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**FINDING OF NO SIGNIFICANT IMPACT**  
**TENNESSEE VALLEY AUTHORITY**  
HELICON, ALABAMA – POWER SUPPLY IMPROVEMENT PROJECT  
LAWRENCE AND WINSTON COUNTIES, ALABAMA

**Proposed Action and Need**

Tennessee Valley Authority (TVA) proposes to improve the existing power supply system in the Helicon, Alabama, area by constructing and operating approximately 6.5 miles of new 161-kilovolt (kV) transmission line and by connecting Cullman Electric Cooperative’s (EC) planned Helicon 161-kV Substation to TVA’s existing Addison 161-kV Tap Line, near the existing Addison 161-kV Substation. Additionally, in order to allow for remote control operation of the existing switches at the Addison Tap Point, TVA would mount new cabinets and associated equipment on two existing switch structures in TVA’s Cullman-Moulton 161-kV Transmission Line.

TVA plans its transmission system according to industrywide standards provided by the North American Electric Reliability Corporation (NERC) and the National Electrical Safety Code. The standards state that the power supply system must be able to serve customer loads with adequate voltage and no equipment damage while maintaining adequate line clearances. There has been a growing demand for electric power in the Helicon, Alabama, area, which has caused electric loads to increase.

Cullman EC is planning to construct a new 161-kV substation to improve power reliability in the Helicon, Alabama, area. Cullman EC provides electrical service to the Helicon area by a 23-mile radial transmission line from its 46-kV Trade Substation. A radial line is capable of carrying electric power in only one direction, and radial transmission lines supply the entire Cullman EC service territory, with no backup supply. The radial exposure in the area has resulted in increased interruptions in electrical service and outages for the last five years. Due to the radial exposure and load growth in the area, TVA’s transformers at the Trade Substation are expected to be overloaded by winter 2012. Voltage levels at the Trade Substation fall below acceptable TVA criteria during the summer months when the power demand (or “load”) is at its peak.

The proposed action would meet this need by relieving the overloading of existing equipment and improving reliability in the Helicon area of Alabama and thereby allowing TVA to meet NERC reliability criteria. Additionally, the proposed action would allow TVA to ensure the Helicon area continues to be provided with a reliable, affordable source of power for continued economic health and residential and commercial growth in the area.

TVA has assessed the impact of the proposed action in an environmental assessment (EA) prepared in accordance with its procedures for implementing the National Environmental Policy Act (NEPA). This EA is attached and incorporated by reference.

## **Alternatives**

Two primary alternatives, i.e., the No Action Alternative and an Action Alternative, were analyzed in the EA. Under the No Action Alternative, TVA would not construct the proposed transmission line to serve Cullman EC's planned Helicon 161-kV Substation, and the TVA power system in the Helicon area would continue under the current operating conditions. With the continued use of existing facilities to supply power to the area, power outages could result from the failure of overloaded equipment. To provide reliable power to the area, Cullman EC could decide to build a new transmission line to serve its new substation. Cullman EC could possibly use the route identified by TVA, or it could select another route.

Under the Action Alternative, TVA would add approximately 6.5 miles of new 161-kV transmission line, with 4.5 miles built on new right-of-way (ROW) 100 feet in width and about 2 miles built on Cullman EC's existing 75-foot-wide ROW. TVA would purchase rights to use the existing ROW and an additional 25 feet of new ROW, 12.5 feet on either side of the 75-foot-wide ROW. The proposed ROW would occupy about 79 acres. To facilitate construction of the new 161-kV transmission line, TVA would retire approximately 1.9 miles of the deenergized 46-kV line currently on the distributor's ROW. Additionally, TVA would modify the existing switches at the Addison Tap Point in order to allow for remote control operation of the switches. Although only modifications to existing structures would be required, these switches would serve essentially the same function as a switching station. TVA would also provide Cullman EC with a switch structure and revenue metering equipment for installation at the planned new substation. The TVA system's mapboard at the System Operations Center and Regional Operations Center in Chattanooga would be modified to include the names and numbers of the new facilities. Adoption of this alternative would improve the reliability in the Helicon area and would accommodate future power demands. The Action Alternative is TVA's Preferred Alternative.

TVA considered various means of meeting the increasing need for power by serving Cullman EC's substation while planning this project. Following the receipt of public input, TVA evaluated a network of nine alternative line segments for improvements that would reduce power outages and relieve equipment that is near overload. Based on these evaluations, TVA has identified the Preferred Alternative.

In addition to the Preferred Alternative and the No Action Alternative, TVA considered other potential alternatives including:

1. Cullman EC would increase the capacity in its Trade 46-kV Substation by adding a new 46-kV transformer bank, rebuilding its 11.2-mile temporary Jones Chapel-Trade 46-kV Transmission Line and its 8.25-mile distribution line from its Trade Substation into the Smith Lake Community, and building a 26-kV switching station in the Helicon area.
2. TVA would install transmission lines underground instead of overhead.

However, these alternatives were eliminated from further consideration in the EA because they would provide ineffective solutions, were not feasible, or would be too expensive or impractical to implement.

## **Impacts Assessment**

Under the No Action Alternative, TVA would not undertake actions to improve the power supply to the Helicon area. Thus, there would be no direct environmental effects resulting from TVA's

actions. If no remedial measures were taken by Cullman EC, reliability of electric power in the Helicon area would become worse over time. This would likely lead to some negative socioeconomic effects over the long term. In the event that Cullman EC upgrades the Trade Substation capacity and rebuilds its transmission and distribution lines to provide power, some environmental effects could occur. The nature and extent of these effects would depend on the construction and operation methods used by Cullman EC.

Based on the analyses in the EA, TVA has concluded that implementation of the Action Alternative would have minor and insignificant impacts on aquatic life, surface water, groundwater, and aesthetics including visual, noise, and odor. Effects to floodplain functions are anticipated to be insignificant and consistent with Executive Order (EO) 11988. Approximately 25 acres of forestland would be cleared for the proposed transmission line ROW, resulting in a slight increase in the amount of forest fragmentation and a minor increase in the amount of edge habitats in the proposed ROW. Plant and wildlife communities, including Neotropical migratory birds and other wildlife that depend on forest-interior habitats, would be affected by the proposed project. Most species that would be affected by these changes are locally and regionally common.

Cumulatively, project-related effects to forest resources would be negligible when considered in the context of the total forestland occurring in the region, and forest conversion would be regionally insignificant due to the high amount of habitat fragmentation that already exists along the proposed route. While most of these forested communities are common and well represented throughout the region, two occurrences of the globally rare Cumberland Plateau Mesic Hemlock - Hardwood Forest plant community have been observed in the project area. In the project area, the Cumberland Plateau Mesic Hemlock - Hardwood Forest plant community is between 500 and 750 feet across at the widest point, and the approximately 2 acres of clearing associated with the proposed project would not affect the integrity of the occurrence or significantly increase fragmentation of the plant community because of its naturally linear nature. With the exception of prairie habitat for a large, previously unrecorded Eggert's sunflower population (discussed below), no other unique terrestrial habitats would be affected. Overall, effects to wildlife and vegetation would be minor and insignificant. Invasive terrestrial plants occur in the project area. The use of TVA standard operating procedures for revegetating with noninvasive species would help prevent the further introduction and spread of invasive species within the affected project area.

A total of 44 watercourses including six perennial, four intermittent, seven ponds, and 27 wet-weather conveyances occur along the proposed transmission line and access roads routes. Some turbidity from increased sedimentation during construction is anticipated, but with implementation of standard best management practices (BMPs), impacts to the affected watercourses are expected to be minor and insignificant.

The proposed project would not result in direct, indirect, or cumulative effects to any federally or state-listed terrestrial or aquatic animal species or their habitats. Suitable roosting habitat for gray and Indiana bats does not occur in the project area, but foraging habitat occurs along the proposed transmission line route for both gray and Indiana bats. Implementation of the Action Alternative would not affect this foraging habitat because standard BMPs that minimize sediment and pollutant input into water bodies would be implemented during construction activities. Two state-listed plant species (Eggert's sunflower and mountain camellia) occur in the proposed transmission line ROW. The proposed project is not expected to adversely affect the mountain camellia species in the project area because the plants are located in areas that would not be disturbed during construction and maintenance of transmission lines. A large,

previously unrecorded population containing several hundred individual Eggert's sunflower plants was observed by TVA biologists within the distributor's existing transmission line ROW. This small open area within the ROW represents important habitat for the species because it requires open conditions to thrive. Periodic disturbance associated with power line operation and maintenance does not necessarily preclude Eggert's sunflower from occupying transmission line ROWs, but effects of construction-related disturbance and aerial applications of herbicide have the potential to negatively impact the species. TVA would implement measures (see Mitigation section) to avoid adversely affecting Eggert's sunflower and its habitat. With these measures in place, TVA determined that Eggert's sunflower would not be adversely affected by the proposed actions.

The proposed transmission line would span the two emergent wetlands, the scrub-shrub wetland, and the 0.05-acre forested wetland located within the ROW; no structures would be placed in the wetlands. Wetlands would be allowed to continue functioning in the same capacity as current conditions. Because BMPs would be implemented during transmission line construction and ROW maintenance, potential effects to wetlands would be minor and insignificant, and no cumulative wetland impacts are anticipated. Use of BMPs and vegetation management would minimize impacts to wetlands consistent with the requirements under EO 11990.

TVA found that no archaeological resources potentially eligible for the National Register of Historic Places (NRHP) would be affected, and no further investigations are recommended. Therefore, under the Action Alternative, the proposed undertaking would not adversely affect any historic properties that are potentially eligible or currently listed in the NRHP. No direct, indirect, or cumulative impacts to historic resources are anticipated.

### **Public and Intergovernmental Review**

TVA consulted with the Alabama State Historic Preservation Officer and 17 federally recognized Native American tribes concerning the proposed project. Additionally, TVA contacted the Alabama Department of Archives and History, Alabama Natural Heritage Program, and the United States Forest Service. Information about the project was posted on a TVA Web site. Potentially affected landowners, local officials, and other interested parties were invited to an open house (attended by 75 people) held on November 19, 2009, in Addison, Alabama.

### **Mitigation**

In order to minimize potential impacts to Eggert's sunflower, TVA would commit to implementing the following conservation measures listed below:

- Clearing of woody vegetation in areas with Eggert's sunflower will be accomplished with a feller-buncher.
- Heavy equipment will not be used during construction to recontour, remove tree stumps, or otherwise intentionally disturb the soil profile in areas containing Eggert's sunflower.
- TVA botanists will coordinate with TVA construction personnel to erect temporary fencing around areas where Eggert's sunflower occurs during construction activities.
- Areas containing Eggert's sunflower will be revegetated only with native species or the nonnative, noninvasive annual species of barley, foxtail millet, oats, perennial ryegrass, rye, Sudangrass, or winter wheat.

- TVA will not use aerial application of herbicide in areas where Eggert's sunflower grows; mowing, hand-clearing, or selective spraying of herbicide to control woody species will be used to control woody vegetation in the ROW.

**Conclusion and Findings**

Based on the findings in the EA and the implementation of the stated conservation measures, TVA concludes that the construction of the proposed 161-kV transmission line as described under the Action Alternative would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



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Federal Determinations  
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Date Signed