Albemarle County Special Use Permit
CVEC Transmission Line Improvement
Project Narrative

PROJECT PROPOSAL

In 1966 Central Virginia Electric Cooperative (CVEC) completed a transmission line from the Cash's Corner Substation southwest of Gordonsville to the Zion Crossroads Substation near the intersection of Route 250 and Route 15. The line was installed to operate at 46,000 volts, a standard transmission voltage at that time. Since the original installation, load growth has required CVEC to upgrade both of these substations plus add substations at Henson's Store, Ferncliff and Shannon Hill along the Interstate 64 corridor.

In 1994, CVEC began a 20 year project to provide a loop feed for this increasingly important string of substations. The loop was started in Columbia and runs to Shannon Hill, then to Ferncliff, Henson's Store and Zion Substations. Each of those stations is now operating at 115,000 volts (115 kV), as does the Cash's Corner substation.

The last link in this two-way feed is the Cash's Corner to Zion xx mile transmission line being modified to operate at 115 kV. CVEC has rebuilt xx miles of the xx mile line to operate at 115 kV. This rebuild of 4.5 miles will complete the loop feed capabilities with approximately 2.7 miles within Albemarle County. The structures will be single pole structures, similar to the existing structures, but will be 25 to 30 feet taller than existing structures. The existing poles range in height from 55 to 70 feet. The new poles will range in height from 65 to 90 feet. At least 10% of the pole height is embedded in the ground to support the structure. The increased height is required to meet increased ground clearance requirements and increased conductor separation when operating at a higher voltage of 115 kV. Similar to the existing structures, approximately 1.3 miles of the line will have distribution line built under the transmission lines on the same structure.

<u>Original Line Easements and Approvals</u>

CVEC purchased easements for the right to construct electric transmission facilities from the landowners in Albemarle County and other counties in 1964 and 1965. The easements are recorded in Albemarle County. All of the line being rebuilt, will remain in the same easements and the easement width will not change. One small easement change consisting of 0.106 acres has been negotiated with the land owner, Virginia Outdoors Foundation, and the County of Albemarle Conservation Easement on the property adjacent to the Cash's Corner Substation. The land use of the easement area under the transmission line will not change and the uses permitted by right will not be impacted.

<u>System Statistics and Electric Loading</u>

The transmission loop feed, when completed from the Cash's Corner substation, will extend 35 miles through four counties. It will connect five substations and more than 6,500 accounts representing almost 19% of the members of Central Virginia Electric Cooperative. The peak load on the system will be more than 50 megawatts (MW).

Industry best practices provide loop connectivity for connected loads in excess of 50 MW.

CONSISTENCY WITH COMPREHENSIVE PLAN

The transmission line replacement will be within the existing easement using the same type of single pole structures. Agricultural activities within the easement area will not be significantly impacted.

IMPACTS ON PUBLIC FACILITIES & PUBLIC INFRASTRUCTURE

Rebuilding this section of the transmission line and completing the loop feed capability will improve the reliability of the electric system infrastructure for CVEC customers from the Cash's Corner substation to Keswick in Albemarle County, along with other CVEC members from Zion to Hadensville.

In the past five years, the transmission feed along the Interstate 64 corridor has experienced several reliability failures. With a single source feed, transmission outages generally result in longer periods without service. The problems are more difficult to find due to the long length of the lines, and the problems take longer to repair due to the higher voltage and taller structures. CVEC members from Keswick to Gum Spring have experienced four outages affecting the entire line and totaling 20 hours without power. In addition, several other outages affecting part of the line have been longer duration due to the lack of a second feed into the area.

The line serves mostly residential areas in Albemarle, Fluvanna, Louisa and Goochland counties but there are a number of large accounts that are very sensitive to reliability concerns in these areas. The women's prison in Fluvanna, a Louisa County Elementary School, the dialysis center at Zion Crossroads, the Walmart Distribution Center which includes about twenty acres of refrigerated storage within its facility, plus numerous industrial and commercial accounts are connected to these lines. The cell towers and other communication facilities along the I-64 corridor are connected to the local lines served from this transmission system.

Reliability for more than 6,500 accounts will be improved.

IMPACTS ON ENVIRONMENTAL FEATURES

CVEC is a borrower of the Department of Agriculture, Rural Utility Services to finance electric system improvement projects. CVEC was required to perform a "Borrower Environmental Review" (BER) for the Cash's Corner to Zion transmission line rebuild project.

As part of the environmental review the Virginia Department of Conservation and Recreation (VDCR) Natural Heritage (NH) identified the project area as potential habitat for the endangered Smooth Coneflower plant. CVEC subsequently contracted a firm to perform a pedestrian habitat survey along the entire route of the project. The survey resulted in no smooth coneflower plant observed within the portions of the right-of-way containing the most suitable habitat.

The proposed project should have no impact on existing environmental features.

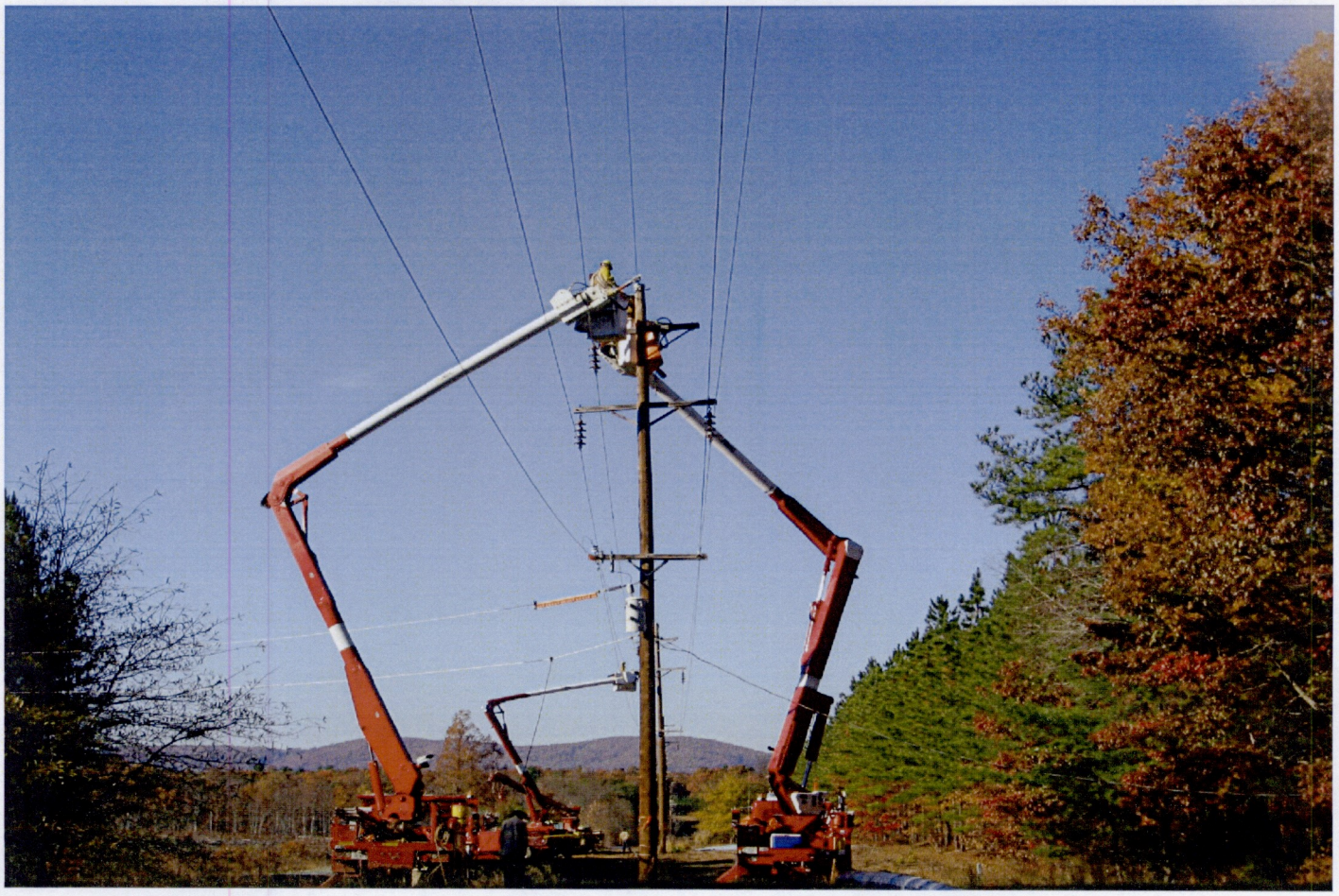
CENTRAL VIRGINIA ELECTRIC COOPERATIVE
ELECTRIC TRANSMISSION LINE ROUTE

CENTRAL
VIRGINIA
ELECTRIC
COOPERATIVE

Sample Line Construction Photos

Cash's Corner Transmission Line Rebuild

Removal of Old 46 KV Line



115 KV Transmission Line
Poles will be brown weathering steel
not galvanized steel as shown

NEW 115 KV LINE WITH 25 KV DISTRIBUTION UNDERBUILD
POLES WILL BE BROWN WEATHERING STEEL NOT GALVANIZED STEEL AS SHOWN