



## **Underground Transmission Lines Advisory Committee Final Report**

### **Introduction**

The placement of transmission lines has become a topic of increasing public interest, as seen by recent proposals for placement of lines in Northern Virginia and north-west Virginia that have become somewhat controversial. Transmission lines refer to the high-voltage lines (typically 100 kilovolts of power or more) that carry electricity to the various distribution lines, and are typically strung between large towers. While the Commonwealth's energy needs continue to grow, citizens have become increasingly concerned about the effect of the placement of overhead transmission lines on property values, conservation efforts, historical preservation, and general aesthetics. Technology does allow for the placement of certain lines underground; however these lines generally include more up-front costs. Thus far, the State Corporation Commission has been wary of approving the placement of lines underground, except in exceptional circumstances.

### **Legislative Members:**

Delegate Joe T. May, Chairman  
Delegate Tom Rust

### **Other Members**

Michael Aisenberg, Information and Infrastructure Technologies, Inc.  
Robert Bisson, Northern Virginia Electric Cooperative  
Kevin Curtis, Dominion  
Ronald Dombrosky, Trans-Allegheny Interstate Line Company  
Matt Faulconer, Rappahannock Electric Cooperative  
Steve Hale  
Dan Holmes, Piedmont Environmental Council  
Scott Mayausky, Commission of the Revenue, Stafford County  
Robert McKew  
Daniel "Bud" Oakey, Advantus Strategies  
Robert Perrow, WilliamsMullen  
Ronald Poff, Appalachian Power Company  
Irene Leech, Virginia Tech

### **Summary**

JCOTS first began to study the technological feasibility of burying transmission lines during the 2005 Interim. That study was primarily gained at information gathering. As a result of the study, JCOTS recommended that the Joint Legislative Audit and Review Commission (JLARC) be directed to study the criteria and policies used by the State Corporation Commission in evaluating the feasibility of placing transmission lines underground, as well as to examine the long-term costs that the SCC takes into account in its review of applications (HJ 100, 2006. Final Report at House Document 87 (2006)).

One issue that became apparent in review of previous SCC studies, along with review of the JLARC Report is that the SCC follows the mandates set forth by the General Assembly, which have not substantively been changed in many years. The Code of Virginia does not directly address factors that should be considered in placing lines underground. Several pieces of legislation were introduced during the 2007 Session of the General Assembly that would have specifically addressed placing transmission lines underground, but none were ultimately adopted.

Opponents of placing transmission lines overhead argue that the visibility of the lines adversely affects property values. Legislation was introduced during the 2007 Session of the General Assembly that would have required utilities to compensate property owners for damage to viewshed, but this legislation was not adopted (see HB 3115 (2007)). In addition, it is argued that lines could be placed underground with less damage to natural and historical resources, as not as much property would be required to be disturbed. Finally, opponents suggest that underground lines offer greater reliability than overhead lines, as they are not as easily disturbed by wind, storms, etc. While recognizing that the upfront costs of construction of underground lines is higher than overhead lines, proponents of the underground lines argue that less maintenance and repair is required over the life of the line, and thus equalizing the costs of overhead versus underground lines when looking at lifetime costs. In addition, this same group argues that impact on property values should be considered in examining the costs associated with overhead lines.

Generally, utility companies in Virginia favor placing transmission lines overhead, and rely only on undergrounding when circumstances make an overhead line very difficult or impossible (in a channel crossing, for example). Utilities express concern over the extra costs that might be associated with underground lines, and the effect this might have on utility rates. Utilities also challenge the claim that underground lines are more reliable. While acknowledging that underground lines may experience fewer outages, they indicate that the outages that do take place may be harder to pinpoint, and that the repairs generally require more extensive work -- thus extending the duration of the outage.

Virginia is not the only governmental entity addressing this issue. A few years ago, the state of Connecticut passed a law that all new lines be placed underground, to the extent technologically possible. The results of this legislation have been exceedingly costly, and do not allow for balancing and consideration of when placing a line overhead or underground is desirable. Likewise, discussions with government officials in France and Denmark indicate that societal and political pressures led to placing some lines

underground. Again, however, in these circumstances there is little opportunity for balancing, and the decisions as to where to place the line are dictated by politics. In reviewing all of these instances, however, it is clear that technology placing very high voltage lines (such as 500 kv) underground is not largely tested and is not yet an accepted industry standard.

In using this advisory committee as a source of ideas, and as a sounding board, chairman Delegate Joe May frequently stated that while the need for cost effective, reliable electricity is more necessary than ever, the approach to delivery needs to be considered. He indicated that the approach to delivery used by the utilities and the SCC has not changed much over the past 70 years, but that technology allows for new methods of distributing electricity. He has used this advisory committee as a mechanism to try to develop a standard approach to decide when it is appropriate to place lines underground, so that such decisions can be made on an objective basis, instead of in response to political and social outcry.

### **Final Recommendations**

Delegate May presented an outline for a pilot program that would require the SCC to approve four projects to be placed underground before 2012, and to use this pilot to study to make future policy recommendations. While this recommendation was not voted on by the advisory committee, it was discussed in detail at the final meeting of this advisory committee and several changes were made to the proposal in light of committee discussion.