FINDING OF NO SIGNIFICANT IMPACT

TENNESSEE VALLEY AUTHORITY

JOHNSONVILLE AERODERIVATIVE
COMBUSTION TURBINE PROJECT
Humphreys County, Tennessee

Tennessee Valley Authority (TVA) is proposing the addition of 10 natural gas-fired aeroderivative (Aero) combustion turbines (CTs) at the Johnsonville Reservation. The Aero CTs would generate approximately 550 megawatts (MW) for commercial operation no later than December 31, 2024. TVA's Johnsonville Reservation currently houses 20 simple-cycle CT units within the Johnsonville Combustion Turbine (JCT) plant. In Fiscal Year 2019, TVA completed a CT Modernization Study to evaluate the condition of TVA's current CT units and form recommendations for investments to ensure a reliable and flexible peaking fleet into the future. The CT Modernization Study recommended adding approximately 500-650 MW of new Aero CTs in the near-term to enhance system flexibility, integrate increasing renewable capacity, and provide dispatchable capacity.

Investments in adding Aero CTs to the peaking fleet aligns with the direction in TVA's 2019 Integrated Resource Plan, which recommended enhancing system flexibility to integrate renewables and distributed resources with substantial solar additions over the next two decades. As the amount of solar generation on the TVA generation portfolio continues to increase, flexibility of the remainder of the fleet becomes even more important. Cloud patterns that temporarily block the sun and reduce solar generation require other generating units to respond to continue to reliably supply power to customers. Aero CTs are inherently well-suited to provide flexibility, enabling the remainder of the system to better integrate renewables.

Accordingly, TVA prepared an environmental assessment (EA) to analyze the potential natural and socioeconomic impacts associated with the construction and operation of the Aero CTs at the Johnsonville Reservation. The EA is incorporated herein by reference.

Alternatives

During initial project planning, TVA considered options for siting of the Aero CTs. Candidate sites were identified based on a desktop review of land parcels located near existing transmission access and near existing natural gas supply. Initial site screening resulted in multiple potential locations for new Aero CTs. Based on evaluation of the screening criteria, TVA proposes to construct new Aero CTs at the Johnsonville Reservation. This location offered several advantages to alternative locations:

- The construction footprint for the new units would allow the Aero CTs to be built on previously disturbed land within existing TVA property, as opposed to requiring the purchase or utilization of greenfield property to locate the new units.
- The existing natural gas infrastructure on the Johnsonville Reservation that supports the existing JCT plant could be utilized to also support the additional proposed Aero CT units.
- Proximity of the Johnsonville Reservation to load centers in Nashville and Middle Tennessee make this site increasingly attractive for Aero CTs offering synchronous condensing for area grid support.

- Throughout the operational history of the Johnsonville Fossil Plant, extensive environmental reviews have been conducted, which provide a level of confidence, for initial screening purposes, that there is a low potential for impacting sensitive environmental resources.

TVA evaluated two alternatives to the proposed action: Alternative A – No Action and Alternative B – Construction of Johnsonville Aero CTs and Support Systems.

Under Alternative A, TVA would not construct 10 natural gas-fired Aero CTs generating approximately 550 MW or the associated support systems to provide this generation at the Johnsonville Reservation.

Under Alternative B, TVA would construct 10 natural gas-fired Aero CTs generating approximately 550 MW and associated support systems to provide this generation at the Johnsonville Reservation. The overall Johnsonville Aero CT Project Area consists of approximately 245 acres of mostly heavily disturbed land located completely within the Johnsonville Reservation. In addition to these major equipment systems, the proposed Aero CT facility would include natural gas metering and handling systems; instrumentation and control systems; transformers; and administration and warehouse/maintenance buildings. At full buildout, the Aero CT plant would occupy approximately 15 acres of the 245-acre Johnsonville Aero CT Project Area.

To support the new Aero CTs, TVA would also construct and operate an Aero 161-kilovolt (kV) switchyard, which would be situated on approximately 2 acres located southeast of the new Aero CT units within the 245-acre Project Area. A new transmission line would be constructed to connect the Aero CTs to the Aero 161-kV switchyard. TVA would add and replace breakers in the existing Johnsonville switchyard and upgrade the associated protection systems. A new switch house would be installed for the Aero 161-kV switchyard, which would tie into the existing force main and sewer system. Fiber would be installed on the new transmission lines between the new Aero 161-kV switchyard and the existing Johnsonville switchyard.

The Aero CT units would be fueled by a reliable supply of natural gas through existing TVA service agreements. No upgrades to the existing natural gas supply would be required. However, TVA would need to construct and operate a new compressor station onsite. The final location for the compressor station is anticipated to be within existing TVA property and in close proximity to the Aero CT units. The compressor station would be driven by electric motors and, therefore, would not require additional air permitting.

Other support facilities that would be constructed as part of Alternative B include a new administration/control building to serve the Aero CTs, as well as the existing CT units 17-20 and auxiliary boilers. TVA may also construct up to three new warehouses for supplies and/or office space for regional employees. Approximately 36 acres within the Project Area would also be used for vehicle and equipment parking, materials storage, laydown, and construction administration during construction of the Aero CTs. When construction is complete, these areas would be allowed to revert to their original use. TVA estimates that borrow needs would be minimal and, if necessary, borrow could be obtained from the TVA-owned borrow site identified in the *Johnsonville Fossil Plant Coal Yard and Coal Yard Runoff Pond Closure, Construction of a Process Water Basin, and Development of a Borrow Site EA* or from an existing commercial borrow pit.

The Aero CT units would utilize evaporative cooling and wet compression for power augmentation. Maximum total estimated water consumption is 300 gallons per minute (gpm) potable water and 300 gpm demineralized water. The JCT plant already has adequate capacity for demineralized water production that would be used for the Aero CTs. Any process water discharges would be directed to the existing Johnsonville Process Water Basin and the site National Pollutant Discharge Elimination System (NPDES) permit would be modified accordingly. Additional potable water for evaporative cooling, domestic use, and safety showers would be obtained from the existing public supply. The water supply for the fire protection system would be provided from the existing fire water supply.

Operating the Aero CT units would also require air emissions monitoring. Reduction of nitrogen oxide emissions from the Aero CTs would be achieved through dry low emissions combustion systems and Selective Catalytic Reduction. Oxidation catalyst would be used to control carbon monoxide emissions. Exhaust stacks would be equipped with continuous emissions monitoring systems. Emissions from the units would adhere to the requirements of state and federal regulations.

Impacts Assessment

Based on preliminary analysis, TVA concluded that implementation of Alternative B would not affect prime farmland, land use, and floodplains and, therefore, these resources were not evaluated in detail in the EA. Further analyses in the EA of resources that would be affected by the project concluded that construction and operation activities associated with Alternative B would result in minor and temporary impacts to air quality; climate change and greenhouse gases (GHG); geology and soils; groundwater; surface water resources; wetlands; aquatic ecology; vegetation; wildlife; threatened and endangered species; visual resources; transportation; natural areas, parks and recreation; noise; and solid and hazardous waste. Implementation of Alternative B would not impact cultural and historic resources and public health and safety. Additionally, Alternative B would result in beneficial short-term impacts to socioeconomic resources during the construction phase.

Air emissions from operation of the proposed Aero CT units would comply with all applicable standards, as well as any additional requirements established by state and local regulations. Construction and operation of the proposed Aero CTs and emergency generator are subject to permitting programs that regulate the construction of new stationary sources of air pollution. The operation of the Aero CT units would be in compliance with Prevention of Significant Deterioration requirements, which ensures there is no significant impact to or deterioration of air quality due to the proposed project.

Operation of new Aero CT units would increase local air emissions; however, they would not exceed permit limits or air quality standards. Total GHG emissions increases represent approximately 1.1 percent of total statewide emissions, approximately 0.02 percent of the total U.S. emissions, and 0.002 percent of the estimated 55.6 billion metric tons of total global GHG emissions for 2019. As such, the operation of the Aero CTs and the emergency generator would represent a less than significant contribution to state, national, and global GHG emissions. GHG emissions from the proposed action, as well as the emissions from the other reasonably foreseeable future actions, would incrementally increase GHG emissions within Humphreys County, but such increases would not be notable on a regional, national, or global scale.

In response to public comments received on the Draft EA, TVA included an analysis of the Social Cost of Carbon (SCC) and its significance across the Action and No Action Alternatives

in the EA, using two different methods for valuing the SCC to provide a directional comparison between the alternatives across a wide spectrum of carbon cost estimates. TVA performed modeling analysis for the entire TVA-wide power system that included anticipated generation and carbon dioxide emissions associated with the No Action Alternative and Alternative B over a 20-year period. The analysis concluded that the No Action Alternative would have the higher carbon cost over the 20-year period and the higher Net Present Value in 2021 dollars, regardless of the carbon cost valuation used.

The Aero CTs and support systems would be constructed on a site that is heavily disturbed and comprised largely of fill material. Construction activities would require below ground construction activities that may encounter groundwater. These below-ground excavation activities would be localized and limited to the construction phase of the proposed project; therefore, any impacts to groundwater would be minor. Several groundwater monitoring wells, located in and adjacent to the proposed project construction and laydown areas, would remain in place for ongoing monitoring activities related to Coal Combustion Residual Rule sampling and state-permit compliance. These wells would be marked and avoided during construction activities and would not be impacted by operations

Construction activities would involve ground disturbance resulting in the potential for increased sediment release and erosion, which has the potential to temporarily affect surface water and aquatic resources. Construction activities would adhere to Storm Water Pollution Protection Plan (SWPPP) and construction stormwater permit limit requirements and appropriate best management practices (BMPs) would be followed. Therefore, only minor temporary impacts to local surface waters would occur during the construction phase. No jurisdictional streams would be permanently impacted by the proposed activities. Additionally, no negative impacts to surface waters would occur from operation, as any discharges from the Aero CT plant would be required to meet NPDES limits and Tennessee Department of Environment and Conservation (TDEC) Water Quality Standards that are developed to be protective of designated waters. The Aero CTs and associated support structures would be sited outside of all wetland features. Up to 0.05 acres of forested/emergent wetland would potentially be cleared within the transmission line right-of-way; however, wetland impacts would be minor on a regional scale. TVA will coordinate with the U.S. Army Corps of Engineers (USACE) and TDEC to determine jurisdictional status of any wetlands that cannot be avoided. Unavoidable impacts to jurisdictional wetlands will not occur unless authorized by the USACE through the Clean Water Act Section 404 permitting process and/or TDEC Aquatic Resource Alteration Permit process. If required, mitigation measures would be incorporated into the final design of the project. Direct impacts to aquatic biota associated with the construction of the Aero CT plant and supporting structures are not anticipated.

The project would primarily impact locally common vegetation with limited conservation value. A total of 1.05 acres of deciduous forested area would be cleared. Similar deciduous forest habitat is common within the project vicinity, and the impact would be negligible compared to the total amount of forest land in the region. Therefore, no impacts to unique or important terrestrial plant communities are anticipated.

Construction and operation of the Aero CT plant and associated structures would occur within a highly disturbed and fragmented industrial landscape that offers minimal habitat for wildlife. While the proposed actions would result in alteration of habitats and displacement of resident wildlife species, impacts to wildlife are not expected to result in notable large-scale habitat alteration or destabilization of any wildlife species. To the extent possible, TVA would prioritize tree removal during the winter clearing window (October 15 – March 31), which would be

beneficial to migratory birds. Similarly suitable foraging habitat is abundant throughout the adjacent landscape such that the project would have no measurable effect on migratory bird foraging habitat. Several osprey nests exist in the Project Area. As such, osprey conservation commitments are applicable within 660 feet of any active nest during construction activities. Prior to activities in the vicinity of these nests, TVA would conduct additional field surveys to identify any new or active nests with the intention of avoiding them. Coordination with U.S. Department of Agriculture (USDA)-Wildlife Services would occur as necessary to ensure compliance with federal law.

There are no records of federally- or state-listed endangered species within the proposed Project Area. Although the project would impact potential suitable habitats for several species, including the Indiana bat, northern long-eared bat, and gray bat, these species were not found during surveys of the reservation, and there is an abundance of suitable habitat in the surrounding areas. To the extent possible, TVA would prioritize tree removal during the winter clearing window (October 15 – March 31) to avoid directly affecting threatened and endangered bats. Use of BMPs and timing of tree removal to occur during winter months would help to ensure that any potential direct impacts to individuals of the species using those habitats would be minimized or avoided.

Long-term visual impacts would include visible alterations to the existing landscape associated with the 10 new Aero CT units (with stack heights of 150 feet), as well as the proposed Aero 161-kV switchyard, the new transmission structures, and overhead wires associated with the transmission lines. The industrial elements and utility structures already in place within the Project Area currently contribute visual discord with the landscape, which contributes to the landscape's ability to absorb negative visual change. While the construction of the Aero CT plant would contribute to minor differences in the visual environment, it would not change the overall scenic value class, as the industrial character of the reservation would remain consistent.

Vehicular traffic on public roads near the Johnsonville Reservation would increase due to commuting of 200 workers and material and equipment deliveries during construction. During the peak construction period, the additional daily commuters would result in minor increases in traffic volumes on public roadways near the reservation during the morning and evening commuting periods. Disruptions to local traffic circulation would mostly occur in 15- or 20-minute periods around the major shift changes. Therefore, impacts associated with increased traffic during construction of the Aero CTs would be minor and short in duration. Operation of the Aero CT plant would require approximately 20 workers, most of whom would transfer from the JCT Units 1-16. Therefore, the operation of the proposed Aero CTs would not result in any changes to the existing conditions on the surrounding roadways.

Given the number of natural and managed areas, parks, and recreational facilities in the surrounding area, it is possible that offsite impacts could occur as a result of additional truck traffic, noise, and dust from construction vehicles. However, these impacts would be minor and would not impact the use or enjoyment of these areas because of the relatively short-term nature of this action.

The increase in expected traffic associated with construction activities is relatively small compared to existing traffic volumes. Therefore, traffic noise is not anticipated to increase perceptibly. Noise from Aero CT site equipment (except Waste Heat Recovery Units) is expected to attenuate due to the distance to sensitive receptors. Noise emissions from the Waste Heat Recovery Units have not been estimated; however, due to distance of sensitive

receptors from the Aero CT plant site, it is unlikely that operational noise would result in notable noise increases at offsite sensitive receptors. TVA would utilize noise abatement technologies, if necessary, to ensure that typical operational noise emissions would not exceed 55 A-weighted decibels (dBA) at offsite noise receptors.

Solid and hazardous wastes generated during construction and operation of the Aero CTs would be managed in accordance with established procedures and applicable regulations. Therefore, impacts associated with the generation of solid and hazardous waste would be minor.

One census block group within the study area, located across the Kentucky Reservoir on the Tennessee River to the west, meets the criteria for consideration as an environmental justice population under Executive Order (EO) 12898. The closest residences within this block group are located approximately 3 miles or more from the proposed Aero CT plant Project Area, and thus would not be affected by noise or fugitive dust from onsite construction activities. During construction, potential modification of the rail system and increased traffic related to workforce vehicles and transport of borrow material could result in increased traffic on local roads, noise, and fugitive dust in the communities directly south of the reservation, which are not identified as environmental justice populations. However, these impacts would be short-term and minor and would not be disproportionate on environmental justice populations, as impacts would be greatest in block groups that have minority and low-income populations below the environmental justice thresholds.

While operation of the Aero CT plant would result in localized air emissions that would be dispersed throughout the study area, the impact of those emissions would not be disproportionate on any of the communities in the study area, and those emissions also would not have significant adverse air quality impacts on communities within the study area.

Construction activities associated with the Aero CT plant would entail a temporary increase in employment and associated payrolls, which would result in a minor short-term direct positive impact to employment in the region. Indirect impacts related to the purchases of materials and supplies, and the multiplier effect of increased spending in the local economy, would be beneficial, but minor, given the short construction period.

Impacts from reasonably foreseeable future planned actions at and in the vicinity of the Aero project would result in minor, temporary effects, primarily during construction. These effects would not be disproportionate to the environmental justice community within the project vicinity.

Public and Intergovernmental Review

The Draft EA was released for a 30-day public comment period on January 10, 2022, and was posted on TVA's website (http://tva.com/nepa). Comments on the Draft EA were accepted through February 8, 2022. To solicit public input, the availability of the Draft EA was announced in newspapers that serve the Humphreys County, Tennessee area. A news release was also issued to the media. TVA's agency involvement includes notification of the Draft EA to local, state, and federal agencies, and federally recognized tribes as part of the review.

TVA accepted comments submitted through mail and email. TVA received comments from TDEC, Sierra Club, Southern Environmental Law Center, and three members of the public. Comments submitted by the Sierra Club were signed by 174 citizens, 97 of which are accompanied by additional personal messages. Two comments were received from the Southern Environmental Law Center, one in collaboration with Sierra Club, Southern Alliance for

Clean Energy, and Center for Biological Diversity, asking for an extension of the public comment period, and the second in conjunction with Appalachian Voices, Energy Alabama, Sierra Club, Center for Biological Diversity, and Southern Alliance for Clean Energy and included 45 attachments. Across all of the comments received, the most frequently mentioned topics related to the analysis of alternatives, air quality and climate impacts, environmental justice, and cumulative impacts.

In response to comments received by TVA from the public, agencies, and other interested parties, TVA has revised text within the Final EA and has included a response to comments in Appendix A.

Mitigation and Commitments

As described in the EA, TVA would implement BMPs; mitigation measures; and commitments to avoid, minimize, or reduce adverse impacts to the environment. Additional project-specific BMPs may be applied as appropriate on a site-specific basis to enable efficient maintenance of construction projects and further reduce potential impacts on environmental resources, including air, surface water, and groundwater. BMPs and mitigation measures designed to avoid, minimize, or compensate for adverse impacts associated with the proposed activities include the following.

Best Management Practices:

- Fugitive dust produced from construction activities would be controlled by BMPs (e.g., wet suppression) as provided in TVA's fugitive dust control plans required under existing Clean Air Act Title V operating permits.
- Low ground-pressure-type equipment would be used in specified locations (such as areas with soft ground) to reduce the potential for environmental impacts, per TVA BMPs.
- BMPs described in *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Construction and Maintenance Activities, Revision 3* and in specific state regulatory sediment and erosion control handbooks would be outlined in the project-specific SWPPP and BMP plan, as required, that would be implemented to minimize erosion during site preparation. Appropriate BMPs would be followed, and all proposed project activities would be conducted in a manner to ensure that waste materials are contained and the introduction of pollution materials to the receiving waters minimized. Areas where soil disturbance could occur would be stabilized and vegetated with native or non-native, non-invasive grasses and mulched.
- Equipment washing and dust control discharges would be handled in accordance with BMPs described in the SWPPP for water-only cleaning and/or NPDES Permit TN082023 to minimize construction impacts to surface waters.

Mitigation Measures:

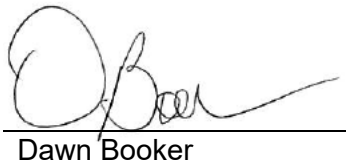
- To the extent practicable, TVA would establish an average 30-foot buffer around the emergent wetland located adjacent to the Aero 161-kV switchyard and preclude any ground-disturbing actions within the buffer to avoid direct impacts to the wetland.
- To the extent possible, TVA would prioritize clearing suitable summer roosting habitat for Indiana bat and northern long-eared bat during the winter months (October 15 – March

31) when bats are in caves and not out on the landscape. Unavoidable impacts to potential suitable summer roosting habitat for the northern long-eared bat and Indiana bat would be addressed using TVA's programmatic consultation on routine actions with potential to affect federally listed bats that was completed in April 2018 with the U.S. Fish and Wildlife Service in accordance with Endangered Species Act Section 7(a)(2). For those activities with potential to affect bats, TVA committed to implementing conservation measures established through the programmatic consultation. The conservation measures required for this project are identified on pages 5-7 of the TVA Bat Strategy Project Review Form (Appendix B), and they would be implemented as part of the proposed project.

- To the extent possible, TVA would prioritize tree removal during the winter clearing window (October 15 – March 31), which would be beneficial to migratory birds. If the timing of proposed construction activities within 660 feet of the osprey nests at the Johnsonville Reservation cannot be modified to avoid nesting seasons, coordination with the USDA-Wildlife Services would be required to ensure compliance under EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds).
- TVA would utilize noise abatement technology, as necessary, to ensure that noise emissions would not exceed 55 dBA at offsite noise receptors.

Conclusion and Findings

Based on the evaluation in the EA, TVA concludes that implementing the Johnsonville Aeroderivative Combustion Turbine Project, would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



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Date Signed