FACT SHEET

ASSESSMENT OF ALTERNATIVE SUBSTATION SITES AND TRANSMISSION LINE ROUTES FOR THE RUTHERFORD-WILLIAMSON-DAVIDSON POWER SYSTEM IMPROVEMENT PROJECT

Based on preliminary environmental and engineering surveys and public input, TVA has selected site 2, located on Coleman Hill Road, about 4 miles east of U.S. Alternate 31/41, as the preferred site for a new 500-kilovolt substation. TVA will conduct field studies, as required under the National Environmental Policy Act (NEPA), on the preferred site and a network of connecting transmission lines. Both the preferred transmission line routes (adjusted segments 1, 3, 6, 7, 8, 10 and 12) and the first alternative line routes (adjusted segments 1, 3, 6, 7, 8, 10, 11 and 12) share site 2 as the preferred site. They also share similar line locations, with the exception of segment 11.

Evaluation Criteria

Ultimately, in making its decision, TVA weighs and balances public input and all pertinent environmental, engineering, and land use considerations. The objective of the process is to ensure that overall project impacts, as well as impacts to the community at large, are minimized. The final decision may not always be the shortest or least expensive route, and individual property owners will be affected in varying degrees. TVA uses several tools to evaluate alternative sites and routes for new transmission facilities and to identify a preferred option:

- information from property owners, interest groups, elected officials, subject matter experts and others
- topographic maps
- aerial photography
- Geographic Information System (GIS) constraint maps
- field surveys
- professional experience.

Assessment of Alternative Sites and Routes

Each alternative offers different opportunities and constraints for substation and power line construction. Opportunities include characteristics such as open land, existing utility corridors, areas less suitable for development and lack of sensitive environmental features. Constraints include obstacles such as steep terrain, sensitive environmental areas and land use conflicts. Each combination of alternative sites and routes is assessed for opportunities and constraints.

Four substation sites and a network of 27 transmission line segments were identified as possible solutions for the Rutherford-Williamson-Davidson System Improvement Project

and presented at an open house, held on April 11, 2006, in Eagleville, Tennessee. As a result of public review and input, four additional substation sites were identified. Three sites (5, 6 and 7) were identified by owners willing to sell the property to TVA. The fourth (site 8) is an abandoned industrial site.

A map showing all eight substation sites and the network of adjusted transmission line alternatives is available at www.tva.gov/power/projects/index.htm. Or, you may contact TVA. See page 3 for toll-free numbers and addresses.

The evaluations for each of the eight sites included public input, available site data and limited site inspection. For each of the major site considerations, the sites were ranked good, fair or poor. *The results of the evaluations are shown on page 4.*

Based on the results of the limited site reviews, more detailed studies of the three most suitable sites (sites 1, 2, and 4) were needed. In addition, due to the number of alternative transmission lines, each substation site needed to be evaluated along with each possible network of connecting transmission lines for that site. A total of 34 possible transmission line route combinations were identified from the three substation sites.

Evaluations for each substation site-transmission line route combination were conducted using Geographic Information System (GIS) analysis. Based on the analysis, the site-route combinations that rank first and second include site 2. The site-route combination that ranks third includes site 1.

The number one overall ranking - substation site 2 and transmission line route combination 5 - is the most favorable location for the new facilities and is TVA's preferred site and route. *The results of the analysis are shown on page 5.*

<u>Site 1 - Route 15</u>

- ∞ includes substation site 1 and transmission line segments 1, 3, 6, 7, 8, 14, 16, 17 and 18.
- ∞ ranks third overall

<u>Site 2 - Route 5</u>

- ∞ includes substation site 2 and transmission line segments 1, 3, 6, 7, 8, 10 and 12.
- ∞ ranks first overall.

<u>Site 2 - Route 6</u>

- ∞ includes substation site 2 and transmission line segments 1, 3, 6, 7, 8, 10, 11 and 12.
- ∞ ranks second overall.

Site 2-Route Combination 5 is the preferred option due to:

- very favorable engineering and construction characteristics,
- utilization of approximately 37 miles of existing 500-kV transmission line,
- having the shortest length of new 500-kilovolt line,
- having the shortest 161-kilovolt route to the Christiana substation, and
- having minimal impacts on streams and wetlands.

Adjustments to Sites and Routes

Sites and line routes have been adjusted from the original proposal based on public and property owner input and to minimize overall project impacts. Substation site 2 boundaries were adjusted to take advantage of land more suitable for construction of the substation, as well as being less visible to the surrounding community. Alternative route segments were adjusted based on public and property owner input to lessen overall impacts. For example, line adjustments will follow closer to parcel boundaries, allow for future development and reduce proximity to cultural/historical features.

During the review, onsite environmental data will be collected and analyzed as part of the decision-making process. This may lead to the further minor modifications of the site and routes to minimize impacts.

Next Steps

The preferred alternative and the second-ranked alternative both share site 2 as the preferred site and share a similar line location with the exception of one small route segment (segment 11). Therefore, TVA will conduct preliminary field studies on both the first- and second-ranked alternatives.

An Environmental Impact Statement (EIS) is being prepared to evaluate the potential environmental impacts of the construction, operation, and maintenance of the substation and transmission lines. A decision regarding the final route location will consider the results of this ongoing environmental review process.

TVA anticipates releasing a draft of the EIS in spring 2007. Public comments will be taken during a 45-day comment period. An open house will also be held.

Any problems encountered during construction would be addressed through standard design, Best Management Practice (BMP) techniques, as well as any specific state or federal requirements. BMP techniques consist of practices and procedures used during construction to minimize impacts to the environment.

For additional information, contact: Steve Pitt, TVA, 1101 Market St,. MR 4G, Chattanooga, TN 37402-2801, Toll-free 800-355-6372 or 800-362-4355, e-mail: newtransline@tva.com.

Rutherford Substation Site Criteria Matrix from Available Data and Site Inspection

	Site 1	Site 2[1]	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8
Constructability[3]	good size, access, soils, drainage, and balance of cut & fill	good size, access, soils, drainage, and balance of cut & fill	fair size, poor drainage, fair soils and foundation	good size, access, soils, drainage, and balance of cut & fill	good size, access, soils, drainage, and balance of cut & fill	poor size, cut & fill, clearing, rocky site, probable caves	poor size, access, soils, drainage, and cut & fill	poor site of former battery plant
Environmental[3]	good minimal wetlands, aquatics, and T&E[2] poor due to farmland and cultural	good minimal wetlands, aquatics, and T&E[2] fair due to farmland and cultural	poor minimal wetlands, aquatics, and T&E[2] poor due to farmland and cultural	good wetlands, aquatics, and T&E; cultural; poor farmland	good wetlands, aquatics, T&E; farmland and cultural	good wetlands, aquatics, T&E; farmland and cultural	good wetlands, aquatics, T&E; farmland and cultural	poor potential for contami-nation
Land Use[3]	good primarily agriculture, sod farm	good primarily agriculture, pasture	fair primarily agriculture, pasture	good primarily agriculture and pasture	fair primarily agriculture& pasture (goat farming)	good 100% forested	good 75% forested, some agriculture	poor site of former battery plant
Transmission	good reasonable proximity to 500 and 161kV	good reasonable proximity to 500 and 161kV	good reasonable proximity to 500 and 161 kV	fair somewhat distant from 500 and 161 kV	poor distant from 500and 161-kV	good reason-able proximity to 500 and 161 kV	fair somewhat distant from 500 and 161-kV	poor distant from 500and 161-kV
Overall Assessment	**good preferred for develop-pment. No major con-straints**	**good preferred for develop-ment. No major con-straints**	fair less than desirable due to soils, drainage, and foundation	**good preferred for develop-ment. No major con-straints**	poor undesirable due to length of transmission lines	poor undesirable due to size, cut & fill, clearing, rocky site, and caves	fair less than desirable due to access, drainage, soils, cut and fill, and distance to transmis-sion lines	poor undesirable due to contami-nation and cleanup problems

1. The evaluation shown for site 2 is a slight variation of the original location, which was made to avoid a hydric soils condition.
2. Threatened and endangered species.
3. Constructability considerations - line length, road/highway crossings, land slope, construction access, airport glide zones, and power outages required for construction of the line. Environmental considerations - amount of right-of-way needed, forest clearing, wetlands and/or stream crossings, erosion potential, historic areas and structures, conservation easements. Land use considerations - number of parcels/property tracts, houses, barns, recreation areas, other development affected, scenic vistas.

Site Ranking from GIS Analysis			
Criteria and Site	Site 1 (option 1-15)	Site 2 (option 2-5)	Site 2 (option 2-6)
Engineering			
New line length - mi	20.1	18.3	18.3
Existing line length - mi	39.1	36.5	39.0
Total line length - mi	57.4	54.8	59.1
	17	16	17
Road crossings	2.1	3.6	5.6
Slope 20-30% - ac.	0.1	0.1	0.6
Slope > 30% - ac			
Ranking	**3**	**1**	**2**
Environmental			
New ROW - acres	310	280	298
Forest land - acres	236	227	233
Water crossing - acres	0.9	0.4	0.4
Floodplain - acres	9.8	9.8	9.8
Wetlands - acres	0.9	0.9	0.9
Ranking	**3**	**1**	**2**
Land Use			
Houses - 1/2 mi	9 (sub site)	18 (sub site)	18 (sub site)
Houses - 1 mi	38 (sub site)	57 (sub site)	57 (sub site)
Schools - 1200 ft.	0	0	0
Parcels crossed	138	153	164
Visual impact	2 (sub site)	1 (sub site)	1 (sub site)
Ranking	**1**	**3**	**2**
Cultural			
Historic sites - 1000 ft	12	9	9
Ranking	**3**	**1**	**2**
Development cost	No significant differences		
Overall Ranking	**3**	**1**	**2**