center*, 879 P.2d 6 (Colo. 1994); Restatement (Second) of Torts § 566), deductions, inferences, and commentary based on fully disclosed public-record facts and stated assumptions are non-actionable expressions of opinion and scientific/civic analysis.
4. **No Allegation of Unlawful Conduct or Bad Faith:** Nothing in this document alleges or implies that Vantage Data Centers Management Company, LLC, its affiliates, officers, or engineering consultants have engaged in unlawful conduct, fraud, regulatory evasion, or bad faith. Differences among public media figures (28 generators), site-plan pad drawings (80 generator pads), and pre-application air-permitting design options (28 or 209 engines) frequently arise during iterative engineering, phased master planning, and alternative permitting evaluations, and are highlighted here solely as legitimate questions for public and regulatory clarification.
5. **No Legal, Engineering, or Regulatory Advice; Invitation to Correct:** This document is a lay summary prepared for informational purposes only and does not constitute legal, engineering, or environmental-compliance advice. If the applicant, its consultants, or any reviewing agency identifies any factual inaccuracy or wishes to provide updated permit filings or written clarification reconciling the figures summarized here, such clarifications are welcomed for inclusion in subsequent revisions.

Trident Data Center at Windler (DA-1707-46): Diesel Generator Count, Size & Site Plan Sheet Index

Project: Trident Data Center at Windler (Application No. `DA-1707-46`) | **Applicant:** Vantage Data Centers Management Company, LLC | **Primary Sources:** `Trident Data Center_Site Plan.pdf` & CDPHE EJ Summary (`EJ Concur_4-21-2026_85953599_4-21-2026.pdf`, p. 14)

Below is the complete breakdown of the **number** and **size** (electrical, fuel capacity, and physical enclosure/stack dimensions) of the diesel backup generators for the **Trident Data Center at Windler** (`Application No. DA-1707-46`), separated by **Building CO21 (Phase 1)**, **Building CO22 (Phase 2)**, and **Combined (Full Build-Out)**, followed by a complete **Sheet-by-Sheet and Detail-by-Detail Index** from `Trident Data Center_Site Plan.pdf` and `EJ Concur_4-21-2026_85953599_4-21-2026.pdf`.

1. Number of Diesel Generators (`CO21`, `CO22`, and `Combined`)

While the text of `Trident Data Center_Site Plan.pdf` omits any written numerical total of generators, **Sheet 90, Detail `01 SIGNAGE SITE PLAN`** (along with the architectural elevations on **Sheets 91–92** and cross-sections on **Sheet 99**) graphically draws and labels **80 individual generator pads** across four zones labeled `"GENERATORS"`:

A. Graphical Generator Pad Count on the Site Plan (Sheet 90, Detail `01`)

- **Building CO21 (Phase 1 — Southern Building):** `40 Generator Pads`
  - **CO21 West `EQUIPMENT YARD` (`699'-2"` long × ~`130'` wide):** Contains **2 north–south columns of 16 generator pads each = `32 generator pads`** (arranged as 16 nose-to-nose tandem pairs of walk-in enclosures, with `16` outer-row stack enclosures visible along the west screen wall in **Sheet 91, Detail `03`**).
  - **CO21 East `CCP YARD (CENTRALIZED CHILLER PLANT)`:** Contains **1 north–south column of `8 generator pads`** explicitly labeled `"GENERATORS"` along the eastern edge of the CO21 chiller yard (house/auxiliary backup generators serving the cooling plant).
  - **CO21 Subtotal:** 32 + 8 = **40 generator pads**.
- **Building CO22 (Phase 2 / `FUTURE CONSTRUCTION` — Northern Building):** `40 Generator Pads`
  - **CO22 West `EQUIPMENT YARD` (`699'-2"` long × ~`130'` wide):** Identical mirror layout to `CO21`, containing **2 north–south columns of 16 generator pads each = `32 generator pads`** (16 tandem pairs; `16` outer-row stack enclosures shown in **Sheet 92, Detail `03`**).
  - **CO22 East `CCP YARD`:** Contains **1 north–south column of `8 generator pads`** explicitly labeled `"GENERATORS"` along the eastern edge of the CO22 chiller yard.
  - **CO22 Subtotal:** 32 + 8 = **40 generator pads**.
- **Combined Campus Total (`CO21 + CO22`) on Site Plan:** `80 Generator Pads`
  - **West Equipment Yards Combined (`CO21 + CO22`):** 32 + 32 = **64 generator pads** (32 tandem pairs).
  - **East CCP Yards Combined (`CO21 + CO22`):** 8 + 8 = **16 generator pads**.
  - **Grand Total (`CO21 + CO22`):** 40 + 40 = **80 generator pads**.

B. Comparison with CDPHE Air-Permit Filing & Vantage Public Statements

As documented in `EJ Concur_4-21-2026_85953599_4-21-2026.pdf` (p. 14) and public media statements by Vantage executives:

1. **28-Generator Claim (Vantage Public Statements & CDPHE Smaller Option):** Vantage VP Mark Freeman publicly stated the campus would use **"28 emergency diesel backup generators across the two planned buildings"** (**14 generators in `CO21`** and **14 generators in `CO22`**, or **28 in `CO21` Phase 1** plus **28–32 in `CO22` Phase 2 = 56–60 combined** if `28` referred only to Phase 1).
2. **80-Pad Site Plan Layout (`Sheet 90, Detail 01`): 40 generator pads in `CO21` + 40 generator pads in `CO22` = 80 generator pads combined**.

3. **209-Generator CDPHE Alternative Design (`EJ Concur` , p. 14):** CDPHE disclosed an alternative larger configuration of **209 diesel generator engines combined** (**178 Tier 2 + 31 Tier 4** MTU 3-MW engines, or ~**104–105 engines per building**).

2. Generator Size & Technical Specifications

A. Engine, Electrical Capacity, and Fuel Tank Size (Per Unit)

- **Source:** CDPHE Environmental Justice Summary (`EJ Concur_4-21-2026_85953599_4-21-2026.pdf` , p. 14).
- **Engine Make & Model: MTU 20V4000 DS3000** (Rolls-Royce Power Systems 20-cylinder V-configuration, 4-stroke turbocharged aftercooled diesel engine, 95.4-liter displacement).
- **Electrical Output per Generator: 3.0 MW (3,000 kW / 3,750 kVA)** standby electrical rating (~4,023–4,492 bhp mechanical output).
- **EPA Emissions Tier: EPA Tier 2** (under the 28-engine option) or **178 Tier 2 + 31 Tier 4** (under the 209-engine option).
- **Sub-Base Belly Tank Fuel Capacity: 5,600 gallons of ultra-low-sulfur diesel (ULSD)** per generator unit.

B. Physical Enclosure, Belly Tank & Exhaust Stack Dimensions (Per Unit & Tandem Pair)

- **Source:** `Trident Data Center_Site Plan.pdf` , **Sheet 99 (`SCREENING AT EQUIPMENT YARD`)**, **Detail `01 GENERATOR CUTSHEET`** (`Scale: 1/2" = 1'-0"`) and **Detail `03 GENERATOR YARD SECTION`** (`Scale: 1/32" = 1'-0"`).
- **Manufacturer & Drawing Reference on Sheet 99, Detail `01` : ACS Manufacturing, Inc. (Denison, TX) / Curtis Power Solutions**, Quote No. `202311031` , Job Name `VDC` , Drawing Nos. `13546-10, 13547-10, 13548-10, 13549-10, 13550-10, 13551-10` (`Rev. CONCEPT` , dated `05/10/24`), stamped in red: *"CONCEPTUAL ONLY — This drawing is currently in the initial design process. It has not been released for fabrication and is for REFERENCE ONLY."*

Dimension Parameter	Single Generator Unit (`1 Unit`)	Tandem Nose-to-Nose Pair (`2 Units` on Sheet 99, Detail `01`)	Sheet & Detail Reference
Enclosure Length	**`46'-9"` (`561"`)** *(comprising `24"` intake louvers + `36"` intake baffles + `208"` rear section + `72"` mid section + `249"` front/discharge section)*	**`93'-8"` (`1,124"`)** *(two `561"` enclosures placed nose-to-nose with a `2"` **gap** between units at the center discharge plenum)*	**Sheet 99, Detail `01`** (`PLAN VIEW` & `ELEVATION VIEW`)
Sub-Base Belly Tank Length × Height	**`35'-9"` (`429"`) long × `2'-1"` (`25"`) high** *(5,600-gal double-wall steel base tank under the main frame)*	Two `429"` (`35'-9"`) tanks beneath the paired enclosures	**Sheet 99, Detail `01`** (`ELEVATION VIEW`) & **CDPHE EJ p. 14**
Enclosure Width	**`13'-2"` (`158"`)** enclosure body width (**`13'-10"` [`166"`]** overall width including `8"` side channels/stairs)	**`13'-2"` (`158"`)** body width (**`13'-10"` [`166"`]** overall width)	**Sheet 99, Detail `01`** (`PLAN VIEW` & `END VIEW`)
Enclosure Body Height (Excluding Stacks)	**`13'-1"` (`157"`)** acoustic housing height + `4"` roof w/ `2"` pitch (**`13'-6"` [`162"`]** shipping height) sitting on the **`2'-1"` (`25"`)** belly tank = **`15'-2"` (`182"`)** to roof	**`15'-2"` (`182"`)** from concrete pad to top of enclosure roof	**Sheet 99, Detail `01`** (`ELEVATION VIEW` & `END VIEW`)
Exhaust Stack Diameter & Extension Height	Dual **`20"` diameter exhaust pipes** merging via **`36"` wye spools** into vertical exhaust stacks extending **`15'-0"` (`180"`)** above the enclosure roof	**4 vertical exhaust stacks** (2 per unit) at the center of the tandem pair, extending **`15'-0"` (`180"`)** above roof	**Sheet 99, Detail `01`** (`PLAN VIEW` & `ELEVATION VIEW`)

Dimension Parameter	Single Generator Unit (`1 Unit`)	Tandem Nose-to-Nose Pair (`2 Units` on Sheet 99, Detail `01`)	Sheet & Detail Reference
Total Installed Height (Base of Tank to Top of Stack)	`30'-8"` (`368"`) **above pad grade** (`25"` belly tank + `157"` enclosure + `6"` roof/flange + `180"` stack)	`30'-8"` (`368"`) **above pad grade** *(projects* ***`8"` above*** *the* ***`30'-0"`*** *surrounding* `MT13` *perforated screen wall)*	**Sheet 99, Detail `01` & Detail `03`; Sheets 91 & 92, Detail `03`**

3. Summary Comparison: Separated by `CO21`, `CO22`, and `Combined`

Metric / Specification	Building CO21 (Phase 1 — South)	Building CO22 (Phase 2 — North)	Combined Total (`CO21 + CO22`)
1. Site Plan Graphical Layout (`Sheet 90, Detail 01`)			
• West `EQUIPMENT YARD` Generator Pads	**32 pads** *(2 columns × 16; 16 tandem pairs)*	**32 pads** *(2 columns × 16; 16 tandem pairs)*	**64 pads** *(32 tandem pairs)*
• East `CCP YARD` Generator Pads	**8 pads** *(1 column × 8 along east edge)*	**8 pads** *(1 column × 8 along east edge)*	**16 pads** *(2 columns × 8)*
• Total Site Plan Generator Pads	**40 generator pads**	**40 generator pads**	**80 generator pads**
• Electrical Capacity (`@ 3.0 MW / pad`)	**120 MW** *(96 MW West Yard + 24 MW CCP)*	**120 MW** *(96 MW West Yard + 24 MW CCP)*	**240 MW** *(192 MW West Yards + 48 MW CCP)*
• Diesel Fuel Stored (`@ 5,600 gal / pad`)	**224,000 gallons** *(179,200 West + 44,800 CCP)*	**224,000 gallons** *(179,200 West + 44,800 CCP)*	**448,000 gallons**
• West Generator Yard Length & Screen Height	`699'-2"` **long**; `30'-0"` **to** `31'-0"` screen wall (`22'-0"` – `23'-0"` panel + `8'-0"` base gap)	`699'-2"` **long**; `30'-0"` screen wall (`22'-0"` panel + `8'-0"` base gap)	Two `699'-2"` yards (`1,398'-4"` combined linear length along Tibet Rd)
2. Public / CDPHE 28-Engine Option (`EJ Concur p. 14`)			
• Generator Count (if split evenly across 2 bldgs)	**14 generators** *(or* ***28*** *if Phase 1 only)*	**14 generators** *(or* ***28–32*** *if Phase 2 matches)*	**28 generators** *(or* ***56–60*** *if 28 per phase)*
• Electrical Capacity (`@ 3.0 MW / unit`)	**42 MW** *(or* ***84 MW*** *if 28 in CO21)*	**42 MW** *(or* ***84–96 MW*** *in CO22)*	**84 MW** *(for 28 units)*
• Diesel Fuel Stored (`@ 5,600 gal / unit`)	**78,400 gallons** *(or* ***156,800 gal****)*	**78,400 gallons** *(or* ***156,800 gal****)*	**156,800 gallons** *(for 28 units)*
3. CDPHE 209-Engine Option (`EJ Concur p. 14`)			
• Generator Count (`178 Tier 2 + 31 Tier 4`)	**~104–105 generators**	**~104–105 generators**	**209 generators**
• Electrical Capacity (`@ 3.0 MW / unit`)	**~312–315 MW**	**~312–315 MW**	**627 MW**
• Diesel Fuel Stored (`@ 5,600 gal / unit`)	**~582,400–588,000 gallons**	**~582,400–588,000 gallons**	**1,170,400 gallons (~1.17 million gal)**

4. Complete Sheet-by-Sheet & Detail-by-Detail Index in `Trident Data Center_Site Plan.pdf`

Sheet No.	Sheet Title	Relevant Detail / View / Keynote No.	Generator Information Shown on Sheet (`C021`, `C022`, or `Combined`)
Sheet 7	`PHASING PLAN` (`Scale: 1" = 200'`)	Plan View & `PHASING NARRATIVE` Notes `1` & `2`	**Combined (`C021` & `C022`):** Labels the `C021` `GENERATOR YARD` inside the green **Phase 1** boundary (`Note 1`: *"Development of the southern data center building, associated chiller plant and generator yard"*) and the `C022` `GENERATOR YARD` inside the blue **Phase 2** boundary (`Note 2`: *"Development of the northern data center building, associated chiller plant and generator yard"*).
Sheets 8 & 9	`OVERALL SITE PLAN` (`Scale: 1" = 200'`)	Main Plan View & `SITE PLAN NOTES`	**Combined (`C021` & `C022`):** Shows the overall site layout, setbacks, and footprints of the `C021` `GENERATOR YARD` (south) and `C022` `GENERATOR YARD` (north) along the eastern side of N. Tibet Road.
Sheet 66	`OVERALL LANDSCAPE PLAN` (`Scale: 1" = 250'`)	Overall Plan View	**Combined (`C021` & `C022`):** Labels both the southern (`C021`) and northern (`C022`) `GENERATOR YARD` enclosures and shows perimeter buffer landscaping along N. Tibet Road.
Sheets 67, 71, 72, 75, 79	`LANDSCAPE PLAN` (`Scale: 1" = 40'`)	Enlarged Quadrant Views (`Matchlines 67/71/72/75/79`)	**Separated by Quadrant (`C021` on Sheets 75 & 79; `C022` on Sheets 67, 71 & 72):** Enlarged `1" = 40'` views showing the individual generator pads, concrete aprons, security fencing, and screening wall alignments around the `C021` and `C022` `GENERATOR YARD` areas.
Sheet 90	`C02 SIGNAGE SITE PLAN` (`Scale: 1" = 200'-0"`)	**Detail `01` (`SIGNAGE SITE PLAN`)** + Section/Elevation Callouts `01/91` – `05/91`, `01/92` – `05/92`, `03/99`	**Combined & Separated (`C021` and `C022`):** The primary master equipment plan showing all **80 generator pads** in four zones explicitly labeled **`"GENERATORS"`**: • **`C021` West `EQUIPMENT YARD` (`699'-2"` long):** 2 columns × 16 = **32 generator pads**. • **`C021` East `CCP YARD`:** 1 column × 8 = **8 generator pads**. • **`C022` West `EQUIPMENT YARD` (`699'-2"` long):** 2 columns × 16 = **32 generator pads**. • **`C022` East `CCP YARD`:** 1 column × 8 = **8 generator pads**.

Sheet No.	Sheet Title	Relevant Detail / View / Keynote No.	Generator Information Shown on Sheet (CO21 , CO22 , or Combined)
Sheet 91	CO21 - ELEVATIONS (Scale: 1" = 60'-0")	• **Detail 01 (CO21 - SOUTH ELEVATION)** • **Detail 02 (CO21 - NORTH ELEVATION)** • **Detail 03 (CO21 - WEST ELEVATION)** • **Detail 04 (CO21 - WEST ELEVATION [FACADE ONLY])** • **Detail 05 (CO21 - EAST ELEVATION)** • **Keynotes 13 , 14 , 16 , 18 , 20 , 21**	**Building CO21 Only:** • **Detail 01 (South) & Detail 02 (North):** Show the 131'-4" wide north/south ends of the CO21 West Generator Yard enclosed by a **31'-0" tall** screen wall (23'-0" MT13 perforated panel over 8'-0" chain-link base, Keynote 14), with Keynote 13 (GENERATOR (TYP.)), Keynote 18 (CABLE BUSES), and Keynote 20 (TRANSFORMER (TYP.)). • **Detail 03 (West):** Full **699'-2"** west elevation showing **16 GENERATOR STACK enclosures** (Keynote 13) projecting slightly above the **30'-0" tall** (22'-0" panel + 8'-0" base) MT13 perforated screen wall (Keynote 14) and SCREEN WALL GATE (Keynote 16). • **Detail 04 (West Facade Only):** Shows the CO21 west wall behind the generators with Keynote 18 (CABLE BUSES), Keynote 20 (TRANSFORMER (TYP.)), and Keynote 21 (BUSWAY SUPPORT FRAMING).
Sheet 92	CO22 - ELEVATIONS (Scale: 1" = 60'-0")	• **Detail 01 (CO22 - NORTH ELEVATION)** • **Detail 02 (CO22 - SOUTH ELEVATION)** • **Detail 03 (CO22 - WEST ELEVATION)** • **Detail 04 (CO22 - WEST ELEVATION [FACADE ONLY])** • **Detail 05 (CO22 - EAST ELEVATION)** • **Keynotes 13 , 14 , 16 , 20**	**Building CO22 Only:** • **Detail 01 (North) & Detail 02 (South):** Show the north/south ends of the CO22 West Generator Yard with a **30'-0" tall** screen wall (22'-0" MT13 panel over 8'-0" chain-link base, Keynote 14). • **Detail 03 (West):** Full **699'-2"** west elevation showing **16 GENERATOR STACK enclosures** (Keynote 13: GENERATOR (TYP.)) along the **30'-0" tall** MT13 perforated screen wall (Keynote 14) and gates (Keynote 16). Includes callout: *"NOTE TO REVIEWER: FUTURE BUSWAY LAYOUT TO BE SIMILAR TO CO21 - REFERENCE CO21 ELEVATIONS."* • **Detail 04 (West Facade Only):** Shows Keynote 20 (TRANSFORMER (TYP.)) along the CO22 west building wall.

Sheet No.	Sheet Title	Relevant Detail / View / Keynote No.	Generator Information Shown on Sheet (`CO21`, `CO22`, or `Combined`)
Sheet 99	`SCREENING AT EQUIPMENT YARD`	• **Detail `01` (`GENERATOR CUTSHEET`, `Scale: 1/2" = 1'-0"`)** • **Detail `02` (`SCREENING DIAGRAM`, Isometric)** • **Detail `03` (`GENERATOR YARD SECTION`, `Scale: 1/32" = 1'-0"`)**	**Typical for Both `CO21` & `CO22`:** • **Detail `01` (`GENERATOR CUTSHEET`):** ACS Manufacturing / Curtis Power Solutions engineering drawing (`Quote 202311031`, `05/10/24`, stamped *"CONCEPTUAL ONLY"*) with `PLAN VIEW`, `ELEVATION VIEW`, and `END VIEW` giving exact dimensions: **`561"` (`46'-9"`)** single enclosure length, **`1,124"` (`93'-8"`)** paired length with `2"` center gap, **`429"` × `25"`** (`35'-9"` × `2'-1"`) belly tank, **`158"` (`13'-2"`)** width (`166"` overall), **`157"` (`13'-1"`)** housing height, dual **`20"` dia. / `180"` (`15'-0"`) tall** exhaust stacks, and **`368"` (`30'-8"`)** total height. • **Detail `02` (`SCREENING DIAGRAM`):** 3D cutaway isometric view of the two tandem columns of generators behind the perforated metal screen wall. • **Detail `03` (`GENERATOR YARD SECTION`):** East–west sightline cross-section from `PEDESTRIAN VIEW FROM ACROSS TIBET ROAD` through the `8'-0"` `BUFFER WALL`, the **`30'-0"` `SCREEN WALL`** (`22'-0"` panel + `8'-0"` bottom opening), the two columns of **`GENERATOR W/ ENCLOSURE`** units (`30'-8"` tall), and the two-story `ELECTRICAL ROOM` (`38'-6"` lower + `12'-6"` upper).
Sheet 103	`CO21 PRIMARY AND SECONDARY FACADE RENDERING`	• Bottom Rendering: **`BUILDING CO21 - SECONDARY FACADE`** • **Keynotes `13`, `14`, `16`, `18`, `22`**	**Building `CO21` Only:** Perspective 3D rendering of the `CO21` West Generator Yard showing `Keynote 13` (`GENERATOR (TYP.)`), `Keynote 14` (`PERFORATED PANEL SCREEN WALL (MT13) + CHAINLINK FENCE` — `Centria EcoScreen`, **40% open area**), `Keynote 16` (`SCREEN WALL GATE`), `Keynote 18` (`CABLE BUSES`), and `Keynote 22` (`TRANSFORMER PAD`).
Sheet 104	`CO2 LANDSCAPE AND SCREENING RENDERING`	• **Views `1A / 1B`** (SW View from Tibet Rd — Day 01 & Future) • **Views `2A / 2B`** (West View from Tibet Rd — Day 01 & Future) • **Keynotes `04` & `05`**	**Combined (`CO21` & `CO22`):** Street-level perspective renderings from N. Tibet Road calling out `Keynote 04` (`EQUIPMENT SCREENING - PERFORATED METAL PANEL SCREENING SYSTEM ABOVE CHAINLINK SECURITY FENCE`) and `Keynote 05` (`GENERATOR STACK SCREEN ENCLOSURE`) protruding along the top of the `CO21` and `CO22` equipment yards.