April 28, 2025

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Re: EISX-455-00-000-1730803146 Allen Aeroderivative Combustion Turbine Project – Comments of the Southern Alliance for Clean Energy

On March 13, 2025, the Tennessee Valley Authority (TVA) issued a Draft Environmental Impact Statement (DEIS) for the proposed construction and operation of six fossil gas-fired aeroderivative combustion turbines (Aero CTs) at the existing Allen Combustion Turbine (ACT) site located in Memphis, Tennessee. This was done in accordance with the National Environmental Policy Act (NEPA), which requires federal agencies such as TVA to "consider" the effects of proposed projects on the human and natural environment prior to final decision-making. The proposed CTs (GE LM2500s) could generate 200 MW of electricity. CTs in this configuration are often called "peakers," and aeroderivative combustion turbines are *similar to jet engines*. Four of the proposed CTs would have black start capabilities.

The stated purpose and need of the proposed action is to "generate approximately 200 MW of dispatchable power to help meet the growing system demand and load growth experienced in the TVA power service… increase the flexibility and reliability of the TVA power system by improving TVA's transmission system stability in western Tennessee…(and) expand and integrate renewable energy resources onto its transmission grid." (DEIS iii-iv)

The DEIS assesses only two scenarios: building the peaker units (the Preferred Alternative) and not building the peaker units (the No Action Alternative). The DEIS states "The Proposed Action aligns with the 2019 IRP." TVA is relying on a document that is more than six years out of date. This is fundamentally inappropriate because the policy, economic, and technological assumptions are no longer even remotely accurate and valid. Additionally, TVA has already exceeded its estimated need for new CTs in the 2019 IRP under normal conditions.[1]

It is as if time has stood still since 2019 in TVA's territory. There is no acknowledgement that costs for many technologies such as battery storage have significantly decreased and that the Inflation Reduction Act (IRA) has created incentives that can further reduce costs for clean energy resources. TVA did not give any serious thought to the many available clean alternatives, including battery storage and utility-scale solar (both of which are abundant in TVA's Interconnection Queue), transmission interties with neighboring balancing authorities, and demand-side resources.

Most concerning is that the proposed project will unnecessarily add pollution burden to a community that has unjustly shouldered this burden - inflicted by both TVA and others - for decades. The proposed NOx emissions alone are enough to raise alarm, but the most insidious pollutant that will be added to the surrounding community is the small particulate matter called PM2.5. The DEIS reveals that this pollution will be significant whether the peakers are fired a little or a lot. **TVA has an unfortunate history of disregarding the health**

[1] The 2019 IRP's Current Outlook case, which aligns with the moderate load growth TVA has seen to-date, estimated needing only 934 MW of CTs by 2028. TVA has already added over 1,300 MW of CTs at the Colbert and Paradise locations, and additional CTs at its New Caledonia and Cheatham County locations.

impacts of its actions on the very people it serves, and by continuing to pursue jet engine-style peakers in the South Memphis community, TVA is demonstrating that nothing has changed.

TVA Did Not Evaluate Alternatives

The DEIS only discusses the Preferred Alternative and the No Action Alternative. There is no serious discussion of battery storage as an alternative, despite the fact that battery storage would meet the need even better than the Preferred Alternative, the 200 MW peaker. If peaking resources are needed in the region due to real time load growth and the planned addition of renewables, then battery storage should be evaluated for this project. There are 300 MW of battery storage projects in Shelby County already in the TVA Interconnection queue. Batteries are at least as nimble as aero combustion turbines, and they can perform stabilizing and supportive functions for the grid far beyond just peak power. Batteries are also a better deal for TVA's ratepayers because 1) they are not subject to fuel price fluctuations and 2) they are eligible for IRA bonus tax credits.[2] Further, a battery storage project could probably be constructed and brought online faster than combustion turbines. For example, if TVA were to build battery storage at the ACT site rather than gas peakers, the battery project would have the same advantages that TVA has identified for gas peakers, such as the fact that the site is not greenfield and that substation and transmission infrastructure already exists at the Allen on site.

TVA also did not evaluate distributed generation and demand-reduction alternatives that could be deployed rapidly to lessen the need for fossil gas generation at the Allen site, likely for a lower cost. TVA could easily expand its program offerings and amend its contracts with the 153 local power companies that it serves to promote self-generation and reduce demand with clean alternatives, but it does not evaluate that as an alternative here. This failure to identify customer-sited and demand-side resources through program offerings is not logical given that TVA does not have shareholders and therefore does not have a reason to prefer to build capital projects over distributed or demand-side alternatives.

TVA also did not evaluate resources in other jurisdictions that will become available with existing, potential, or planned interties. While TVA participates in inter-regional transmission planning as a member of Southeastern Transmission Planning Collaborative (SERTP), TVA applied for and received federal funding for an 800 MW intertie with SPP. That intertie would likely connect into TVA in or near Shelby County, and would open up the availability of wind resources to be able to meet winter peaks in TVA. As an example, while TVA was implementing rolling blackouts in December 2022 due to failures at fossil plants and a lack of gas fuel supply, SPP had ample wind energy available.[3]

TVA clearly did not identify all available options and instead proposes a project that will increase the pollution burden in the surrounding South Memphis community while committing TVA ratepayers to decades of fossil fuel price increases.

TVA's Rejection of Renewables Is Not Based on Current Data

TVA summarily dismisses renewables and storage as an alternative for reasons including:

- Solar doesn't meet winter peak power needs, claiming that winter peaks typically occur just before sunrise (p. 11)
- Wind resources are typically more expensive due to low regional wind speeds or high transmission costs (p. 11)
- battery storage adds cost and introduces transmission instability and reliability issues that then must be addressed with transmission system improvements (p. 2)

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[2] Since the Allen site is in an energy community, a battery project would get a 10% additional tax credit.
[3] RMI found that SPP was curtailing 3 GW of wind at the same time that TVA was experiencing rolling blackouts. https://rmi.org/wasted-wind-and-tenable-transmission-during-winter-storm-elliott/

TVA's failure to analyze renewable alternatives comes despite the fact that the public comments on the scoping process overwhelmingly called for 1) clean energy and storage and 2) making sure the financial incentives from the Inflation Reduction Act (IRA) are being taken into account and utilized to provide ratepayer savings. In addition, TVA's dismissal of battery storage is drawn from the 2019 IRP and is woefully outdated. TVA's reason for dismissing solar ignores the fact that winter peak events tend to be longer in duration than summer peak events, often lasting well into the day, when solar would be online and producing. TVA's dismissal of wind ignores TVA's own project to expand transmission connection with a wind-heavy region, SPP.

The proposed capacity factor of the peakers is between 11% and 40%. The weighted average capacity factor for solar-only projects currently in operation in Tennessee is 23.6% (and it is 24.3% in Arkansas). This capacity factor data also does not include solar paired with battery storage that can shift the capacity factor to early morning peak needs.

In addition, TVA criticizes solar for not being able to provide reliable power during winter peaks, but they fail to recognize that gas plants have been unreliable in meeting winter peaks in extreme weather, as shown during winter storms Elliott and Uri. During Elliott, TVA had failures at both coal and gas plants, and gas supply across the Eastern US was severely limited. These failures caused TVA to institute rolling blackouts for the first time in its history, on December 23, 2022, and to institute a second round of rolling blackouts on December 24, 2022. Even with firm transportation, gas contracts cannot prevent the drop in pipeline pressure caused by wellhead freeze offs. So while TVA says that solar can't meet needs during winter peak, the gas expansion proposal may not solve that problem.

Battery Storage Can Fulfill Purpose and Need

TVA describes the Purpose and Need for 200 MW of dispatchable power as follows:

- To help meet the growing system demand and load growth
- To increase the flexibility and reliability of the TVA power system by improving TVA's transmission system stability in western Tennessee
- To help TVA expand and integrate renewable energy resources onto its transmission grid with more dispatchable resources to compliment renewable/solar variability
- To meet required year-round generation and maximum capacity system demands and planning reserve margin targets
- To provide fast start dispatching and synchronous condensing capabilities for addressing vulnerabilities to voltage instability that may result from increased renewable generation in the region *[noting this is a hypothetical problem, not one that is actually being experienced]*
- To increase reliability of the system by providing black start capabilities that can support system restoration in the event of a system failure
- To provide voltage stability near load centers

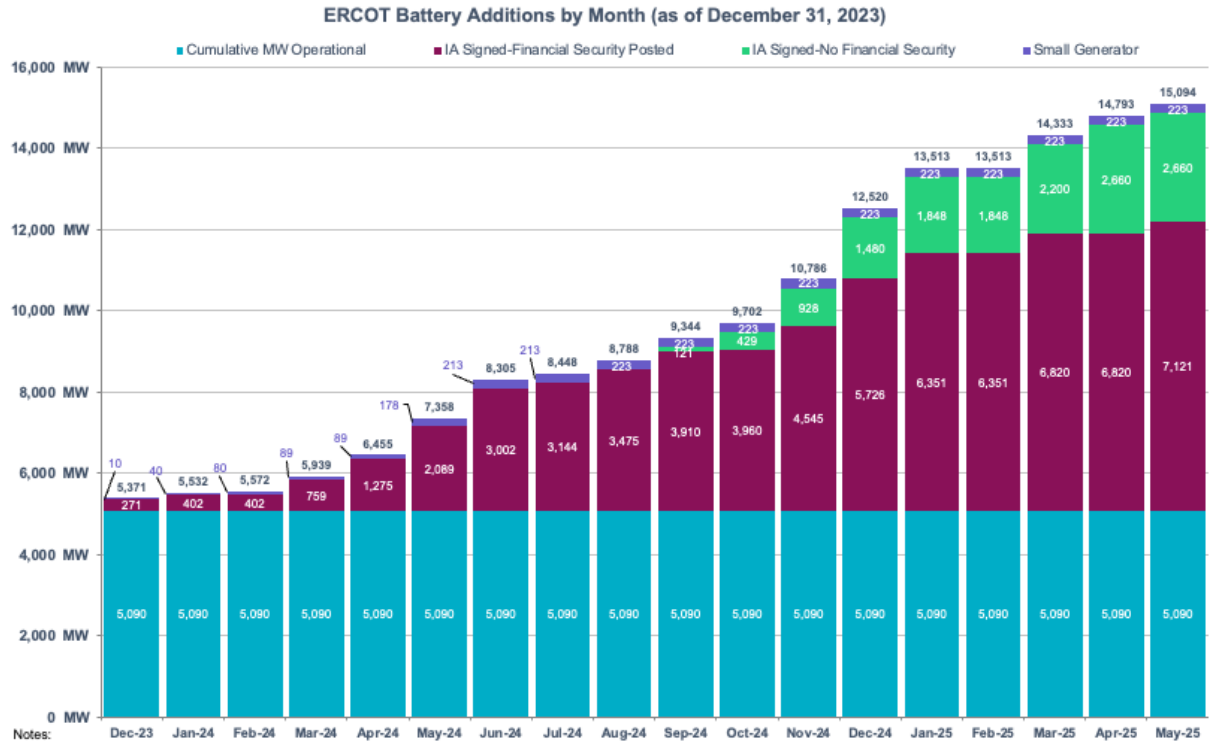
TVA relied on language in its outdated IRP to discount the ability of battery storage to provide these services, but the 2019 assumptions are no longer relevant. TVA also states that battery storage is limited to a 4 hour duration, which is no longer the case. Flow batteries provide 12 hours of support, and Form's iron air battery provides 100 hours of support. Additional types of energy storage include flywheels and compressed air. Even the typical lithium iron phosphate battery can be stacked and staggered to deliver more than 4 hours of energy to the grid. As of July 2024, the US had 20.7 GW of utility-scale battery storage on the grid. Florida Power & Light, an electric utility with a system of comparable size to TVA, already has 500 MW of batteries installed on

its system and plans to install an additional 1,419.5 MW of batteries by the end of 2026 and significant battery capacity every year for at least the next ten years.[4]

TVA briefly mentions battery storage as a complement to solar but them adds a caveat regarding cost that is not supported in this DEIS or in the 2019 IRP: “Consequently, while pairing solar resources with the appropriate level of battery storage can compensate for the limited availability of solar power, it adds cost and introduces transmission instability and reliability issues that then must be addressed with transmission system improvements (TVA 2019a).” (DEIS p. 2) “It adds cost” is merely a statement that is supposed to be accepted as fact, and it is followed by the falsehood that battery storage introduces transmission instability and reliability issues. The current reality is that 1) battery storage has come down in price significantly since 2019 and 2) battery storage is actually proven to *improve* transmission stability and reliability. The explosive growth of battery storage in Texas is proof of both of these facts.

Batteries and batteries paired with renewables are outpacing fossil generation additions to the Texas grid in price-competitive ERCOT. The following charts from ERCOT dramatically demonstrate this fact. The first chart (Figure 1) shows battery additions by month and the second chart (Figure 2) shows combustion turbine and reciprocating engine additions by month.

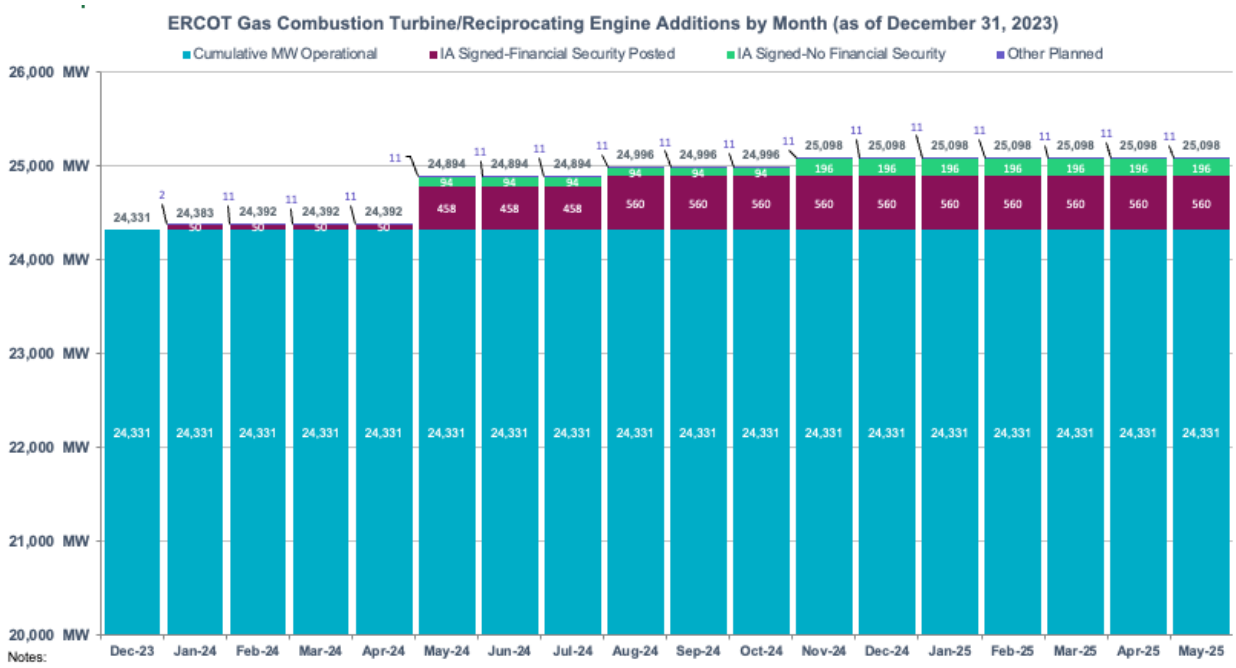
Figure 1 - ERCOT Battery Additions by Month



Source: https://www.ercot.com/gridinfo/resource/2023

[4] See page 16 of FPL’s 2025 Ten Year Site Plan: https://www.floridapsc.com/pscfiles/website-files/PDF/Utilities/Electricgas/TenYearSitePlans//2025/Florida%20Power%20and%20Light%20Company.pdf.

Figure 2: ERCOT Gas Combustion Turbine/Reciprocating Engine Additions by Month



Source: https://www.ercot.com/gridinfo/resource/2023

Batteries are successful in a market setting because they are a cost-competitive option. Further, a report by the American Clean Power Association found that "Texas's energy storage growth helped reduce ERCOT real-time power pricing by an average of about $31/MWh in 2024 compared with 2023 and by an average of about $160/MWh in August, the peak demand month…. Lower natural gas prices accounted for only $4/MWh to $6/MWh of the annual reduction."

On the issue of reliability, according to a January 2025 report by the Federal Reserve Bank of Dallas, discharge from batteries successfully and significantly contributed to reliability in the summer of 2024, but batteries' ability to meet winter peak was uncertain. RTO Insider then reported on February 20, 2025 that Batteries, Solar Help ERCOT Meet Record Winter Peak. The article noted that "energy storage set a record (4,587 MW)" during the Feb. 20 record demand peak.

Batteries have become the best alternative to replace dirty peaker plants. Even as far back as 2020, Sandia National Labs found that battery energy storage systems could effectively replace peaker plants. This is a phenomenon that TVA has chosen to overlook.

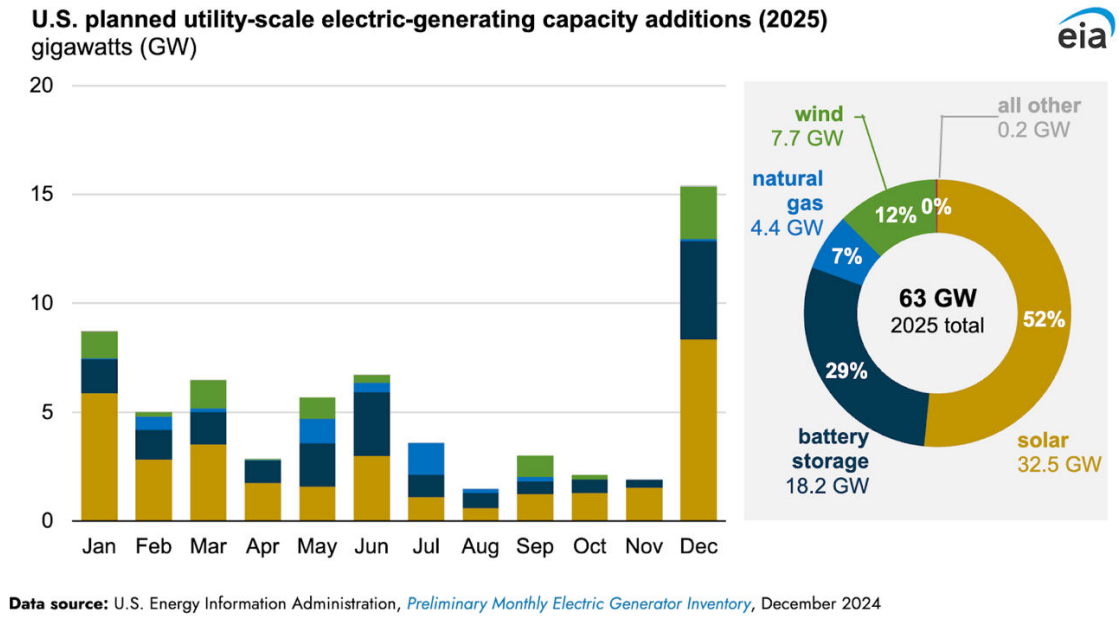
Batteries are also capable of providing black start. One state over, Duke Energy installed a microgrid with battery black start capability in 2023 in North Carolina. The system performed well during testing, but then was put to the ultimate test after Hurricane Helene, when it performed perfectly.

In addition, grid-forming inverters are increasingly being deployed with batteries to provide similar physical and electrical characteristics as a synchronous generator. So batteries and their related technologies truly can replace the services provided by fossil gas peakers.

TVA appears to be stuck in the past and has not put forth the effort to identify resources that are cleaner, safer, and less expensive. Meanwhile, the rest of the country - especially the parts in organized and transparent markets - adds renewables and battery storage at breakneck speed. From the US Energy Information Agency: "In 2025, capacity growth from battery storage could set a record as we expect 18.2 GW of utility-scale battery storage to be added to the grid. U.S. battery storage already achieved record growth in 2024 when power providers added 10.3 GW of new battery storage capacity. This growth highlights the importance of battery

storage when used with renewable energy, helping to balance supply and demand and improve grid stability." Figure 3 illustrates this growth.

Figure 3: US planned utility-scale electric generating capacity additions (2025)



Source: https://www.eia.gov/todayinenergy/detail.php?id=64586

It should be noted that there are **1,425 MW of solar plus battery storage projects waiting in the TVA queue** in the counties that surround Shelby County (Hardeman TN, Pinola and Marshall MS, and Mississippi AR). These are emissions-free dispatchable resources that could help TVA meet the needs identified for the Allen peaker project.

TVA's Proposal Will Needlessly Exacerbate Community Harm

Most importantly, TVA's willfully uninformed choice to deploy more dirty peaker plants at the Allen site is a cruel insult to the surrounding community. The Southwest Memphis community has breathed TVA's toxic coal- and gas-related emissions for decades, and while the coal has stopped burning, the legacy health impacts remain. The community continues to bear the burden of industrial polluters, including an oil refinery and TVA's Allen coal ash and combined cycle plant. The community recently rallied to stop the Byhalia Pipeline, is bearing the brunt of the 35 "temporary" gas turbines powering xAI, and now they are faced with yet another fossil fuel threat - from the company they rely on to supply power to MLGW. By ending coal combustion and switching to gas combustion starting with the Allen combined cycle plant, TVA may think that they are polluting the citizens of Southwest Memphis *less* - but in reality they are only polluting them *differently*.

The DEIS quantifies the emissions associated with running the peakers at a 40% capacity factor as well as for an 11.1% capacity factor. The two tables from pages 30 and 31 of the DEIS are shown below.

DEIS Table 3-1 (40% capacity factor)

Table 3-1. Maximum Project Annual Emission (40% Capacity Factor) Estimates and Prevention of Significant Deterioration Significant Emission Rates

	Emissions (tons/year)		
Pollutant	Project Emission Increases	Significant Emission Rates	PSD Triggered
CO	56	100	No
NOx	47	40	Yes
SO_2	2	40	No
Filterable PM	24.5	25	No
PM10	34	15	Yes
PM2.5	34	10	Yes
VOC	11	40	No
Pb	<0.01	0.6	No
Sulfuric Acid Mist	<0.05	7	No
CO_2e	401,800	75,000	Yes

Key: CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NOx = nitrogen dioxide; Pb = lead; PM = particulate matter; PM2.5 = particulate matter less than 10 microns in diameter; PM10 = particulate matter less than 10 microns in diameter; PSD = Prevention of Significant Deterioration; SO_2 = sulfur dioxide; VOC = volatile organic compound

DEIS Table 3-2 (11.1% capacity factor)

Table 3-2. Predicted Project Annual Emission (11.1 % Capacity Factor) Estimates and Prevention of Significant Deterioration Significant Emission Rates

	Emissions (tons/year)		
Pollutant	Project Emission Increases	Significant Emission Rates	PSD Triggered
CO	28	100	No
NOx	24	40	No
SO_2	1	40	No
Filterable PM	7	25	No
PM10	11	15	No
PM2.5	11	10	Yes
VOC	3	40	No
Pb	<0.01	0.6	No
Sulfuric Acid Mist	<0.05	7	No
CO_2e	107,268	75,000	Yes

Key: CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NOx = nitrogen dioxide; Pb = lead; PM = particulate matter; PM2.5 = particulate matter less than 10 microns in diameter; PM10 = particulate matter less than 10 microns in diameter; PSD = Prevention of Significant Deterioration; SO_2 = sulfur dioxide; VOC = volatile organic compound

The emissions control systems that TVA states that it will install do not control all emissions, even at the lower capacity factor. At a 40% capacity factor, the Prevention of Significant Deterioration status (PSD) is triggered for NOx, PM10, and PM2.5. At 11.1%, PSD is still triggered for PM2.5. Both NOx and PM2.5 emissions will cause harm to the neighbors of this plant who live as far as 3 miles away (and sometimes even farther). These emissions analyses reflect 350 startup/shutdown events per year, also known as ramping. It is during these almost daily events that control of NOx, PM2.5 and other pollutants is impossible because the control systems are not designed to capture emissions under these conditions. Yet TVA *values* this technology for its ability to ramp quickly, but the ramping attribute also *adds more to the local pollution burden*.

NOx health impacts

The study of NOx health impacts has increased in recent years, and it received special focus in the American Lung Association's State of the Air report this year. The supplement report "Something in the Air - Nitrogen Dioxide and Community Health" notes that NOx is under-monitored and under-regulated.

NO_2 is the most prevalent form of the group of nitrogen oxides (NOx). It is produced when methane gas is burned, causing nitrogen and oxygen in the air to react. From the report, "NO_2 causes a range of harmful effects on the human body, acting mainly as an irritant affecting the mucosa of the eyes, nose, throat and respiratory tract. Individuals with asthma, chronic obstructive pulmonary disease (COPD), cardiovascular

disease and diabetes face greater risks from NO_2 exposure, as studies show *clear links between pollution and increased emergency room visits, respiratory distress and worsened chronic disease outcomes* (EPA, 2008)." (p. 3, emphasis added) The study also notes that "Children, the elderly, individuals with preexisting health conditions and outdoor workers are particularly vulnerable to NO_2 exposure (EPA, 2011). (p. 4, emphasis added)

Also from the study, and noting that the neighboring community would be subject to prolonged, chronic exposure levels:

"Short-term exposure to NO_2, lasting from 30 minutes to 24 hours, poses significant health risks, *particularly for communities already experiencing elevated pollution burdens*. It has been scientifically linked to airway inflammation in healthy individuals and worsened respiratory symptoms in people with asthma. Even low-level NO_2 exposure may lead to decreased lung function in COPD patients, increased bronchial reactivity in people with asthma and a higher risk of respiratory infections, especially in young children." (pp. 3 and 4 of ALA supplement, emphasis added)

"'Elevated levels of NO_2' refers to concentrations that exceed ambient (typical) levels found in the air, reaching thresholds known to harm human health. **Prolonged exposure** can contribute to **chronic respiratory conditions** and an **increased risk of cardiovascular disease**. Short-term exposure to elevated levels can irritate the airways and worsen respiratory health, triggering symptoms such as coughing, wheezing and difficulty breathing. ***Chronic exposure****, even at moderate levels, has been linked to higher rates of respiratory illness, long-term cardiopulmonary effects, premature death and increased hospitalizations. Additional health effects include pulmonary fibrosis, reduced lung function, increased risk of ear infections, weakened immune defense and fluid accumulation in the lungs.* (EPA, 2024b). A 2020 study identified a significant link between **long-term NO_2 exposure** and increased risks of both *all-cause and respiratory-related mortality, particularly from COPD and acute lower respiratory infections* (Atkinson et al., 2020). A 2022 review further associated elevated NO_2 levels— along with particulate matter and sulfur dioxide— to serious health effects, such as *heart and lung damage, pregnancy complications, increased risk of kidney and neurological disorders, autoimmune diseases and cancer*." (p. 4 of ALA supplement, emphasis added)

NOx alone is bad enough, but it also reacts in the air to form *secondary* PM2.5 that compounds the PM2.5 *directly* emitted by the peakers.

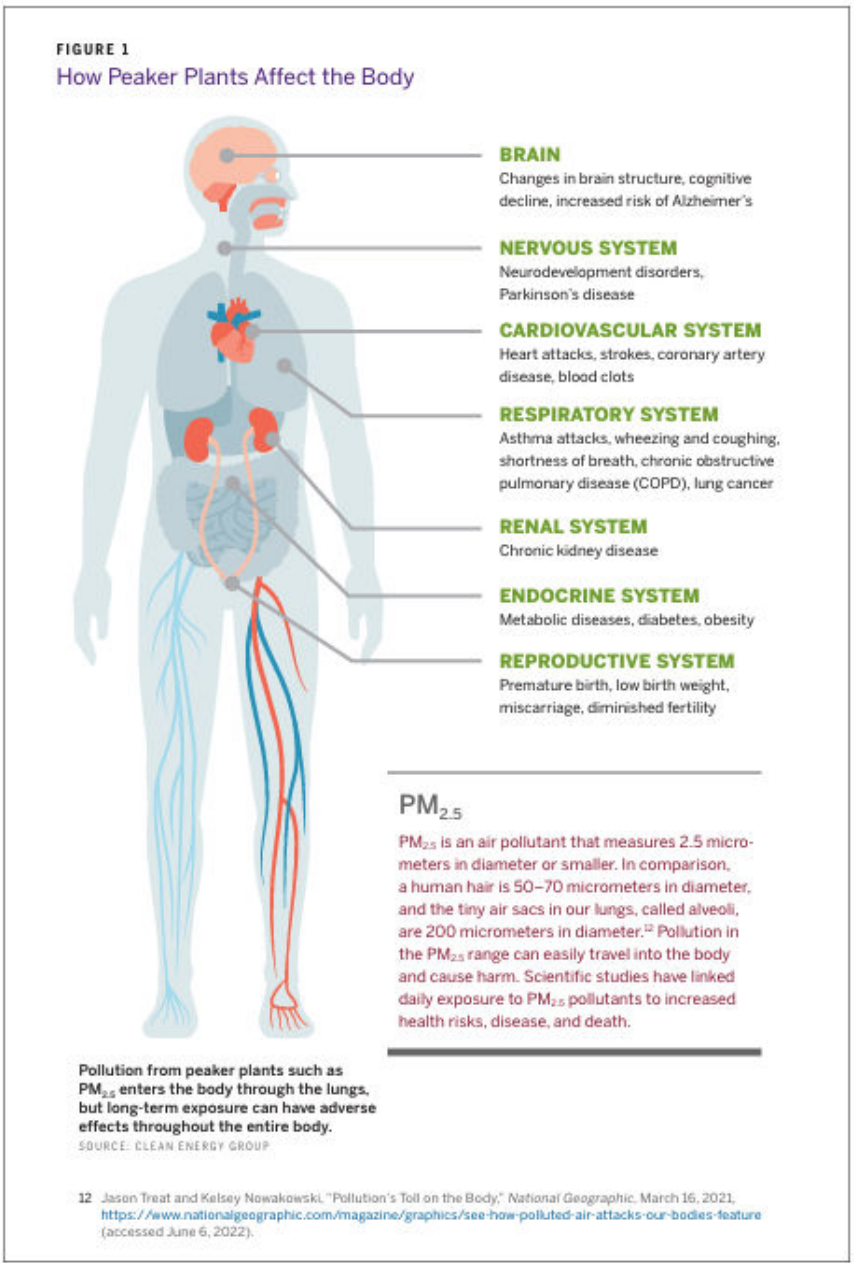
PM2.5 health impacts

PM2.5 is shorthand for particulate matter that is smaller than 2.5 micrometers. A human hair is 50-70 micrometers, and the tiny air sacs in our lungs are 200 micrometers. PM2.5 wreaks havoc on the entire body because it can enter the bloodstream through the lungs and cause inflammation throughout the body. Clean Energy Group and Strategen outlined and illustrated the damage that PM2.5 and other combustion pollutants can cause in their report The Peaker Problem:

- **In the brain**, long-term exposure to PM2.5, SO2, and NOx can lead to cognitive declines, changes in brain structure, and an increased risk of Alzheimer's disease.
- **In the nervous system**, these pollutants are linked to neurodevelopmental disorders and deaths from Parkinson's disease. Particles can travel to the central nervous system.
- **In the cardiovascular system**, exposure is linked to a higher mortality from coronary artery disease, heart attacks, strokes, and blood clots.
- **In the respiratory system**, it can cause shortness of breath, coughing and wheezing, asthma, lung cancer, and chronic obstructive pulmonary disease (COPD).
- **In the renal system**, long-term exposure to these pollutants is associated with a greater likelihood of chronic kidney disease. Renal disease rates are highest in urban areas.

- **In the endocrine system**, PM2.5 is an endocrine disruptor, contributing to increased development of metabolic diseases such as obesity and diabetes, which in turn are risk factors for cardiovascular disease.
- **In the reproductive system**, small particle pollution exposure is linked to diminished fertility, miscarriages, premature birth, low birth rate, and respiratory diseases.

From Clean Energy Group and Strategen's The Peaker Problem



Source: https://www.cleanegroup.org/wp-content/uploads/The-Peaker-Problem.pdf p. 15

Ozone

Ground level ozone is formed when NOx and volatile organic compounds combine in sunlight. Ozone exposure has all of the same health impacts as have been discussed above, including premature death. According to the American Lung Association's most recent State of the Air report, Shelby County was the only county in Tennessee to earn an F grading in the ozone levels category. It was the **only county to experience red level**

days in 2024 (2) and it experienced a whopping 21 orange level days. The next highest number of orange level days was 9 for Sumner County.

Simply put, **TVA cannot choose to ignore the health impacts that it will be inflicting on the neighbors of this proposed plant.** There are clean alternatives, some of which could also benefit the surrounding community through bill savings in addition to cleaner air.

TVA Should Utilize Better Alternatives

In addition to utility-scale battery storage, TVA has better options to meet its needs than the Preferred Alternative that are less risky, less polluting, and likely less expensive. TVA states its needs for the project as increasing its energy generation and capacity so that it can provide flexible power throughout the year, and increasing the reliability of the grid while integrating renewable energy. All of these goals can be accomplished through energy efficiency and demand management, renewable energy, energy storage, and grid support technologies.

TVA negligently chose not to seriously consider these as alternatives in this DEIS. TVA summarily dismissed solar, wind energy, and battery energy storage in general terms with no evidence TVA performed any real analysis, as described previously in this comment letter, and did not even mention consideration of energy efficiency or demand management at all in the DEIS, despite multiple scoping comments calling for their consideration. Additionally, TVA failed to consider grid support technologies that inverter based resources and standalone synchronous condensers can provide. Importantly, there is no evidence that TVA gave serious consideration to these clean energy resources together as a portfolio, working together to meet different needs at different times and with different contributions to reliability.

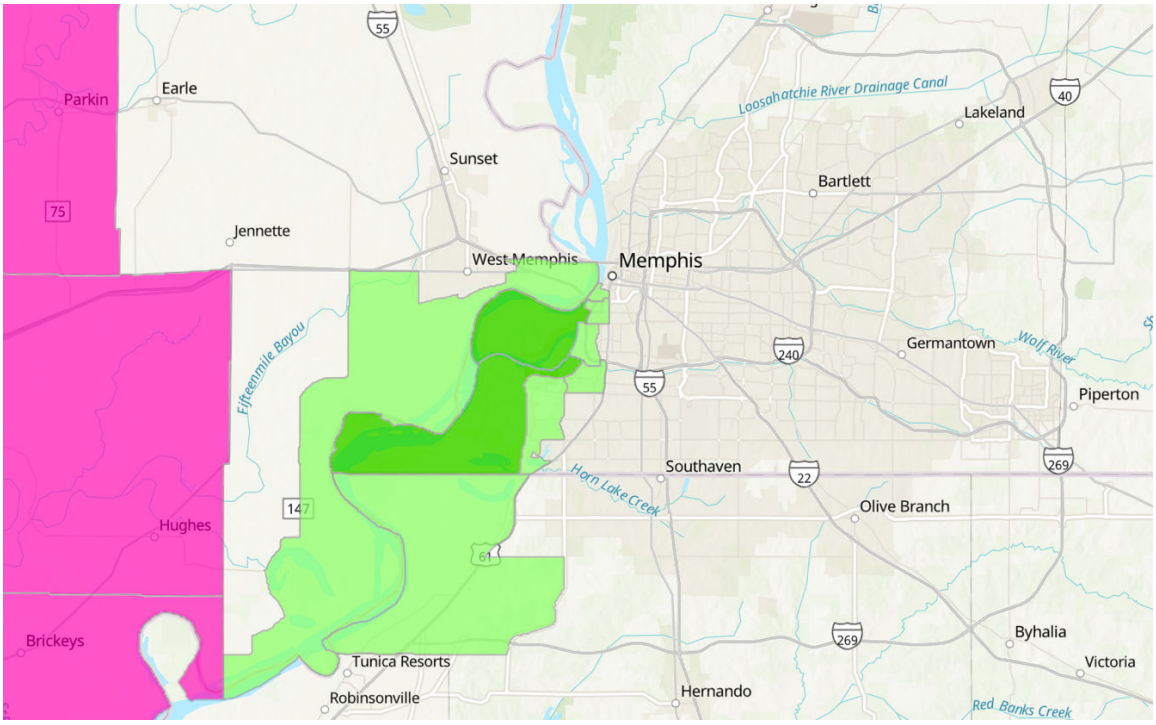
TVA should start with investing in energy efficiency–measures like sealing air leaks and adding insulation in buildings–to make Memphians' homes more comfortable and healthy while lowering their bills. Investments into energy efficiency to reduce the amount of energy needed at any given time are *the lowest cost way* to help make sure the power grid can always meet the power needs of customers. Insofar as TVA is concerned with meeting peak demand on cold winter mornings, energy efficiency should be the first resource TVA deploys, keeping people comfortable and safe while not adding any demand to the system. TVA should also grow their demand response programs that provide incentives for energy customers to shift their power usage away from the times where others have the most need for power, which helps avoid the risk of blackouts and keeps costs lower for everyone.

TVA should earnestly develop and procure clean renewable energy in Shelby County, western Tennessee, and the surrounding region, including rooftop solar energy, large-scale solar energy, and rural wind energy. There are thousands of megawatts of rooftop solar potential within the municipal boundaries of Memphis. For example, Google's Project Sunroof estimates that Memphis has 6,500 megawatts of rooftop solar capacity potential–32 times as much power capacity as TVA states they need for this project. Shelby County has abundant large-scale solar potential as well, with MLGW's recent integrated resource plan identifying 1,000 megawatts of utility-scale solar in Shelby County as the most sensible energy resource available.

TVA should work to streamline their contracting and interconnection queue processes to bring clean resources online faster. TVA's existing interconnection queue offers abundant solar, battery storage, and solar plus battery storage projects in Shelby County and the counties immediately adjacent. As was noted above, there are 300 MW of battery storage projects in Shelby County, and 1,425 MW of solar plus battery storage projects waiting in the TVA queue in the counties that surround Shelby County (Hardeman TN, Pinola and Marshall MS, and Mississippi AR), all mired in TVA's sluggish interconnection process.

And while wind energy has historically not been a particularly economical energy resource, recent technological advances including higher towers and longer blades now allow TVA to economically harness wind energy. Wind energy potential for TVA is demonstrated by the new state-of-the-art wind Delta Wind Farm just an hour south of Memphis in Tunica County, MS, with 136-meter hub height turbines.

TVA should consider energy storage technology at the Allen Power Plant and nearby locations with participation from the local community and guarantees of benefits to the local community, which would help ensure that customers' demands for power are met at high-usage times, like cold winter mornings when heaters work hard and hot summer afternoons when A/C units are cooling homes and buildings. Energy storage systems store renewable energy and make it available around the clock, evening out the variable times at which the sun is out and when the wind is blowing. A unique opportunity available to TVA is to take advantage of the legacy of the historic Allen Fossil Plant and utilize the "energy communities" federal tax credit, available where coal power units have retired in recent years, which would give TVA a 10% discount on any energy storage or renewable energy developed at the Allen Plant facility, within the census tract, or in any adjacent census tract.



The green and purple areas show where the 10% energy communities bonus tax credit is currently available. Source: energycommunities.gov

Finally, insofar as there is need for grid support to facilitate the increased penetration of renewable energy, TVA should use non-polluting grid stabilizing technologies. Technologies are available to help improve power grid reliability and stability that do not emit any pollution like a power plant does. In particular, TVA should reexamine their outdated assumption that inverter-based resources, such as solar paired with storage, "introduces transmission instability and reliability issues." Modern advanced inverters actually can provide grid stabilizing ancillary services. In the DEIS, TVA extols the value of black start capability available with the Preferred Alternative construction of gas turbines, yet overlooks that black start is also available via grid forming inverters paired with battery energy storage systems. TVA also clearly values synchronous condensers in the DEIS for their ability to provide voltage control, and proposes to use synchronous condenser mode on the gas turbines in the Preferred Alternative, but TVA overlooks that they can build standalone synchronous condensers and flywheels for grid support independently of new electrical generating units. These types of units are widely available through numerous supplies such as Hitachi Energy, Siemens Energy, GE Vernova, and ABB.[5]

If TVA followed these guidelines, it would be able to meet its needs and objectives with lower risk, less pollution, and likely less cost than it is currently pushing to do with its risky gas expansion proposal.

[5] While not independently verified by SACE, TVA could also explore the potential to convert existing retired turbines, such as those at the Allen site, to synchronous condensers, as GE claims it can do.

Recommendation

We call on TVA to complete a new set of analyses, one that compares the economic and environmental impacts of meeting the need described in this DEIS with aero CTs, with a suite of demand-side programs, solar and wind energy (including renewables-plus-storage), and non-polluting grid support technologies as needed. Resources should be sought from within TVA's service territory and also from SPP and MISO. Most likely, a combination of one or more of these clean technologies should be combined for the optimal option for TVA customers and the environment. TVA should then issue a supplemental DEIS with the results of the comparison of several alternatives.

In Conclusion

TVA is a large utility, and in some respects, this is the fundamental problem. TVA does not actually serve very many individual *people*. It serves the local power companies that serve the individual people. **It is insulated from the human-level consequences of its decisions.** These consequences include billing arrearages due to rising rates driven by gas generation, high energy burdens, and direct contact with customers who have been physically harmed by power plant pollution. These consequences are borne by the local power companies. But TVA ties the LPCs' hands and limits their ability to self-generate using cleaner, cheaper resources.

TVA can start to change its image as a large bureaucracy that is stuck in the past and out of touch with the people it serves by discarding this plan for 200 MW of polluting fossil generation, going back to the drawing board, and looking at the abundance of clean alternatives with fresh eyes. TVA can look at the list of needs it developed for this location on the grid in South Memphis and then assemble the renewable, battery and demand-side resources that can meet these needs. Rather than throwing one dirty power plant at the myriad of needs, TVA should match the clean, renewable tools to each need. There are 300 MW of battery storage in the TVA interconnection queue in Shelby County. There are citizens who are eager to participate in rooftop solar and demand reduction programs that are appropriately compensated. There are large-scale solar and wind projects just over the Mississippi River in MISO territory and south of Memphis in Mississippi. All of these resources have the added cost savings benefit of sharing capital expenses in addition to eliminating reliance on dirty, increasingly expensive fossil gas.

TVA states in the DEIS that "Communities closest to the project area are most likely to experience adverse effects. Additionally, communities that are predominately (*sic*) minority or low-income would be more likely to be affected by the proposed action. However, impacts on communities would be minor overall." (p. x) This last statement is hubris, and we have demonstrated here that it is patently untrue. The impact is significant and reason enough for TVA to withdraw this peaker project and replace it with emissions-free alternatives that improve the lives of Southwest Memphians rather than adding another layer of pollution burden.