CHAPTER 1

1 PURPOSE OF AND NEED FOR ACTION

The Tennessee Valley Authority (TVA) owns and operates a system of transmission lines that move electricity throughout the TVA service area, which comprises most of Tennessee and portions of six adjacent states, and to adjacent utilities. Electric loads on portions of this system in the Middle Tennessee area have grown steadily in the recent past and are projected to continue to grow. This load growth will soon exceed the capability of high-capacity transmission lines serving this area. In addition, the loss of two or more of these lines could result in the loss of service over a wide area and possible damage to generating equipment in at least two locations. Therefore, TVA needs to increase transmission capacity into this area.

TVA has used the following purposes in evaluating alternatives for increasing transmission capacity into the Middle Tennessee area:

- Maintain transmission system reliability pursuant to TVA's statutory responsibilities;
- Minimize environmental impacts in keeping with TVA's commitment to resource stewardship;
- Minimize costs as part of TVA's obligation to provide electric power at the lowest possible cost; and
- Meet the in-service date of November 1, 2007, the earliest date which is reasonably achievable.

1.1 Background

The TVA transmission system consists of about 17,000 circuit miles of transmission line that connect TVA-owned generating facilities to over 850 wholesale delivery points and points of interconnection with neighboring power systems. The system also provides transmission services to several recently constructed generating facilities operated by independent power producers. The system serves an 80,000 square mile area that includes portions of seven states.

The TVA transmission system operates at several different voltages. The highest voltage lines, operating at 500,000 volts (500-kV), are used to move large quantities of electricity over long distances. TVA operates 2,480 miles of 500-kV lines connecting its large generating facilities, 500-kV substations, and some interconnection points with neighboring power systems. At the 500-kV substations, the voltage is reduced, most commonly to 161-kV, for transmission over shorter distances to delivery points or lower voltage substations.

Since the early 1980s, the major additions to TVA's 500-kV transmission system have consisted of new 500-kV substations. Despite recent growth in electric loads in much of the TVA service area, the capacity of the 500-kV transmission lines has generally been adequate. The projected continued growth in electric loads in the Nashville and surrounding areas of middle Tennessee, as well as the connection of new generating

facilities to the western portion of the TVA system, are, however, forecasted to exceed the capacity of the 500-kV transmission system for certain contingencies. This situation also has the potential to damage generating facilities connected to the system and could lead to disruptions in electric service in a wide area.

1.2 Proposed Action

TVA proposes to construct and operate a 500-kV transmission line from TVA's Cumberland Fossil Plant near Dover, Tennessee, to one of two locations: either TVA's Montgomery, TN 500-kV substation located northeast of Clarksville, or TVA's Davidson, TN 500-kV substation located southwest of Nashville (Figure 1-1). The line would likely be built using self-supporting laced steel towers on right-of-way (ROW) 175 feet in width. A line to the Montgomery substation would be about 32 to 45 miles long, and a line to the Davidson substation would be around 50 miles long.

1.3 The Decision

TVA must first decide whether to construct the new transmission line. If the decision is made to build the new transmission line, TVA must decide whether to build a transmission line connecting Cumberland Fossil Plant and the Montgomery substation, or connecting Cumberland Fossil Plant and the Davidson substation. TVA must further determine the location of the new right-of-way, access roads, and structures.

Depending on the location of the transmission line, other agencies may also have to decide whether to grant TVA easements or licenses for transmission lines or access roads on properties under their control, or whether to issue necessary permits. More information about review and consultation requirements is presented below in Section 1.6.

Because of the present risks to the transmission system coupled with the accelerating growth in demand in the middle Tennessee area, the proposed line is needed as soon as possible. The earliest achievable in-service date is November 1, 2007. If the proposed line is delayed past this date, the risks to the system will grow and the probability of an adverse event will increase.

1.4 Other Pertinent Environmental Reviews or Documentation

In 1995, TVA completed *Energy Vision 2020: An integrated resource plan and programmatic environmental impact statement*. This study addressed short- and long-term strategies that would enable TVA to meet the needs of its customers for electricity through the year 2020. It includes a description of TVA's transmission system.

1.5 The Scoping Process

Scoping is the early and open process used to identify issues and concerns to be considered in an EIS. Public participation in determining the scope of this EIS began in November, 2001 when TVA published a Notice of Intent in the Federal Register (66 FR 59296-59287, November 27, 2001; Appendix A). The notice announced that TVA would prepare the EIS and invited interested parties to comment on its scope. Copies of the notice were sent to four federal agencies and nine Tennessee state agencies. Written comments were received from two federal agencies and two state agencies.

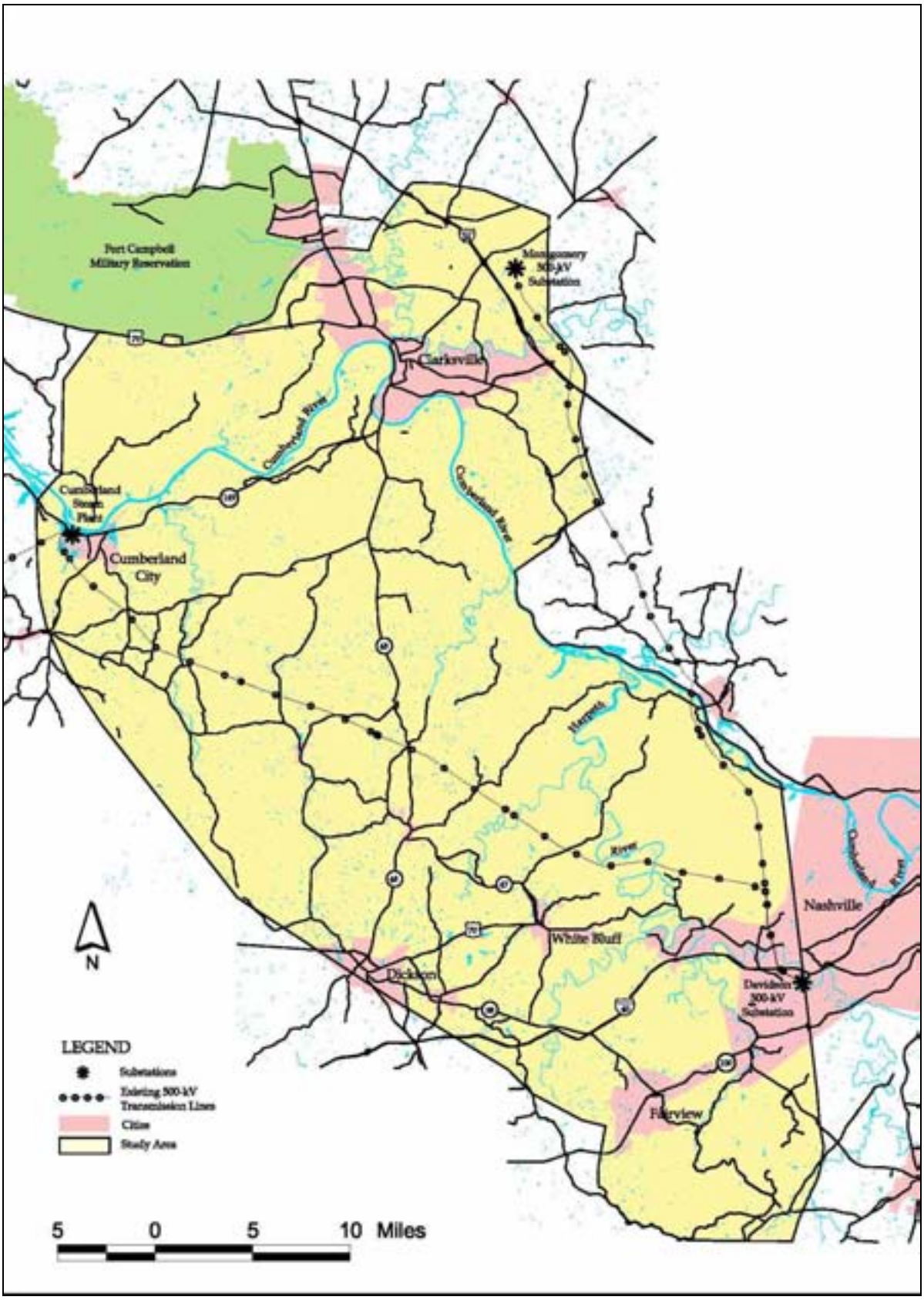

Figure 1-1. The project area for the proposed 500-kV transmission line.

TVA held two public meetings during the scoping period. These meetings, in Dickson and Clarksville, were publicized though notices in local media, by TVA press releases, on the TVA Web site, and in letters to local elected officials. At least 52 individuals attended the public meetings. Most of the public meeting attendees were landowners in potential transmission line corridors. Some attendees provided information on the location of houses and other features not shown on the project area maps displayed at the meetings.

Major areas of concern to scoping participants were the desire for more precise information on potential transmission line locations, methods of determining the price paid to landowners for transmission line easements, effects on property values, and land use restrictions imposed by transmission line easements. Issues raised by federal and state agencies included wetlands, streams, endangered and threatened species, habitat fragmentation, sensitive ecological sites, invasive species, archaeological resources, and public health concerns such as hazardous materials, noise, and occupational safety.

1.6 Issues to Be Addressed

Issues to be addressed in the EIS were initially identified through an internal scoping process and listed in the Notice of Intent. This list of issues was refined based on comments received during the public scoping. The major issues addressed in the EIS are impacts to:

- Water quality and quantity for both surface water and groundwater;
- Vegetation;
- Wildlife including habitat fragmentation;
- Aquatic ecology;
- Endangered and threatened species;
- Wetlands;
- Managed areas and ecologically significant sites;
- Recreation;
- Visual resources;
- Floodplains;
- Land use including prime farmland;
- Archaeological and historic resources; and
- Socioeconomics including property values and environmental justice.

Impacts related to air quality, hazardous and non-hazardous wastes, noise, and health and safety have been considered but did not require detailed evaluation.

1.7 DEIS Public Review Process

The DEIS was distributed in April 2003. About 120 copies of the DEIS were sent to affected agencies, organizations, local government representatives, and members of the public. DEIS recipients included individuals who had registered at the scoping meetings

held in late 2001 and others who had expressed an interest in the project. TVA also posted a copy of the DEIS on its agency internet web site. The Notice of Availability of the DEIS was published in the Federal Register on April 18, 2003. Simultaneously with the distribution of the DEIS, TVA issued a news release and placed newspaper advertisements in area newspapers. The news release and ads announced the availability of the DEIS and two public meetings to receive comments on the DEIS.

TVA held two public meetings, on May 19, 2003 in Dickson and on May 20, 2003 in Clarksville, to receive comments on the DEIS. During these meetings, comments could be made in writing using comment forms or given to court reporters. In addition to comments received at the public meeting, TVA accepted comments through surface and electronic mail, by phone, and by facsimile. The comment period closed on June 10, 2003, but TVA continued to accept comments received through early July.

In addition to these comments received through this process, TVA also accepted comments received during a series of eight open houses held in June 2003 to review potential transmission line routes (see introduction to Section 2.2.2, below).

Comments on the DEIS were received from 191 individuals and 6 state or federal agencies. This tally does not include all the signers of two petitions (one with 29 signatures in the Alternative 1 Corridor B area and one with 377 signatures in the Alternative 1 Corridor D area). The comments were compiled into 179 different comments on 26 topic areas. TVA has carefully reviewed and responded to all of these comments on the DEIS (see Appendix I).

1.8 Permits And Approvals

Several federal, state, and local laws and regulations could apply to one or more of the alternatives considered in this EIS. Compliance with these laws and regulations may require TVA or its contractors to be issued permits or be granted specific approvals. The need for TVA to obtain easements or licenses for transmission line rights-of-way is described above in Section 1.3. Other applicable permits and approvals are described below, organized by environmental resource area.

Water Quality – TVA would be required to obtain a National Pollutant Discharge Elimination System (NPDES) storm water runoff permit before site preparation and construction activities can begin. This permit is issued by the state of Tennessee.

Groundwater Protection – TVA may be required to obtain a Class V Underground Injection Control Permit for construction activities in the immediate vicinity of sinkholes. This permit is issued by the state of Tennessee.

Wetlands and Streams – Before dredged or fill material is placed in wetlands and streams, a permit must be obtained from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. As part of this permitting process, the state of Tennessee must determine whether the proposed action would violate state water quality standards. Alterations of streams also require an Aquatic Resource Alteration Permit issued by the state of Tennessee. Executive Order No. 11990 (Protection of Wetlands) directs federal agencies to avoid impacting wetlands to the extent practicable or to otherwise minimize potential wetland impacts.

Floodplains – Under Executive Order No. 11988 (Floodplain Management), federal agencies are directed to avoid affecting actions in floodplains to the extent practicable and to otherwise minimize potential impacts to floodplain values. Many counties and municipalities also have floodplain protection regulations.

Endangered Species – Under the Endangered Species Act, federal agencies are to ensure that their actions are not likely to jeopardize the continued existence of any federal endangered or threatened species or adversely modify any critical habitat of such species. If a proposed action may affect an endangered or threatened species, the agency must consult with the U.S. and Wildlife Service and obtain that agency's determination of the potential for impacting these species. The state of Tennessee also has established regulatory protection for many species not listed under the Endangered Species Act. This EIS identifies endangered and threatened species known or likely to occur in the project area and evaluates the potential effects on these species.

Farmland Protection – Under the Farmland Protection Policy Act, federal agencies are required to identify and take into account potential adverse effects of a proposed action on farmlands. This EIS describes potential effects on prime farmlands.

Environmental Justice – Executive Order No. 12898 directs some federal agencies to consider whether the effects of their actions would cause disproportionate burdens on the health or environment of any segment of the human population. While TVA is not subject to this Executive Order, this EIS includes a discussion of the potential effects of the alternatives on low income and minority populations in the project area.

Air Quality – Trees and other combustible materials removed during transmission line construction are often burned. This activity could require a permit issued by local authorities.

Transportation – A Section 10 permit issued by the U.S. Army Corps of Engineers under the Rivers and Harbor Act could be required for a transmission line crossing a navigable stream. Permits issued by state and/or local authorities could be required for transmission lines crossing highways.

1.9 EIS Overview

The National Environmental Policy Act (NEPA) and its implementing regulations require an EIS to include specific kinds of information that agency officials will use in evaluating the environmental consequences of pending decisions. This EIS presents this information in a fairly standard format:

- Chapter 1 states the purpose and need of the proposed action and provides relevant background information.
- Chapter 2 describes alternative ways of accomplishing the proposed action as well as the no action alternative, summarizes the environmental impacts of each alternative, and describes an agency's preferred alternative.
- Chapter 3 describes the existing environment, including both natural and human resources, within the project area.

- Chapter 4 describes the anticipated effects of the alternative actions on the environmental resources within the project area.
- Chapters 5-9 present supporting information including a list of the preparers of this EIS, a list of references, a glossary and an index.
- Appendices provide detailed supporting information, including comments received on the DEIS and responses to those comments.