

FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
VOLUNTEER-EAST KNOX BULK TRANSMISSION PROJECT
KNOX COUNTY, TENNESSEE

Tennessee Valley Authority (TVA) serves the power needs of Knox, Sevier, and Jefferson counties and the surrounding areas of eastern Tennessee through a infrastructure network, that includes 161-kV and 500-kV transmission lines, 161-kV and 500-kV substations, and several generating facilities. While the Douglas and Cherokee Hydroelectric Plants are critical power sources, power generation from these plants during drought conditions can be unreliable. Studies have indicated that during these drought periods, the loss of a single transmission source would result in heavier line loadings on the TVA transmission facilities in the area, making them highly susceptible to voltage and capacity problems.

Accordingly, to continue to meet the power demand in the area, TVA proposes to modify its transmission system to supply the area through an additional source, the Volunteer 500-kV Substation. Knoxville Utilities Board (KUB), a distributor of TVA power, has also requested that TVA provide a new 161-kV delivery point to their planned East Knox 161-kV Substation. TVA proposes to purchase a 34.85 acre site and sell approximately 11 acres of this site to KUB for a joint TVA-KUB East Knox 161-kV Substation.

Overall, then, to improve the TVA bulk power system and provide the delivery point requested by KUB, TVA proposes to construct and operate approximately 13.4 miles of new 161-kV double-circuit transmission line connected to the Volunteer 500-kV Substation and a new 1-mile loop line that would then supply power to KUB's new substation through a new TVA switching station. The construction of new transmission lines and a new switching station would provide redundancy within the TVA electric transmission system to overcome the voltage and capacity problems and improve reliability in KUB's service area, thereby allowing TVA to meet the reliability criteria established by the North American Electric Reliability Corporation (NERC). Furthermore, the proposed project would allow TVA to ensure the area is provided with a strong, affordable source of power for continued economic health and residential and commercial growth in the area.

The potential environmental effects of this proposed action are described in an environmental assessment (EA), which is incorporated by reference.

Two feasible alternatives, i.e., the No Action Alternative and the Action Alternative, were considered in the environmental review. Other potential action alternatives were considered, but they were eliminated from further consideration for various reasons described in the EA. In addition, TVA examined a number of different line routing alternatives.

Under the No Action Alternative, TVA would not construct the proposed switching station, transmission lines, or other facilities to improve the project area power supply. As a result, the TVA power system in the project area would continue to operate under the current conditions, increasing the risk for loss of service and occurrence of violations of the NERC reliability criteria.

Further, under the No Action Alternative, TVA would not purchase property for a new joint switching station and substation or provide a new transmission line delivery point to serve KUB's planned substation. KUB would still have to address overloading equipment and voltage problems at several of their substations. KUB would purchase property to build their new substation and could independently decide to construct a new transmission line to serve its new substation. The distributor could use the proposed substation location and Dumplin Valley-Nixon Road 161-kV Transmission Line route identified by TVA, or it could select a different substation location and/or another route.

Under the Action Alternative, TVA would upgrade the existing TVA power supply system by constructing and operating about 14.4 miles of new 161-kV transmission line and a new 161-kV switching station. TVA would also purchase a 34.85-acre site for a joint TVA-KUB East Knox 161-kV Substation. TVA would prepare approximately 28 acres of this site for construction of the new facilities. TVA would then build the new 161-kV switching station on about 17 acres and sell approximately 11 acres of this site to KUB for their construction of a new substation. KUB would reimburse TVA for their portion of the property as well as TVA's site preparation for KUB's substation.

The new transmission line rights-of-way (ROW) would be 100-foot-wide, with segments located parallel to an existing TVA ROW, on the vacant, TVA Waterville-Arlington Transmission Line ROW, and on new ROW. Access roads would be required for the construction and maintenance of the proposed transmission lines. Prior to construction, TVA would also remove several structures (such as houses or barns) that are currently located on the proposed ROW and substation site.

Additionally, under the Action Alternative, TVA would complete the following to facilitate the operation of the new transmission lines and switching station:

- Install OPGW along the new double-circuit transmission line;
- Install a new structure on the double-circuit Volunteer-Knox #2 and Volunteer-North Knoxville #2 161-kV transmission lines to raise the existing conductor and allow the proposed Volunteer-East Knox 161-kV Transmission Line to pass underneath with proper electrical clearance;
- Provide a 69-kV transmission line underbuild, if necessary, for KUB at the entrance to the East Knox 161-kV Substation;
- Install a new 161-kV breaker, replace relay equipment, and add new telecommunications connections at the Volunteer 500-kV Substation; and
- Modify the TVA system's map board at the SOC and ROC in Chattanooga to include the names and numbers of the new transmission lines and switching station.

Other alternatives were considered, but were eliminated for various reasons. Implementation of these other alternatives would incur high costs and would result in their own associated environmental impacts. Adoption of these alternatives would not improve the long-term reliability of the TVA transmission system in the area and would not provide the necessary flexibility in the system. Because adoption of these other alternatives would not fully meet project needs as well as the Action Alternative, these alternatives were not discussed at length in the EA.

Based on the analyses in the EA, TVA determined that implementation of the Action Alternative would have minor and insignificant effects on groundwater, surface water quality, aquatic life, local vegetation and wildlife, floodplain functions, the availability of prime farmlands, local

aesthetic quality, recreational opportunities, and natural areas. The socioeconomic effects caused by inadequate power supplies would be prevented under the Action Alternative.

A total of 0.27 acre of forested wetlands would be converted to scrub-shrub/emergent wetlands. No significant direct, indirect or cumulative effects to wetlands are anticipated from the proposed project. Impacts to wetlands and floodplains would be minimized consistent with the requirements of Executive Order 11990 (Protection of Wetlands).

The proposed transmission line would have a visual effect on the Strong Stock Farm listed on the National Register of Historic Places (NRHP) due to the visibility of the transmission line from the property's southwestern extremity. However, TVA determined the effect would not be adverse due to the naturally mitigating effects of distance, and because the eligible historic structures would not be within a line-of-sight of the proposed transmission line. The proposed transmission line would also have a visual effect on another historic structure (i.e. the Rising Sun Church) that is eligible for inclusion on the NRHP. However, the effect would not be adverse because modern development has already compromised the historic setting of this structure.

One NRHP-eligible archaeological site was found within the area of potential effect. To avoid impacts, TVA would not place structures within the site boundary. Additionally, construction and maintenance activities would occur during dry conditions or with low ground-pressure tire equipment to avoid rutting or excavation of the site. With the implementation of TVA's standard best management practices and these avoidance measures, impacts to the archaeological site would not be adverse. The Tennessee State Historic Preservation Officer concurred with TVA's determination of these effects to historic properties in letters dated July 16, 2008, October 3, 2011, June 20, 2012, and August 7, 2012. Accordingly, TVA's obligations under Section 106 of the National Historic Preservation Act are satisfied.

The proposed transmission line would cross the Holston River, listed on the Nationwide Rivers Inventory (NRI). This NRI-listed stream would not be affected because the crossing would occur parallel to an existing transmission line, and because of the implementation of BMPs. House Mountain Designated State Natural Area and Tuckahoe Creek State Scenic River are located more than one mile from the proposed project area. Because of this physical separation, no direct, indirect, or cumulative impacts to these natural areas are anticipated as a result of the proposed action.

Because appropriate best management practices, including the establishment of streamside management zones would be implemented during construction and maintenance of the proposed facilities, no adverse impacts to federally or state-listed threatened and endangered aquatic species are expected. Adoption of the Action Alternative is not expected to cause direct or indirect impacts to threatened and endangered terrestrial plant species or their habitats. The United States Fish and Wildlife Service (USFWS) concurred with TVA's determination that the proposed actions are not likely to adversely affect Indiana bat and would not affect any other federally listed threatened and endangered animals in a letter dated November 30, 2012. Thus, the requirements of Section 7 of the Endangered Species Act are satisfied.

Portions of the proposed transmission lines as well as certain access roads would be located within the 100-year floodplain. Overhead transmission lines (and support structures) and access roads are considered repetitive actions for purposes of Executive Order 11988 (Floodplain Management). The ROW would be revegetated where natural vegetation is removed to minimize impacts to floodplain values, and new access road construction would be

undertaken in a manner that does not increase flood elevations. TVA's proposed switching station and KUB's proposed substation are located outside of the 100-year floodplain. Likewise, the proposed Dumplin Valley-Nixon Road 161-kV Loop Line is outside of the floodplain. Thus, the proposed action is consistent with Executive Order 11988.

Public and Intergovernmental Review

TVA posted information about the project, including a map of alternative routes and feedback mechanisms, on its website. Public officials were briefed on the project. Potentially affected property owners, along with seven public officials, were invited to a project open house, which was held on July 10, 2008, in Strawberry Plains, Tennessee. TVA used local news outlets and placed notices in the local newspapers to notify the public of the meeting, which was attended by 194 people.

At the open house, TVA presented a network of 36 alternative transmission line routes comprised of 22 different line segments, along with two possible locations for switching stations. A 30-day public review and comment period was held following the open house, and TVA accepted public comments on the proposed action.

At the conclusion of the comment period, TVA made adjustments to some of the proposed transmission line route segments in response to the comments received and announced a preferred Volunteer-East Knox 161-kV Transmission Line route and East Knox 161-kV Substation site to the public in November 2008. Letters were sent to affected property owners and information was provided to the public through TVA's website.

Further adjustments to the preferred transmission line route and the addition of two more alternative substation sites were made as a result of additional information received from both public and agency comments as well as field surveys. In February 2011, letters were again sent to the affected property owners regarding these changes to the preferred route and substation location, and information was provided to the public through TVA's website. Subsequently, TVA provided another opportunity for public review when the Draft EA was made available for public comment on July 17, 2012. The comment period closed on August 17, 2012. One comment on the proposed project was received from Tennessee Department of Environment and Conservation (TDEC).

TVA consulted with the National Park Service, TDEC, the Tennessee Historic Preservation Office, USFWS, and 16 federally recognized Native American tribes concerning the proposed project.

Mitigation

TVA will implement, or require adherence to, the routine measures listed in the EA during construction and operation of the proposed transmission lines, access roads, and substation site. In addition, the following non-routine measures would be implemented during construction, operation, and maintenance of the proposed transmission lines, access roads, and substation site to reduce the potential for adverse environmental effects.

1. Any tree clearing activities between Carter Mill Drive and Cooper Road that are associated with construction and maintenance practices of the Volunteer-East Knox 161-kV Transmission Line ROW would occur between November 15 and March 31.

2. Any tree clearing activities in areas defined as immediately north and south of I-40 that are associated with construction and maintenance practices of the Dumplin Valley-Nixon Road Loop Line ROW would occur between November 15 and March 31.
3. TVA would not place any transmission line structures within the boundary of Site 40KN303.
4. TVA would conduct all work within the boundaries of Site 40KN303 related to the construction, operation, or maintenance of the transmission line during dry conditions or with low-ground pressure-tire equipment so that no rutting or excavation would occur.
5. TVA would provide a vegetative screening along a portion of the western boundary of the East Knox 161-kV Substation site to reduce the visual effects of the new facility.

TVA has not identified the need for any other non-routine mitigation measures to further reduce potential environmental impacts.

Conclusion and Findings

Based on the findings in the EA, TVA concludes that the construction of the proposed 161-kV transmission lines, the substation site, and associated actions identified to facilitate the operation of the new transmission lines and switching station as described under the Action Alternative will not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required. This finding is contingent upon adherence to the mitigation measures described above.



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Chuck P. Nicholson, Acting Senior Manager
NEPA Interface
Environmental Permits and Compliance
Tennessee Valley Authority

Date Signed