

Dear Permitting Program Staff:

Hello, I am writing to request the denial of the Air Quality Permit submitted by Yucca Growth Infrastructure, LLC to power Project Jupiter, the hyperscale data center campus proposed for Santa Teresa, New Mexico. Currently, this Air Quality Permit proposes to utilize a microgrid powered by Bloom Energy solid oxide fuel cells to generate electricity for Project Jupiter. While Yucca Growth Infrastructure claims that these fuel cells will produce “low emissions” and will require “only minimal maintenance-related water use,” this is untrue. In this comment, I will explain why.

Rare Earth Elements (REEs):

First and foremost, there has been much research surrounding solid oxide fuel cells. While these fuel cells may produce “low emissions,” this is overshadowed by the fact that these fuel cells utilize rare Earth elements, shortened to REE, to function.

Obtaining REEs is a threat to human health. REEs are acquired through mining (e.g. overburden, waste rock, sub-ore stockpile, ore stockpile). These minerals are then processed through beneficiation (e.g. grinding, flotation, thickening, separation, drying) and extraction (e.g. hydrometallurgy, electrometallurgy, pyrometallurgy).¹

As a result of this mining, several serious environmental issues arise. This includes:

- contamination of surrounding soils and water systems
- concentrated contamination through radioactive tailings and acid mine drainage
- long-range contamination affecting other ecosystems
- groundwater pollution

¹ See Robert J. Weber and David J. Reisman, *Rare Earth Elements: A Review of Production, Processing, Recycling, and Associated Environmental Issues*, U.S. Environmental Protection Agency (May 21, 2012), <https://www.clu-in.org/download/issues/mining/weber-presentation.pdf>.

- soil degradation and vegetation destruction²

Communities situated in mining areas experience long-term exposure to these REEs, introducing a myriad of health issues. This has been established by many research articles.³ Health issues include:

- permanent lung damage
- intrauterine damage to fetuses (damage to the fetus in the womb)
- toxic effects on the respiratory system, inc. inflammation, granulomatous degeneration (deterioration of immune cells), pulmonary fibrosis (thickening of lung tissue, impairing oxygen flow), pneumoconiosis (irreversible lung disease), and lung cancer
- decreased cell viability and enhanced apoptotic (cell death) ability, causing damage to the DNA
- neurological diseases, inc. motor/sensory impairments and neurodegeneration
- reduced intelligence and motor ability in children
- neural tube defects⁴ in children, potentially inducing conditions like partial/complete paralysis, learning/intellectual disabilities, stillbirth, etc.
- impaired central nervous system development in children
- severe neurosis
- leukopenia (low white blood cell count)
- increase telomerase activity in human peripheral blood monocytes (increasing risk of inflammation and cancer)
- lymphoma and leukemia (blood cancers)
- anemia (low red blood cell count)
- atherosclerosis (build up of sticky plaque, which restricts blood flow)

² See Yong-He Han et al., *Environmental impacts of rare earth elements mining and strategies for sustainable management: A comprehensive review*, Journal of Hazardous Materials (vol. 500, 5 December 2025), <https://doi.org/10.1016/j.jhazmat.2025.140400>.

³ See Antonios Apostolos Brouziotis et al., *Toxicity of rare earth elements: An overview on human health impact*, Sec. Toxicology, Pollution and the Environment (vol. 10, 6 September 2022), <https://doi.org/10.3389/fenvs.2022.948041>; Xiangbo Yin et al., *The potential environmental risks associated with the development of rare earth element production in Canada*, Environmental Reviews (12 March 2021), <https://doi.org/10.1139/er-2020-0115>; Jie Zhou et al., *Environmental exposure to rare earth elements and respiratory health: an emerging public health concern*, Sec. Environmental Health and Exposome (vol. 14, 14 April 2026), <https://doi.org/10.3389/fpubh.2026.1811406>.

⁴ See Neural Tube Defects (NTDs), NIH, [Neural Tube Defects \(NTDs\) | NICHD - Eunice Kennedy Shriver National Institute of Child Health and Human Development](https://www.nichd.nih.gov/health/topics/neural-tube-defects).

- impaired male reproduction, inc. impaired spermatogenesis (the production of sperm), reduced sperm quality, and testicular tissue damage
- impaired female reproduction, inc. spontaneous abortion, fetal cleft lip and palate of child, increased risk of stillbirth or neonatal death (death after the first 28 days of child's life)
- osteoporosis (weak bones) and reduced bone density
- gastrointestinal injury
- thyroid dysfunction
- impaired immune system
- and more⁵

While mining, REEs seep into the atmospheric particulate. As a result of natural causes (e.g. the wind) as well as anthropogenic means, the toxic effects of REEs disperse considerably from their source. Those extracting REEs and individuals who work in recycling facilities become expose to “significant amounts of REEs through inhalation, ingestion, and skin contact.” Seemingly unconnected parties may become affected through the digestion of livestock (as rare Earth materials are included in feed additives) or even fruits and vegetables (as REEs accumulate in the soil, roots, and tops of plants due to their inclusion in pesticides, herbicides, and fertilizers). The significance of these effects are exacerbated by the fact that these pollutants have nondegradable components and long half-lives. This means that these harmful effects exist in the environment for prolonged periods of time.³

REEs are essential to the production of Bloom's microgrid. The utilization of these REEs will greatly harm local communities. This would go against several of the New Mexico Environmental Department's goals, including preventing and abating air pollution as well as ensuring no New Mexican must endure the disproportionate burden of environmental injustice.

⁵ See Wenyu Wang et al., *Toxic Effects of Rare Earth Elements on Human Health: A Review*, *Toxics* (vol. 12, 26 April 2024), <https://doi.org/10.3390/toxics12050317>.

Another byproduct of Yucca Growth Infrastructure’s microgrid is the amount of heat used and emitted from the operation of the source.

In order to function, solid oxide fuel emissions cells require an exorbitant amount of heat, up to 800 degrees Fahrenheit.⁶ This heat quickly degrades materials used for the microgrid, reducing overall life expectancy and requiring replacement of parts.

This heat creates a so-called anthropogenic “heat island,” contributing to global warming and negative health impacts.⁷ In Santa Teresa, New Mexico, summers are already very hot, with a majority of residents relying on inefficient swamp coolers. If this permit is approved, the probability of heat exhaustion and heat stroke in residents worsens. Moreover, extreme heat also aggravates health risks associated with chronic conditions, particularly ones associated with cardiovascular, mental, respiratory, and diabetes conditions.⁸ This microgrid, only a few feet from the Santa Teresa High School, would impact the health of residents of Santa Teresa and the nearby town of Sunland Park.⁹ This is especially preeminent based upon the towns’ demographics:¹⁰

	Santa Teresa	Sunland Park
Hispanic Population	83.7% (5.06k)	93.6% (16.3k)
Below Poverty Line	23.9% (1.4k)	22.4% (3.88k)
Population on Medicaid	31.1% (1.9k)	37.8% (6.6k)
Population on Medicare	7.95% (467)	6.55% (113)
Total Residents	5.87k	17.3k

⁶ See Muhammad Taqi Mehran et al., *A comprehensive review on durability improvement of solid oxide fuel cells for commercial stationary power generation systems*, Applied Energy (vol. 352, 15 December 2023), <https://doi.org/10.1016/j.apenergy.2023.121864>.

⁷ See David J. Sailor et al., *Data Center Waste Heat as an Emerging Urban Thermal Hazard: First Field Measurements of Neighborhood-Scale Air Temperature Impacts*, Journal of Engineering for Sustainable Buildings and Cities, (vol. 7, May 2026), <https://doi.org/10.1115/1.4071922>.

⁸ See Heat and health, World Health Organization, [Heat and health](#).

⁹ See Climate Santa Teresa – New Mexico, U.S. Climate Data, [Climate Santa Teresa - New Mexico and Weather averages Santa Teresa](#); Tiffany T. Smith, Benjamin F Zaitchik, and Julia M Gohlke, *Heat waves in the United States: definitions, patterns and trends*, Climate Change (vol. 118, 1 June 2014), <https://doi.org/10.1007/s10584-012-0659-2>.

¹⁰ See Santa Teresa, NM, Data USA, [Santa Teresa, NM | Data USA](#); Sunland Park, NM, Data USA, [Sunland Park, NM | Data USA](#).

These selected groups are particularly vulnerable because of environmental racism, classism, ageism, and ableism. Time and time again, racial discrimination has influenced the prominence of pollution and other environmental justice issues in certain areas of the United States. This can be seen with cases such as the poisoning of predominately Black Triana residents by the Olin Corporation (see case *Olin v. Insurance Company*, 1991) or the ignorance surrounding the development of energy resources on Native American reservations.¹¹ This can be further examined with the disproportionate siting and discrimination thesis, in which race and class determine where hazardous facilities will be placed. This is evidenced by sociologist Robert Bullard's work in 1983, in which Bullard ascertained that the location of waste dumps in Houston were solely located in non-White neighborhoods, with 4/5 dumps in predominately Black neighborhoods and the fifth being in a predominately Hispanic neighborhood. Another study by the United Church of Christ in 1987 found that 3/5 of the largest hazardous waste landfills in the United States as well as 3/5 uncontrolled toxic waste sites were situated in predominantly Black or Hispanic communities.¹² In Santa Teresa and Sunland Park specifically, there have been several occurrences of environmental injustice, including the towns' drinking water contaminated with arsenic since 2023 in addition to a large regional landfill situated within Sunland Park city limits.¹³

Individuals living in poverty cannot easily relocation from dangerous or pollution areas because of lack of resources. Moreover, because of this lack of resources, community members do not have the resources to fight against large corporate control.¹⁴ This thought can be extended towards people who are elderly and/or disabled. For residents of Santa Teresa and Sunland Park, the utilization of Bloom Energy solid oxide fuel cells will only further exacerbate the environmental justices residents must manage in conjunction with their daily life.

¹¹ See Dorceta Taylor, *Toxic Exposure: Landmark Cases in the South and the Rise of Environmental Justice Activism in Toxic Communities*, <https://doi.org/10.18574/nyu/9781479805150.003.0006>; Dorceta Taylor, *Internal Colonialism: Native American Communities in the West in Toxic Communities*, <https://doi.org/10.18574/nyu/9781479805150.003.0008>.

¹² See Dorceta Taylor, *Disproportionate Siting: Claims of Racism and Discrimination in Toxic Communities*, <https://doi.org/10.18574/nyu/9781479805150.003.0007>.

¹³ See Southern Communities Clean Water Fight; Data Center Threats, New Mexico Water Advocates, [Southern Communities Clean Water Fight; Data Center Threats - New Mexico Water Advocates](#); Sunland revisited: people, power and environmental justice on the U.S.-Mexico border, KUNM, [Sunland revisited: people, power and environmental justice on the U.S.-Mexico border](#).

¹⁴ See John Iceland, *Poverty in America: A Handbook*

Air Pollution:

Lastly, this microgrid is estimated to emit 10,144,115 metric tons of CO₂ annually, according to Yucca Growth Infrastructure's application for its proposed microgrid. These emissions will significantly increase the CO₂ in the atmosphere and increase global warming. This amount is greater than even coal plants, such as the Four Corners Steam Plant in San Juan, New Mexico.¹⁵

The impacts of extracting REEs and utilizing excessive amounts of heat will harm human health. Thus, the Air Quality Permit submitted by Yucca Growth Infrastructure should be denied. If the Air Quality Permit is not denied, then a public hearing must take place to hear from future affected community members. This should occur in Santa Teresa in both English and Spanish with a hybrid online option available. Furthermore, all permit information, including the application, in Spanish should be provided to the public.

¹⁵ See Four Corners Steam Plant (24 June 2026), [Four Corners Steam Plant - Global Energy Monitor](#).