

FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
KIRKMANSVILLE-CLIFTY CITY POWER IMPROVEMENT PROJECT,
CHRISTIAN, MUHLENBERG, AND TODD COUNTIES, KENTUCKY

Proposed Action and Need

The Paradise-Hopkinsville 69-kilovolt (kV) Transmission Line supplies several Tennessee Valley Authority (TVA) and Pennyryle Rural Electric Cooperative Corporation (RECC) substations in Christian, Muhlenberg, and Todd Counties, Kentucky. This 45.7-mile-long line has experienced 80 interruptions in the last 5 years, and excessive voltage fluctuations have occurred at the Kirkmansville and Clifty Substations. TVA proposes to improve the electric power supply in the subject area with the following actions:

- Retire the Kirkmansville 69-kV Substation and replace it with a new 161-26-kV substation to be known as the Fruit Hill Substation. The Fruit Hill Substation would serve as a new delivery point for the Pennyryle RECC and would be built on an 11-acre site at Structure 35 on the Paradise-Hopkinsville No. 2 161-kV Transmission Line.
- Construct a new 161-69-kV substation (the Jason Substation) to add another 69-kV power source to the area. The Jason Substation would be located on a 5-acre site at the intersection of the Paradise-Clarksville 161-kV Transmission Line and the Kirkmansville-Dunmor 69-kV Transmission Line.
- Rebuild a 23-mile section of the Paradise-Hopkinsville 69-kV Transmission Line from the Clifty Substation tap to the Paradise Fossil Plant (PAF). The rebuilt portion of the line would include the Kirkmansville-Dunmor 69-kV Transmission Line from the Clifty Substation to the Dunmor Substation and the Dunmor-Paradise 69-kV Transmission Line from the Dunmor Substation to PAF. The transmission line would be rebuilt on the existing right-of-way. The new line would have steel-pole structures to replace the wooden poles used currently.

TVA has reviewed the proposed action and reasonable alternatives in an Environmental Assessment (EA) in accordance with its procedures implementing the National Environmental Policy Act (NEPA). This EA is incorporated by reference.

Alternatives

Three alternatives, i.e., a No Action Alternative and two action alternatives, were developed. Under the No Action Alternative, the proposed transmission line upgrade would not be undertaken, and the two substations would not be built. This alternative would not adequately address the transmission reliability issues mentioned above.

Under one of the action alternatives, TVA would retire the Kirkmansville Substation and construct the new Fruit Hill Substation and the Jason Substation. Similarly, TVA would rebuild the Paradise-Hopkinsville Transmission Line from the Clifty Substation tap to PAF. Implementation of this alternative would meet the growing power needs in the area, reduce service interruptions, eliminate excessive voltage fluctuations, and provide additional capacity for growth of the electrical load.

The second action alternative was to rebuild the entire 45.7-mile-long Hopkinsville-Paradise 69-kV Transmission Line to 161-kV standards, but operate the line at 69-kV. Capacitor banks would be added at the Clifty Substation to alleviate voltage drops. This option would likely alleviate the outage problems from unknown sources, and voltage fluctuations would likely be held to acceptable levels. However, the line would remain susceptible to outages due to the length of the line, and it would eventually need to be upgraded to 161-kV to accommodate growth in power demand. TVA subsequently determined that this alternative would be expensive and would not adequately address the electric power reliability or capacity concerns in the Pennyrite RECC service area. Consequently, this alternative was eliminated as a viable option.

Impacts Assessment

Under the No Action Alternative, the proposed Jason and Fruit Hill Substations would not be constructed, and the Kirkmansville Substation would remain in service. Similarly, the Paradise-Hopkinsville 69-kV Transmission Line would remain in service in its current condition, and reliability problems are expected to persist. Potential construction-related effects to the environment would not occur under the No Action Alternative. No effects beyond those already associated with maintenance of the existing transmission line are expected to occur.

Under the Action Alternative, TVA would build the two proposed substations, retire the Kirkmansville Substation, and rebuild a 23-mile portion of the Paradise-Hopkinsville 69-kV Transmission Line from the Clifty Substation tap to PAF. Construction of both the Jason and Fruit Hill Substation sites would involve soil disturbance. Construction at the Jason site would require clearing of approximately 5 acres of wooded area. The 5-acre construction assembly area near the Jason site would be graveled and would require some soil disturbance. Site preparation at the Fruit Hill site would involve approximately 11 acres, which would include the substation and the construction laydown area. Rebuilding the subject portion of the Paradise-Hopkinsville Transmission Line would involve a small amount of soil disturbance, primarily from the setting of new steel poles. Erosion and potential runoff from exposed soil can potentially affect surface water quality and, eventually, aquatic life. Sediment and contaminants can likewise potentially affect groundwater. Best Management Practices (BMPs) as described in *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Transmission Construction and Maintenance Activities* as well as environmental protection measures outlined in the following TVA documents: *Environmental Quality Protection Specifications for Transmission Line Construction*; *TVA Transmission Construction Guidelines Near Streams*; and *Environmental Quality Specifications for Transmission Substation or Communications Construction* will be employed to minimize adverse effects to water quality and aquatic life from construction activities. Thus, potential effects to surface water, groundwater, and aquatic life would be minor and insignificant.

No threatened or endangered plant or animal species would be affected by the proposed actions. No unique communities were found on the substation construction sites or along the right-of-way of the transmission line to be rebuilt, and the plants and animals in these areas are common. Thus, potential effects to the biological community would be minor and insignificant.

The transmission line to be rebuilt crosses the Peabody Wildlife Management Area (WMA) and portions of Lake Malone. Because existing rights-of-way would be used, potential effects to the WMA would be minor. Construction BMPs would be used at locations where the transmission line crosses Lake Malone; thus, potential effects to water-based recreation would be minor and insignificant. Because of the distance from the right-of-way to Lake Malone State Park (0.4 mile) and because the park is located across the lake from the right-of-way, potential effects to

the park are not expected. Construction of the substations is not expected to affect recreation opportunities or any managed areas.

No wetlands are located on the proposed substation sites, laydown areas, or construction assembly areas, and no wetland impacts are expected from the construction of the substations. Potential effects to wetlands within the right-of-way are expected to be insignificant, and the transmission line rebuild is not expected to require excavation in jurisdictional wetlands. Access road upgrades could affect two forested wetland areas. Application of BMPs, such as silt fences, would minimize potential impacts to these two wetlands. Thus, potential effects to wetlands from the proposed actions are expected to be minor and insignificant.

Neither of the proposed substation sites is located in a floodplain. However, the Paradise-Hopkinsville Transmission Line right-of-way crosses the 100-year floodplain. Transmission lines are considered repetitive actions within the 100-year floodplain under Executive Order 11988, and location of structures in the floodplain is not expected to increase flood hazard. Use of BMPs would further reduce potential floodplain effects.

Six archaeological sites and 29 historic structures were identified in the Area of Potential Effect. None of these were considered eligible for listing on the National Register of Historic Places. The Kentucky State Historic Preservation Officer (SHPO) concurred in this determination. Thus, the proposed undertaking will not have the potential to affect any historic properties that are potentially eligible, eligible, or currently listed on the National Register of Historic Places.

The rebuilt transmission line would be visually similar to other lines and structures in the local area, as well as similar to the existing line. Rebuilding the line and construction of the substations would result in minor visual discord during construction due to additional personnel, equipment, and laydown areas. However, these visual effects would be insignificant.

No change in agricultural land use would result from rebuilding the transmission line. The Jason and Fruit Hill Substation sites were evaluated and were not rated as prime farmland. Thus any potential effects to prime farmland would be insignificant.

Mitigation

The following routine measures would be applied during construction and operation of the proposed transmission line rebuild and during construction and operation of the two proposed substations:

- Appropriate BMPs as described in *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Transmission Construction and Maintenance Activities* would be implemented during construction activities.
- During construction, the environmental quality protection specifications as described in Appendices B, C, D, E, and F of the attached EA would be implemented to reduce the potential for adverse environmental effects.

With the implementation of these measures and safeguards, potential adverse effects are expected to be insignificant.

Public and Intergovernmental Review

The Natural Resources Conservation Service (NRCS), the Kentucky SHPO, and the Kentucky Department for Environmental Protection were contacted concerning the proposed project. The

NRCS responded by supplying prime farmland ratings in accordance with the requirements of the Farmland Protection Policy Act. The Kentucky SHPO was contacted in accordance with the provisions of the National Historic Preservation Act regarding concurrence with TVA's determination of no effect to historic properties. The SHPO concurred with that determination pending receipt of two copies of the archaeological report within 15 days of the SHPO's December 15, 2004, concurrence. Copies of the report were delivered. The Kentucky Department for Environmental Protection did not respond.

Conclusion and Findings

The proposed project would not affect threatened or endangered species. Following a cultural resources survey, TVA determined that the proposed undertaking would not have the potential to affect any historic properties that are potentially eligible, eligible, or currently listed on the National Register of Historic Places.

Placement of transmission line support structures in the 100-year floodplain is considered a repetitive action under Executive Order 11988. Such structures are not expected to increase the flood hazard. Construction of the two proposed substations would not affect wetlands. In the event there is no practical alternative to placement of support structures in jurisdictional wetland areas, construction of the structure(s) would be done in accordance with Nationwide General Permit No. 12. Should access road improvements require fill in wetlands, appropriate permits will be acquired and erosion control measures will be implemented to minimize potential effects to wetlands. With these measures in place, potential effects to wetlands would be insignificant.

Environmental Policy and Planning's NEPA Administration staff have reviewed the subject EA and determined that the potential environmental consequences of TVA's proposed transmission system improvements have been addressed adequately in the EA. Based on the findings in the EA, including implementation of the required mitigation, TVA concludes that the proposed action is not a major federal action significantly affecting the quality of the environment. Accordingly, an Environmental Impact Statement is not required.

Charles P. Nichols for JML *February 7, 2005*

Jon M. Loney, Manager
NEPA Administration
Environmental Policy and Planning
Tennessee Valley Authority

Date Signed