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Resources, Community, and
 Economic Development Division

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March 31, 1998

The Honorable Fred Thompson
 United States Senate

The Honorable Bill Frist
 United States Senate

Subject: Tennessee Valley Authority: Information on Nonpower Programs

As agreed with your offices, we are providing you with information on the Tennessee Valley Authority's (TVA) nonpower programs. These nonpower programs cover several broad areas, such as flood control, navigation, and federal lands management. This report (1) discusses the nonpower roles and responsibilities carried out by TVA and by selected investor-owned utilities (IOU) and (2) compares TVA's nonpower programs with programs managed by selected IOUs to illustrate similarities and to discuss whether any of these programs could be viewed as federal responsibilities or as unique programs. For TVA, the term "nonpower" is used in this report to describe those programs that are fully or partially funded by federal appropriations. The IOU industry generally uses power revenues to fund its operations and does not receive federal appropriations for such operations. For purposes of this report, however, we also use the term "nonpower" to describe those activities carried out by the IOUs that can be compared with the nonpower programs carried out by TVA.

Our review focused on analyzing information obtained from TVA officials and from four selected IOUs and the Edison Electric Institute (a group representing the IOU industry).¹ We also discussed nonpower issues with officials from the

¹As agreed with your offices, we selected four IOUs—two in the Southeast (Alabama Power and Duke Power), one in the Midwest (Ameren), and one in the West (Idaho Power). These IOUs have multiple hydroelectric power facilities; most are licensed by the Federal Energy Regulatory Commission. The IOUs' comparative data discussed in this report are used for illustrative

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Federal Energy Regulatory Commission (FERC) and the U.S. Army Corps of Engineers (Corps).

SUMMARY

When it was created in 1933, TVA was charged with improving the navigability and controlling the flood waters of the Tennessee River and with promoting the agricultural and industrial development of the Tennessee Valley. The generation and transmission of hydroelectric power was authorized to be a secondary benefit resulting from these activities. TVA responded to this mandate by constructing numerous dams and hydroelectric power facilities on the Tennessee River and its tributaries; maintaining hundreds of thousands of acres of public land for a variety of purposes, such as recreation and natural resource management; and maintaining flood easements affecting hundreds of thousands of acres. The selected investor-owned utilities do not have such comprehensive nonpower roles and responsibilities. Instead, they constructed their dams and hydroelectric power facilities primarily to provide electric power; their nonpower roles and responsibilities are tied to the terms and conditions in their operating license provided by the Federal Energy Regulatory Commission, such as protecting fish and wildlife, and recreation.

The selected utilities have some programs, such as ones for dam safety, that are similar to nonpower programs operated by TVA. Furthermore, flood control and navigation programs tend to be viewed by TVA, investor-owned utilities, and other officials as federal responsibilities and are carried out by a federal entity, such as TVA or the Corps of Engineers. Finally, TVA has some unique programs—such as the operation and maintenance of Land Between The Lakes, a 170,000-acre national recreation area, and the operation of an environmental research center.

BACKGROUND

TVA is a multipurpose, independent federal corporation established by the Tennessee Valley Authority Act of 1933.² TVA has both a power program and nonpower programs. From a budgeting and cost standpoint, TVA's power program dwarfs the nonpower programs. For example, TVA has become the nation's largest producer of federal electric power and is, by some measures,

purposes only and cannot be projected to the universe of IOUs operating in the United States.

²The TVA act, as amended (16 U.S.C. 831 et seq.), provides the basic statutory authority for TVA.

the largest utility in the nation. In fiscal year 1997, TVA's power program had operating revenues of about \$5.6 billion, and its service area covered 80,000 square miles, including most of Tennessee and parts of Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia.

TVA has several nonpower programs, including ones for flood control, navigation, dam safety, water quality protection and improvement, permits for shoreline construction and development, Land Between The Lakes, and the Environmental Research Center. Funding sources for these programs include federal appropriations, power proceeds,³ and nonpower revenues (for example, user fees). During fiscal year 1997, the nonpower programs received appropriations of \$106 million, and expenditures for TVA's nonpower programs totaled \$141 million. The Congress approved \$70 million in appropriations for TVA's nonpower programs in fiscal year 1998 and declared that no additional appropriations would be made available for fiscal year 1999 and beyond. Enclosure I provides more detailed descriptions of TVA's nonpower programs, and enclosure II provides funding and expenditure information.

NONPOWER ROLES AND RESPONSIBILITIES FOR TVA

The TVA act established TVA to improve navigation, promote regional agricultural and industrial development, and control the flood waters of the Tennessee River. The generation and transmission of hydroelectric power was established by law only as a secondary benefit resulting from these activities. When it was created in 1933, TVA was faced with several problems in the Tennessee Valley—floods, impoverished soil, and erosion. To help address these problems, TVA built an integrated network of dams for the Tennessee River and its tributaries to control the flooding and to open up a navigation system for commerce between the Tennessee Valley and the rest of the nation. The electricity generated from power plants at the dams would electrify homes and attract industry and jobs to the region. To take care of the erosion, TVA set up demonstration farms to introduce good management practices to farmers, converted an old munitions plant into a fertilizer research center, established tree nurseries, and planted trees to further control flooding and erosion and to restore the forest industry.

³TVA's power program pays for certain joint costs allocated to both the power and the nonpower programs. These costs are allocated between power revenues and appropriations on the basis of the benefits received by the power system and the public. For example, dam safety activities receive both types of funds.

Today, the scale of TVA's nonpower responsibilities continues to be substantial. For example, TVA has stewardship responsibilities for about 479,000 acres of reservoir surface area, about 11,000 miles of shoreline, and about 435,000 acres of public land. The Tennessee River and its 12 tributary watersheds touch 125 counties in portions of seven states and encompass about 41,000 square miles. The river system, which includes an 800-mile commercially navigable channel, has 54 dams,⁴ 30 hydroelectric power facilities, and 14 navigation locks.

TVA manages the Tennessee River and its system of dams and reservoirs as a fully integrated system to achieve multiple purposes, such as flood control, navigation, power generation, economic development, and the protection of the environment. All of TVA's dams work together as a single unit to control the water that collects at points throughout the Tennessee Valley. For example, when floods occur, each dam in the system is operated to minimize flooding at downstream locations. Operating adjustments are made on the basis of rainfall reports from nearly 300 rain gauges and 60 stream gauges located throughout the Tennessee Valley. Flows at tributary dams may be temporarily shut off during the heaviest rainfall periods to help reduce the flood crest at downstream locations. Projects further downstream help reduce flooding at locations along the river, as well as helping to reduce flood crests along the lower Ohio and the Mississippi rivers.

Regarding navigation, the Tennessee River connects with the Tennessee-Tombigbee Waterway near the junction of the Alabama, Mississippi, and Tennessee state lines, thereby providing direct access to deepwater ports on the Gulf of Mexico. In 1996, about 34,000 loaded barges—the equivalent of about 2 million trucks traveling on the roads or about 544,000 rail cars passing through cities and towns—moved up and down the Tennessee River.

NONPOWER ROLES AND RESPONSIBILITIES FOR THE SELECTED IOUs

The selected IOUs constructed dams and hydroelectric power facilities primarily to provide electric power. They are not responsible for the overall management of a river basin area to promote such things as navigation, flood control, and regional development. The IOUs' nonpower roles and responsibilities are tied

⁴Of the 54 dams, 9 were constructed for hydroelectric power generation. The remaining 45 dams were constructed for multiple purposes, with 21 of these dams including hydroelectric power facilities.

to the terms and conditions in the FERC operating license, which may call for activities such as the protection of fish and wildlife and recreation.

The four selected IOUs own and operate numerous hydroelectric power projects. Most of the IOUs' projects meet requirements for FERC licensing, which is designed to protect humans, property, and the environment. While specific terms and conditions may vary among the projects, they often include requirements to (1) maintain a project's physical structure in a safe manner, (2) maintain a minimum stream flow below the dam to support the aquatic environment, and (3) take measures to ensure public safety. The FERC license also provides that a project may include certain public benefits that can be viewed as nonpower activities. These activities include flood control, navigation, the protection of fish and wildlife, and recreation.

The selected IOUs tend to be responsible for smaller areas in terms of total reservoir surface area (about 156,000 acres for the IOU with the largest reservoir surface area compared with TVA's 479,000 acres), total shoreline miles maintained (about 3,100 miles for the IOU maintaining the most shoreline miles compared with TVA's 11,000 miles), and total land maintained (about 180,000 acres for the IOU maintaining the most land compared with TVA's 435,000 acres).

Enclosure III provides further data about some of the differences between TVA's operations and those of the selected IOUs.

COMPARISON OF TVA'S NONPOWER PROGRAMS WITH THOSE OF SELECTED IOUs

Overall, comparisons of TVA's nonpower programs with those of the selected IOUs showed that (1) the selected IOUs have some programs, such as ones for dam safety, that are similar to nonpower programs operated by TVA; (2) TVA has certain programs—for flood control and navigation—that are viewed by TVA and IOU officials as federal responsibilities and are carried out by a federal entity, such as TVA or the Corps; and (3) TVA has some unique programs—such as the operation and maintenance of Land Between The Lakes and the operation of an environmental research center.

Similar Nonpower Activities

Both TVA and the IOUs have dam safety programs. Each maintains and improves its dam structures, conducts regular inspections of each dam, and maintains an emergency action plan for each dam in case of a dam's structural

failure. According to TVA officials, on-site personnel conduct monthly inspections of TVA dams and test and update the emergency action plan for each project annually. Every 5 years, TVA's dam safety specialists conduct thorough inspections of TVA dams in accordance with the Federal Guidelines for Dam Safety. TVA also reports to the Congress and to the President every 2 years on the condition of its dams. Similarly, FERC requires the IOUs to regularly inspect their dams, to submit to periodic FERC dam inspections, and to have an independent inspector inspect each dam every 5 years and report the results to FERC.

TVA and the selected IOUs also issue permits for shoreline construction, but the extent of this activity varies. As land owners, both license the use of their land by others. In addition, the TVA act requires TVA to approve all structures along the Tennessee River and its tributaries that may create an obstruction to navigation, flood control, or public lands. The majority of permit requests are for residential construction, such as docks, piers, and boathouses. TVA also issues commercial and public permits for other purposes, such as marinas. TVA maintains a database on all permits issued and annually surveys the sites to ensure that facilities are built and operated in compliance with permit conditions. While the IOUs only issue permits for proposed shoreline construction at the reservoirs they own, this activity can be substantial. For example, one IOU maintains approximately 50,000 permits for boat docks at a single reservoir. The IOUs review proposals for construction, issue permits, and maintain databases of issued permits.

In addition, TVA and the selected IOUs seek to protect aquatic life that may be threatened by the low oxygen content of water released downstream from hydroelectric power projects. TVA maintains and improves minimum flow systems at 16 dams and aeration systems at 17 dams⁵ to improve dissolved oxygen levels, water temperature, and water flow rates. Some of the selected IOUs take similar actions. For example, all of the IOUs have installed aeration systems or have modified turbines to ensure that sufficient oxygen is mixed in with the water that is released downstream from the reservoir.

⁵According to TVA officials, with the exception of two aeration systems at dams without hydroelectric power facilities, all of the minimum flow and aeration systems are paid for completely by power revenues.

Flood Control and Navigation Programs
Viewed as Federal Responsibilities

Officials from TVA, the Corps, and the selected IOUs generally agreed that the federal government has overall responsibility for the flood control and commercial navigation functions on the nation's waterways. Corps officials noted that such functions outside of the Tennessee River Basin are primarily maintained by the Corps or the Bureau of Reclamation. Typically, TVA has flood control responsibility for the Tennessee River, and TVA and the Corps share the responsibilities for commercial navigation on the Tennessee River.

Officials from the selected IOUs explained that they have a limited role in flood control operations, and few of their reservoirs have storage space allocated for flood waters. Those IOU projects that do have such reservoir space have either a memorandum of agreement with the Corps or clauses in their FERC licenses describing how the project will be operated during flood conditions. In flood conditions, according to IOU officials, the Corps directs the projects' operations. TVA has responsibility for the flood control operations that affect only the Tennessee River Basin. However, according to Corps officials, the Corps bears responsibility for managing the Tennessee River if flooding will affect other rivers, such as the Ohio.

Except for the 14 navigation locks constructed and owned by TVA on the Tennessee River, the Corps owns and operates all federal navigation locks throughout the country. The Corps also maintains the navigation channels to ensure safe, reliable navigational access. TVA is responsible for all capital improvements to the 14 navigation locks on the Tennessee River system.⁶ According to a memorandum of agreement between TVA and the Corps, the Corps is responsible for the daily operation and maintenance of these locks and the maintenance of the navigable channels of the Tennessee River system.

Officials from the selected IOUs explained that they have essentially no direct navigation responsibilities. Two IOUs are required to provide power free of charge to the Corps for the operation of navigation locks located at the Corps projects where the IOUs have hydroelectric power facilities or at IOU projects where a navigation lock is located. Officials at one IOU told us that the Corps

⁶TVA also maintains the concrete lock walls; lock support facilities, such as electrical power cables for lock operations, water and waste systems; and access roads and grounds. In addition, TVA makes capital improvements to the navigation channels near the locks.

imposes minimum flow requirements from some reservoirs to ensure the navigability of the river downstream. Most of the selected IOUs maintain navigation buoys, markers, and warning signs on their reservoirs for recreational boaters. The Coast Guard has the responsibility for navigational buoys on the primary channel of the Tennessee River, and TVA maintains navigational buoys on the secondary channels of the river.

Nonpower Programs Viewed as Unique to TVA

Within its broad stewardship responsibility for the Tennessee Valley, TVA maintains some programs that officials of TVA, the selected IOUs, Edison Electric Institute, and the Corps believe are unique to TVA. One major program, created by President Kennedy in 1963, is the Land Between The Lakes, a 170,000-acre national recreation area with 300 miles of lakeshore. Within this recreation area, TVA maintains 420 miles of roads, over 200 miles of hiking trails, five campgrounds, a planetarium/observatory, three visitor centers, and other public facilities. TVA receives user fees for the use of many of the facilities that it provides. IOU officials stated that they do not maintain any land areas similar to the Land Between The Lakes.

Another major program is TVA's Environmental Research Center. TVA originally operated this center to carry out its mandated responsibilities for establishing, maintaining, and operating laboratories and experimental plants to furnish nitrogen for military purposes and fertilizer products for agricultural purposes. In recent years, TVA has conducted research on a variety of issues, including atmospheric sciences, biotechnology, and land and water pollution prevention. TVA submitted a plan to the Congress to phase out appropriations for the center by the beginning of fiscal year 2000. TVA is currently changing the center's direction from research that primarily serves the public at large to research that primarily serves paying customers. Although the selected IOUs do not have a facility comparable to TVA's research center, three IOUs are members of the Electric Power Research Institute, which conducts research for the industry in general. TVA is also a member of this organization.

Enclosure IV provides further comparative information on TVA's and the selected IOUs' nonpower programs.

AGENCY COMMENTS

We provided a draft of this report to TVA for its review and comment. TVA agreed with the key points in our report that (1) selected IOUs do not have nonpower roles and responsibilities that are as comprehensive as TVA's; (2)

various officials view flood control and navigation programs as federal responsibilities; and (3) TVA's land management responsibilities, especially for Land Between The Lakes, exceed the selected IOUs' activities. TVA also provided other comments intended to address broad issues that it believed could be clarified or strengthened.

TVA expressed concerns that the scope and magnitude of its responsibilities compared with those of the four selected IOUs are understated in our report. To support this view, TVA highlighted various factors concerning its flood control and navigation responsibilities and the extent of its land management activities. We believe our report recognizes these differences. Specifically, our report describes that TVA's mandated nonpower roles and responsibilities were established in the TVA act of 1933 and that the selected IOUs do not have such comprehensive nonpower roles and responsibilities. In addition, we state in our report that the scale of TVA's nonpower responsibilities continues to be substantial.

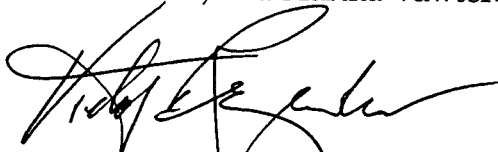
TVA believed the use of the term "nonpower" to describe activities performed by TVA and the selected IOUs was misleading in two ways. First, TVA believed that this term suggests the IOUs have a greater responsibility than they really have. Second, TVA believed that readers could interpret the term to mean the actual source of funding. Regarding the first point, we have included further information in our report to provide additional specificity in describing both TVA's and the selected IOUs' nonpower activities. Regarding the second point, we agree that this term could be misinterpreted. It was for reasons similar to those expressed by TVA that we included information in enclosure II that shows the amount of power revenues allocated and spent on TVA's nonpower programs.

TVA also stated that although the draft report addressed the similarities and differences between TVA's dams and reservoirs and those of the selected IOUs, TVA believed the draft report might not sufficiently address the ways the various parts of such projects are paid for. TVA stated that its 54 dams fall into three separate categories in terms of how capital costs, capital improvements and maintenance expenses, and operating costs are allocated to flood control, navigation, electric power production, and any other project purpose. We have included additional information in our report to address the cost allocation issues raised by TVA.

Where appropriate, we also made changes to the report in response to specific agency comments. (See enc. V for the full text of TVA's comments.)

We performed our review from October 1997 through March 1998 in accordance with generally accepted government auditing standards. We did not evaluate the effectiveness of TVA or the selected IOUs in carrying out any of the nonpower programs. Such an evaluation was beyond the scope of our work. Enclosure VI describes our objectives, scope, and methodology.

As agreed with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies of the report to the appropriate congressional committees and the Chairman of TVA's Board of Directors. We will also make copies of this report available to others upon request. Please contact me on (202) 512-3841 if you or your staff have any questions. Major contributors to this report were Phil Amon, Gene Barnes, John Hunt, Gary Malavenda, and Martha Vawter.



Victor S. Rezendes
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Enclosures - 6

DESCRIPTIONS OF TVA'S NONPOWER PROGRAMS

The Tennessee Valley Authority's (TVA) nonpower programs¹ are described in its October 1997 "Report of the Appropriations Task Force," which was a TVA-directed study proposed in the President's fiscal year 1998 budget. One of the study's principal purposes was to have TVA identify which nonpower programs, projects, and activities it should continue to carry out and which should be transferred to another federal or state entity. The task force report divided the nonpower programs into the following four broad categories, with a discussion of individual baseline programs within each of those categories: (1) land and water management (including flood control, waterway navigation, Chickamauga Lock, dam safety, water quality protection and improvement, and reservoir land functions—land services, stewardship, compliance, and facilities operation and maintenance); (2) Land Between The Lakes (LBL); (3) Environmental Research Center (ERC); and (4) economic development. TVA's fiscal year 1998 budget grouped the nonpower programs into five areas with individual budget categories covering each of the nonpower programs. In this enclosure, we use the task force's definitions and budget information to describe each of TVA's nonpower programs, and include information showing the TVA budget category under which each nonpower program would fall.

Land and Water Management

Flood control (TVA budget categories: daily reservoir operations and emergency preparedness and operations). Using its system of dams and reservoirs, TVA manages water that collects at different points throughout the Tennessee River system to minimize flood risk. TVA also works with federal, state, and local officials to help ensure appropriate development in flood-prone areas. When floods occur, each dam in the system is operated to minimize flooding at downstream locations. In such situations, TVA provides predictions of flood flows, reservoir release schedules, and river and reservoir stages. As part of its flood control operations, TVA maintains nearly 300 rain gauges and 60 stream gauges throughout the Tennessee Valley, supplemented by weather radar technology. In addition, TVA manages 293,000 acres of flowage easement, which is essential to its flood control operations. While TVA does not own these lands, it has the right to use them for flooding when necessary. In addition, TVA has an emergency operations center in its Knoxville, Tennessee, headquarters. During hazardous weather

¹While these programs are referred to as nonpower, some of the associated costs are allocated between the power program and appropriated funds in proportion to the benefits provided.

situations, impending floods, or dam failure, trained emergency personnel manage the situation from this center.

Waterway navigation (TVA budget categories: navigation, operations and maintenance; navigation, capital improvements; and navigation, waterway development). TVA's navigation mission is to monitor, maintain, and improve the efficiency of the Tennessee River to ensure safe and economical commercial and recreational navigation. TVA monitors and plans the navigation system, designs and builds improvements to it, and implements safety and efficiency programs in collaboration with navigation customers. TVA also owns and is responsible for all capital expenditures related to 14 locks on the Tennessee River system. TVA also maintains the concrete lock walls; lock support facilities, such as electrical power cables for lock operations, water and waste systems; and access roads and grounds. In addition, TVA makes capital improvements to the navigation channels near the locks. TVA provides power to the Corps of Engineers for everyday operation of these locks.

TVA also inspects and maintains navigation markers (such as buoys, boat hazard markers, and onshore daymarks) on secondary channels of the Tennessee River, primarily for recreational boaters. To support the U.S. Coast Guard's commercial navigation marker program on the main channels of the Tennessee River, TVA inspects and maintains buoy reference ranges and staff gauges, which provide water-level readings needed by the Coast Guard in deciding where to place navigation markers.

In 1996, TVA and the Coast Guard entered into an agreement to establish and sustain a "marine safety and recreational safety partnership" that will study issues surrounding commercial and recreational vessel safety for the portions of the Tennessee River for which TVA and the Coast Guard have concurrent jurisdiction. Efforts to increase the safety of navigation in the Tennessee Valley will focus on public awareness, education, training, and selective enforcement.

Chickamauga Lock (TVA budget category: Chickamauga Lock replacement). The Chickamauga Dam and Lock are located just up the river from the Tennessee Valley's most flood-prone location, Chattanooga, Tennessee. The Chickamauga Lock provides passage for more than 3,000 commercial vessels and 5,000 recreational boats each year. Problems with concrete at the lock have caused serious operating difficulties and increase the risk of failure. Because of structural problems and safety concerns, the existing lock has a limited life expectancy, and TVA estimates that the lock will be inoperable by 2005. A study of the lock recommended keeping the lock operative while initiating the construction of a replacement lock. The total cost of a new lock is estimated at over \$300 million. TVA currently performs maintenance to keep the lock operational while it conducts studies for the future replacement of the lock.

Dam Safety (TVA budget categories: dam safety, operations and maintenance and dam safety, capital improvements). TVA constructs, maintains, and improves its dam and bridge structures consistent with the Federal Guidelines for Dam Safety. In 1982, TVA formalized its program to upgrade dams that pose a high hazard to meet modern safety criteria. These criteria ensure that TVA's dams can safely pass a probable maximum flood and withstand a maximum credible earthquake. TVA has implemented a dam modification program (includes modifications such as raising the height of certain dams) to conform with safety standards. TVA's dam safety program consists of implementation (detailed design studies and the preparation of operation and maintenance manuals) and an inspection and maintenance program that is ongoing and continuous (such as spillway gates and machinery, and power waterways). TVA's on-site personnel conduct monthly dam inspections, and TVA's specialists perform inspections every 5 years. Reports on the status of dam safety are submitted to the Congress and the President every 2 years. TVA tests and revises its emergency action plans annually.

TVA's capital improvement program for dam safety was formalized in 1982 to perform technical studies, engineering analysis, and structural modifications of TVA's 54 dams. TVA's dams are between 17 and 85 years old. One of the program's goals is to maintain the structural integrity of TVA dams, bridges, and roads for the protection of life, property, and beneficial uses.

Water Quality Protection and Improvement (TVA budget categories: reservoir release improvements, operations and maintenance; reservoir release improvements, capital; river action teams; regional water supply; mosquito management; and plant management). TVA maintains and operates minimum flow systems at 16 dams and aeration systems at 17 dams² to improve dissolved oxygen levels, water temperature, and water flow rates of releases. TVA identifies and addresses water quality and pollution issues through river action teams. These teams form coalitions with local communities to improve the quality of the privately owned watershed areas of the Tennessee River, including the implementation of agricultural and urban management practices that reduce the effects of water pollution, control erosion, improve aquatic habitat, and remove debris.

In addition, TVA maintains programs to control nuisance aquatic plants and mosquitoes. The mosquito control program has been scaled back because of budget reductions. The focus of this program is technology transfer to local communities and participation in a surveillance system to monitor diseases in the region. TVA attempts to control the

²According to TVA officials, with the exception of two aeration systems at dams without hydroelectric power facilities, all of the minimum flow and aeration systems are paid for completely by power revenues.

mosquito populations at its reservoirs primarily by fluctuating the level of the lakes, which tends to interrupt the mosquitoes' breeding cycle. For plant control, TVA uses a combination of pesticides and mechanical means to modify plants' growth patterns. TVA is transferring responsibility for plant control at private facilities to the user public.

TVA also evaluates the water supply, investigates alternative water sources, and assists communities in obtaining reliable and adequate water supplies.

Reservoir land functions. This category is subdivided into land services, stewardship, compliance, and facilities operation and maintenance.

Land Services (TVA budget categories: comprehensive land strategy-shoreline management initiative and land use services). TVA develops strategic plans for the future use, development, and management of multipurpose reservoir lands and the management of the rate and extent of shoreline residential development. TVA manages and administers the real property assets, land rights, and easements in all of its multipurpose reservoirs and special projects. TVA administers land-use approval activities that grant possession of, interest in, or use of TVA public land or land rights. TVA's land-use approvals include issuing leases, easements, land use licenses, land transfers, sufferance agreements, deed modifications, and land use permits.

Stewardship (TVA budget categories: comprehensive land strategy-reservoir land use planning; comprehensive land strategy-public land quality; reservoir shoreline erosion and stabilization; and land use-natural resource stewardship). In managing its public lands, TVA performs a variety of activities, including removing trash and litter, restoring over-used informal recreation sites,³ and treating eroding reservoir shorelines. TVA also maintains and protects natural resources on 265,000 acres of public land and conducts wildlife habitat assessments and forest resources inventories. These assessments and inventories are designed to support TVA's ongoing planning for natural resources management and plan implementation activities for TVA-managed public lands. TVA monitors for sensitive species and unique natural resource features, including wetlands and federally listed endangered and threatened species.

³TVA refers to informal recreation sites as areas where it does not provide any recreational facilities, but the public still uses the land for recreational purposes. For example, people use certain wooded areas on TVA property for overnight camping, even though the land is not designated by TVA as a campground.

Compliance. TVA's compliance functions can be grouped into four activities:

- (1) Section 26a compliance reviews (TVA budget category: shoreline construction approvals—Section 26a). TVA reviews, approves, and regulates construction and development along 11,000 miles of shoreline of its reservoir system and 35,000 miles of tributaries to the Tennessee River. TVA reviews approximately 2,500 permit applications annually that are initiated through more than 35,000 telephone calls and personal contacts. Permitting refers specifically to the approval issued by TVA for the construction, operation, and maintenance of any structures on public or private lands that may create an obstruction to navigation, flood control, or public lands along the Tennessee River or its tributaries. TVA typically issues permits for shoreline construction—such as docks, piers, or boathouses—to residential customers, and issues permits for marinas, barge terminals, bridges, and utility crossings to commercial and public customers.
- (2) Cultural resources management and compliance (TVA budget category: cultural resources). According to TVA, it has more archaeological resources per square kilometer than any other federal land management agency. TVA conducts inventories of all of its land to determine the extent, number, and ages of archaeological and historic sites and to determine the significance of the sites. This program provides that TVA will meet requirements under applicable law and regulations through inventory, mitigation of adverse impacts, and site protection/stabilization.
- (3) Regional natural heritage compliance (TVA budget category: regional natural heritage). TVA is responsible for establishing and maintaining a scientifically accurate inventory of plants, animals, and wetlands. These inventories are maintained to identify potential conflicts with legislatively protected, or otherwise sensitive, natural resource features or areas. To ensure compliance with various environmental laws and regulations, TVA routinely conducts such inventories as part of its environmental impact assessments for land use decisions. TVA manages 86 natural areas, monitors 19 threatened or endangered species populations on TVA land, and is developing restoration strategies for 50 endangered species sites.
- (4) Other (TVA budget categories: hazardous waste site assessment and remediation; and automated land information system). TVA properties include sites contaminated with hazardous wastes that require analysis and remediation. Sites include the Appalachian Smelting and Refining Company on the South Holston River in eastern Tennessee, which the state of Tennessee has placed on

its state Superfund list, and the historic Florence Wagon Works on the Wilson Dam Reservation in northern Alabama. These sites require decontamination for industrial activities that occurred on the land prior to TVA's acquisition of it.

TVA's automated land information system is a computer-based information system accessed over local and wide-area network communications by over 200 TVA employees in 15 locations. Data available on this system include maps, surveys, photographs, drawings, and documents that TVA and the public need for a number of activities, such as land use requests, agricultural licensing, and shoreline management, archaeological and historic site surveys, wetlands protection, forest resource management, and recreation property site planning.

Facilities Operation and Maintenance (TVA budget categories: river basin land, operations and maintenance; land use-operations and development; and accessibility compliance, capital improvements). TVA operates and maintains the grounds, infrastructure, visitor centers, and 69 recreation facilities on 35 multipurpose dam reservations. TVA also operates and maintains 48 reservoir recreation areas on reservoir or river shorelines off dam reservations that provide public day use, boat launching, and/or overnight camping. TVA defines a recreation area or public access area as a developed facility that offers day use (picnicking, swimming, shoreline fishing, hiking, etc.); overnight camping; and/or boat launching accommodations. In 1997, TVA operated 117 recreation areas, including 44 day-use areas, 24 campgrounds, and 49 boat launching facilities. TVA seeks to build partnerships with other public agencies and the private sector to improve recreation services and facilities. This program also provides for completing projects that achieve compliance with federal regulations dealing with the removal of barriers that prevent access at TVA facilities, such as toilet buildings, parking lots, campsites, pavilions, playgrounds, and fishing piers.

In addition, TVA operates five backwater protection areas to prevent the flooding of specific communities. These areas serve to pump normal and flood-level runoff from specific communities into reservoirs. These stations were established when the reservoirs were originally impounded in order to prevent inundating surrounding communities.

Land Between The Lakes (TVA budget category: Land Between The Lakes). LBL was created by executive decision of President John F. Kennedy in 1963. It attracts over 2 million visits each year. TVA operates and maintains this 170,000-acre national recreation area and 300 miles of lakeshore. Within LBL, TVA also maintains 420 miles of roads, over 200 miles of hiking trails, five campgrounds, a planetarium/observatory, three visitor

centers, and other public facilities. TVA receives user fees for many of the services that it provides within LBL.

LBL's multiple mandates include researching, testing, and demonstrating innovative programs that can be replicated by other outdoor recreation agencies; and aiding in the economic development of the surrounding region. TVA strives to maximize the public benefits at LBL.

Environmental Research Center (TVA budget category: Environmental Research Center). When TVA was created in 1933, it was given the responsibility for operating and maintaining two existing nitrate production plants at Muscle Shoals, Alabama, which supplied military explosives. TVA was required to establish, maintain, and operate laboratories and experimental plants to furnish nitrogen for military purposes and fertilizer products for agricultural purposes. In 1988, TVA began to phase out its fertilizer research and development program and to focus on environmental issues. In recent years, TVA has conducted environmental research on a variety of issues, including atmospheric sciences, biotechnology, and land and water pollution prevention.

TVA has submitted a plan to the Congress to phase out TVA appropriations for ERC by the beginning of fiscal year 2000. TVA plans to expand its external environmental business of \$12 million in gross revenues in fiscal year 1995 to over \$30 million by fiscal year 2000. TVA is currently changing the focus of ERC from primarily serving the public at large to primarily serving paying federal agency customers (primarily the Department of Defense).

Contamination at ERC sites has resulted from decades of munitions and fertilizer research and development activities. TVA currently estimates that cleanup costs will total about \$19 million through fiscal year 2000. Once TVA completes the cleanup, perpetual monitoring of the sites will be required for 30 years, at a cost of approximately \$100,000 per year.

Economic Development (TVA budget category: economic development). During fiscal year 1998, TVA will focus its economic development activities on supporting and transitioning existing small business networks, completing ongoing community development projects, and continuing to provide technical services. TVA's business development program focuses on the development of a regional small business telecommunications network. These new, small businesses share services, equipment, space, and expertise. TVA will continue to support business development centers and economic resource centers.

In its community development projects, TVA primarily provides strategic planning for economic growth in communities. TVA's technical services provides support to TVA's economic development managers and decisionmakers in the Tennessee Valley, in the form of economic research and forecasting, architectural and engineering feasibility studies, and environmental compliance.

TVA also funds economic development programs with power proceeds. Such programs include an economic development loan fund (low-interest loans for business expansion or relocation), Economic Edge magazine, and the recruitment of new and expanding industries to the Tennessee Valley. In a transition plan submitted to the Congress, TVA proposed to phase out its appropriations for economic development by the end of fiscal year 1998. However, TVA received no appropriations for its economic development programs in fiscal year 1998. TVA will provide future funding for economic development programs through power proceeds.

TVA NONPOWER PROGRAMS: FUNDING AND EXPENDITURE DATA FOR FISCAL YEARS 1994-97 AND ESTIMATED FOR FISCAL YEAR 1998

Dollars in thousands

Category	Fiscal year 1994	Fiscal year 1995	Fiscal year 1996	Fiscal year 1997	Estimated fiscal year 1998
Carryover nonpower revenues	\$10,982	\$18,474 ^a	\$19,166	\$15,286	\$14,971
Carryover appropriated funds	24	274	1,818	7,970	9,071
Appropriations received	140,473	137,873	108,998	106,000	70,000
Nonpower revenues received ^b	9,545	12,319	10,474	10,593	6,989
Power revenues allocated ^c	19,023	22,168	26,037	25,206	30,995
Total funding available	\$180,047	\$191,108	\$166,493	\$165,055	\$132,026
Appropriations spent on nonpower	140,223	136,329	102,846	104,899	79,071
Nonpower revenues spent on nonpower	2,052	11,627	14,354	10,908	8,446
Power revenues spent on nonpower ^c	19,023	22,168	26,037	25,206	30,995
Total spent on nonpower^d	\$161,298	\$170,124	\$143,237	\$141,013	\$118,512
Appropriations available year-end	274	1,818	7,970	9,071	0
Nonpower revenues available year-end	18,475	19,166	15,286	14,971	13,514
Power revenues available year-end	0	0	0	0	0
Total available year-end	\$18,749	\$20,984	\$23,256	\$24,042	\$13,514^e

^aAccording to TVA, the slight difference in the year-end available funds of one year and the carryover funds of the following year is due to rounding.

^bThe nonpower revenues received include all nonpower proceeds, such as LBL user fees and shoreline construction permit fees, except for revenues from reimbursable work.

^cTVA uses power revenues to fund a portion of its land and water management programs as well as some economic development programs. Some of these program costs are allocated between power and appropriations on the basis of the benefits received by the power system and the public. The fiscal year 1994 figure does not include power revenues used for economic development programs.

^dThese cost figures include all nonpower expenditures made by TVA, except for reimbursable work for other agencies.

^eThe Congress provided that funding for nonpower activities for fiscal year 1999 and beyond would be derived from only one or more of the following sources: nonpower fund balances and collections; investment returns of the nonpower programs; applied programmatic savings in the power and nonpower programs; savings from the suspension of bonuses and awards; savings from reductions in memberships and contributions; increases in collections resulting from nonpower activities, including user fees; or increases in charges to private and public utilities, both investor and cooperatively owned, as well as to direct load customers.

Source: TVA.

COMPARATIVE INFORMATION ON HYDROELECTRIC POWER OPERATIONS
FOR TVA AND FOUR INVESTOR-OWNED UTILITIES

Characteristics of operations	TVA	Alabama Power	Duke Power	Ameren	Idaho Power
Dams	54	12	32	3	14
Hydroelectric power plants	30	14 ^a	20	3	17 ^b
Hydroelectric generating units	113	44	83	25	47
Installed capacity (megawatts)	4,912	1,583	2,691	741	1,954
Average number of megawatts per generating unit	43.47	35.98	32.42	29.64	41.57
Navigation locks	14 ^c	0 ^a	0	0	0
Reservoir surface area (acres)	479,054	155,547	119,343	110,642	117,697
Shoreline maintained (miles)	10,995	3,132	2,132	1,242	377
Land maintained (acres)	265,000 ^d	180,000	72,080	18,000	28,230
Flood easements (acres)	293,000	35,000	^e	^e	2,000
Day-use areas	44	3	30	2	17
Campgrounds	24	0	11	0	7
Boat launching facilities	49	30	62	0	14

^aAlabama Power owns/operates hydroelectric power facilities at two Corps lock and dam projects.

^bThree Idaho Power hydroelectric power facilities are located at projects where other entities own the dam and reservoir: American Falls and Cascade (owned by the Bureau of Reclamation), and Milner (jointly owned by Northside Canal Company and the Twin Falls Canal Company).

^cTVA owns these locks and is responsible for the capital improvements to the locks, and the maintenance of the concrete lock walls and of the lock support facilities. The Corps operates and maintains the locks.

^dTVA also maintains 170,000 acres of public land at Land Between The Lakes.

^eData on the amount of flood easements managed were not available.

Source: TVA, Alabama Power, Duke Power, Ameren, and Idaho Power.

COMPARISON OF TVA'S NONPOWER PROGRAMS WITH THOSE OF SELECTED IOUS

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Flood control (daily reservoir operations; and emergency preparedness and operations)</p>	<p>Allocates reservoir storage space at 35 of its dams for storing flood waters and releasing water later at a controlled rate.</p> <p>Operates and maintains rainfall gauges and streamflow gauges located throughout the Tennessee Valley, supplemented by radar technology.</p> <p>Works with federal, state, and local officials to ensure appropriate development in flood-prone areas.</p> <p>Manages flood easements as part of flood control operations.</p> <p>Tests and updates its emergency action plans annually.</p> <p>Maintains a separate emergency operations center for use in managing most emergency situations encountered by TVA.</p>	<p>Three have at least one reservoir each with storage space allocated for flood control where flood waters can be stored and released later at a controlled rate--the Corps directs how the projects are operated under flood conditions.</p> <p>All operate and maintain or pay the U.S. Geological Survey to operate and maintain rainfall and streamflow gauges.</p> <p>Two manage flood easements outside of their reservoir areas to control backwater flooding.</p> <p>All test and update emergency action plans annually.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Waterway navigation</p> <p>(navigation, operations and maintenance; navigation, capital improvements; and navigation, waterway development)</p>	<p>Responsible for capital expenditures on 14 locks it owns on Tennessee River.</p> <p>Provides power without compensation to the Corps for operation of 14 locks.</p> <p>Inspects and maintains buoys and hazard markers for recreational boaters as well as buoy reference ranges and staff gauges for commercial navigation.</p> <p>Surveys recreational boaters on effectiveness of navigational aids.</p> <p>Prepares and revises navigation maps.</p> <p>Monitors navigation congestion at Kentucky Lock and institutes efficiency improvements if necessary.</p> <p>Participates in an interagency study on issues surrounding commercial and recreational vessel safety.</p>	<p>None own, operate, or maintain navigation locks.</p> <p>Three maintain buoys and markers for recreational boaters on the reservoirs for public safety purposes.</p> <p>Two provide power without compensation to the Corps for the operation of navigation locks owned and operated by the Corps.</p> <p>One provides minimum flows for downstream navigation.</p>
<p>Chickamauga Lock</p> <p>(Chickamauga Lock replacement)</p>	<p>Performs maintenance to keep the lock operational and is conducting studies for the future replacement of the lock.</p>	<p>None own, operate, or maintain navigation locks.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Dam safety</p> <p>(dam safety, operations and maintenance; and dam safety, capital improvements)</p>	<p>Maintains and improves the structural integrity of 54 dams.</p> <p>Has on-site personnel conduct monthly dam inspections.</p> <p>Has its dam safety specialists conduct inspections every 5 years.</p> <p>Inspects water control and operational equipment every 2-1/2 years.</p> <p>Submits reports on the status of dam safety to the Congress and the President every 2 years.</p>	<p>All maintain and improve dam structures.</p> <p>All conduct regular on-site inspections and are subject to periodic Federal Energy Regulatory Commission (FERC) inspections.</p> <p>All contract for an independent inspection every 5 years.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Water quality protection and improvement</p> <p>(reservoir release improvements, operations and maintenance; reservoir release improvements, capital; river action teams; regional water supply; mosquito management; and plant management)</p>	<p>Maintains and improves minimum flow systems (16 dams) and aeration systems (17 dams)^b to improve dissolved oxygen levels, water temperature, and water flow rates of releases from TVA dams. Operates continuous temperature and dissolved oxygen instruments in the tailraces of nine hydroelectric power projects.</p> <p>River action teams identify instances of water pollution, erosion, and solid waste deposits on private lands throughout the Tennessee Valley and apply correction and protection activities in cooperation with local partners. These teams also form coalitions with local communities to address water quality issues.</p> <p>Controls mosquitoes primarily by fluctuating lake levels and applying chemical methods in emergencies; participates in regional surveillance system to monitor disease. Controls nuisance aquatic plants using pesticides and mechanical controls.</p> <p>Conducts water supply evaluations, investigates alternative water sources, assists communities to obtain a reliable and adequate water supply, and conducts annual assessments and issues public reports on water quality.</p>	<p>Two have minimum flow obligations or continuous release requirements at certain projects, primarily to ensure adequate dissolved oxygen levels downstream.</p> <p>All have installed aeration systems or modified turbines at one or more hydroelectric power units to improve dissolved oxygen levels at certain projects where dissolved oxygen levels downstream are low.</p> <p>All operate and maintain gauges for monitoring temperature and dissolved oxygen levels at certain projects where dissolved oxygen is an issue.</p> <p>Three conduct mosquito control activities, and two conduct aquatic plant control activities.</p> <p>None have programs comparable to TVA's river action teams.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Land services (comprehensive land strategy-shoreline management initiative; and land use services)</p>	<p>Develops plans for the strategic direction for the future use, development, and management of multipurpose reservoir lands.</p> <p>Manages the rate and extent of shoreline residential development to balance the environmental impacts with economic benefits.</p> <p>Manages and administers the real property assets, land rights, and easements in all multipurpose reservoirs and special projects.</p> <p>Approves and issues leases, easements, land use licenses, land transfers, sufferance agreements, deed modifications, and land use permits on TVA land or affecting TVA land rights.</p>	<p>Three have land management plans for each of their FERC-licensed projects; these plans discuss commercial development, undeveloped areas, encroachment surveillance, and habitat protection.</p> <p>Three have shoreline management plans for their FERC-licensed projects that discuss development of reservoir shorelines.</p> <p>All approve and issue leases, easements, and land use licenses at one or more of their projects.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Stewardship (comprehensive land strategy-reservoir land use planning; comprehensive land strategy-public land quality; reservoir shoreline erosion and stabilization; and land use-natural resource stewardship)</p>	<p>Removes trash, litter, and dump sites from TVA lands and organizes volunteer shoreline cleanup activities.</p> <p>Restores overused informal recreation sites.</p> <p>Identifies eroding reservoir shorelines on TVA lands, mitigates critical sites, and develops restoration approaches.</p> <p>Maintains and protects natural resources on 265,000 acres of public land.</p> <p>Conducts wildlife habitat assessments, forest management activities, inventories on the ecological community structure and function, wildlife populations, etc.</p> <p>Conducts annual assessments and issues public reports on public land quality.</p>	<p>All maintain the lands and shorelines they own.</p> <p>Three sponsor shoreline cleanup events, using volunteers.</p> <p>One maintains some wetland areas and natural springs preservations.</p> <p>One is conducting a pilot erosion control program downstream from one project.</p> <p>One conducts timber management activities, such as site preparation, tree planting, and final harvest sales.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Compliance (Section 26a shoreline construction approvals; cultural resources; regional natural heritage; hazardous waste site assessment and remediation; and automated land information system)</p>	<p>Reviews and approves permits for the development of any structures (such as docks, piers, marinas, and bridges) along 11,000 miles of shoreline and 35,000 miles of tributaries that may create an obstruction to navigation, flood control, or public lands along the Tennessee River or its tributaries.</p> <p>Conducts inventories of archaeological and historic sites and stabilizes and protects significant historic and archaeological resources.</p> <p>Establishes and maintains an inventory of plants, animals, and wetlands.</p> <p>Manages 86 natural areas and monitors 19 threatened or endangered species populations and is developing restoration strategies for 50 endangered species sites.</p>	<p>All review and approve permit applications for shoreline structures, such as docks, piers, marinas, and sea walls.</p> <p>Two maintain historical, cultural, or archaeological sites.</p> <p>One maintains an inventory of historical, cultural, and wildlife sites; two others are in the process of developing such inventories.</p> <p>Two conduct fish stocking activities, provide water releases for spawning seasons, and conduct fish surveys.</p> <p>All conduct resource assessments when proposing land-disturbing activities.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
<p>Facilities operation and maintenance</p> <p>(river basin land, operations and maintenance; land use-recreation operations and development; and accessibility compliance, capital improvements)</p>	<p>Operates and maintains 69 recreation facilities on 35 multipurpose dam reservations and 48 on reservoir or river shorelines off dam reservations.</p> <p>Operates five backwater protection stations to prevent flooding of low-lying communities.</p> <p>Builds partnerships with other public and private entities to improve recreation services and facilities.</p> <p>Leases or transfers property to state, local, or private entities that provide recreational facilities.</p>	<p>Three operate and maintain recreational facilities.</p> <p>All have leased or transferred some property to state, local, or private entities that provide recreational facilities.</p>
<p>Land Between The Lakes</p> <p>(Land Between The Lakes)</p>	<p>Operates and maintains a 170,000-acre national recreation area and 300 miles of lakeshore.</p>	<p>None operate and maintain a comparable recreation area.</p>
<p>Environmental Research Center</p> <p>(Environmental Research Center)</p>	<p>Conducts research on a variety of issues, including atmospheric sciences, biotechnology, and land and water pollution prevention.</p> <p>Changing the focus of the ERC from research that primarily serves the public at large to research that primarily serves paying federal agency customers.</p> <p>Member of the Electric Power Research Institute.</p>	<p>None have a facility comparable to TVA's ERC.</p> <p>All conduct environmental research, but the research is primarily conducted to support hydroelectric power operations, such as research on fish habitats and dissolved oxygen, or to ensure compliance with federal and state environmental laws.</p> <p>Three have memberships in the Electric Power Research Institute, which conducts research for the industry in general.</p>

Nonpower program (TVA budget category) ^a	Tennessee Valley Authority	Investor-owned utilities (IOU)
Economic development (economic development)	<p>Supports small business networks through telecommunications links.</p> <p>Helps communities plan for economic growth, build capacity, and leverage funds from many sources.</p> <p>Conducts economic research and forecasting, feasibility studies, and environmental compliance analysis to support other economic development programs.</p> <p>Funds economic development programs with power proceeds, such as low-interest loans for business expansion or relocation, publication of the <u>Economic Edge</u> magazine, and the recruitment of new and expanding industries to the Tennessee Valley.</p>	<p>All work to improve the energy efficiency of their current customers.</p> <p>Three have rate discounts or loan programs in order to attract new businesses to the service area.</p> <p>One helped sponsor community assessments within its service area.</p>

^aWhile these programs are referred to as nonpower, some of the associated costs are allocated between power and appropriated funds in proportion to the benefits provided.

^bAccording to TVA officials, with the exception of two aeration systems at dams without hydroelectric power facilities, all of the minimum flow and aeration systems are paid for completely by power revenues.

Source: GAO's analysis of information from TVA, Alabama Power, Duke Power, Idaho Power, and Ameren.

COMMENTS FROM THE TENNESSEE VALLEY AUTHORITY

Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, Tennessee 37902-1499

Kathryn J. Jackson, Ph.D.
Executive Vice President
Resource Group

March 25, 1998

Mr. John P. Hunt, Jr.
Assistant Director
United States General Accounting Office
Atlanta Regional Office
2635 Century Parkway, Suite 700
Atlanta, Georgia 30345

Dear Mr. Hunt:

We appreciate the opportunity to review GAO's draft letter on TVA's nonpower programs. This subject matter is complex, and we commend you in accomplishing what you did with a tight schedule.

We agree with the key points in your letter which are:

1. IOUs do not have such comprehensive "nonpower" roles and responsibilities as TVA.
2. All parties consulted in your review, including IOUs, agree that flood control and navigation are federal responsibilities.
3. TVA's land management responsibilities, especially with respect to Land Between The Lakes (LBL), greatly exceed IOU activities.

As a follow-up to our discussion on Tuesday, we are providing you with our comments to the draft letter. These comments are intended to address broad issues that could be clarified or, in our opinion, strengthened for the benefit of the reader.

Magnitude and Scope of TVA's Responsibilities

We are concerned the scope and magnitude of TVA's responsibilities as compared to the four IOUs in the analysis is understated. Below are some examples that highlight this magnitude and scope issue. These are only representative examples. Virtually every TVA activity is significantly greater in scope than comparable activities performed by these IOUs.

TVA's flood control responsibilities encompass a complete watershed that includes 7 states and impact river operations on the Ohio and Mississippi Rivers. To put this in perspective, TVA manages 10 reservoirs above Chattanooga, Tennessee, to regulate the water that flows

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through downtown Chattanooga. It is not a matter of managing the flood control operations for a single reservoir, but managing water flows over a large geographical area to minimize flood risk upstream and downstream.

Your comparison of navigation responsibilities highlighted the similarities around navigation for recreation purposes. TVA maintains a commercial navigation system of 14 locks and an 800-mile navigable channel that provides access to the inland waterways system and to ports around the world. Over 45 million tons of cargo is carried annually by the system, resulting in over \$450 million in shipper savings. The Tennessee River system is the fifth largest navigable waterway in the country based on commercial volume moved through the system.

As owner of 54 dams, TVA has responsibility for all dam safety matters of the structures including navigation locks, bridges, and roads that cross the dams. In some cases, IOUs may not actually own the dams; they may only own the generating units and powerhouses. In these cases, they are only responsible for dam safety associated with the generation portion of the structure.

In developing your comparison on acres of land managed, it was not clear how the comparison addressed certain types of land and land transactions. For instance, the total number of acres managed or monitored by TVA is over 1.5 million. This includes LBL, flowage easements, power system lands, acres below summer pool, and lands transferred to public entities. What is not clear in the comparison is what types of land these IOUs included in their acreage estimates. In essence, they are not a land management agency, where public lands management is one of TVA's primary purposes. We are concerned about the accuracy of this comparison. Without inclusion of all TVA lands, it is likely that the number of acres managed by TVA is grossly understated.

Use of the Term "Nonpower" with IOUs

Throughout the analysis, the term nonpower is used to identify certain activities performed by TVA and IOUs. This term is misleading in two ways. First, it suggests IOUs have a greater responsibility than they really have. IOUs perform some of these activities because they are required to do so by regulators. In order to have the benefits of hydro-electric power, they agree to perform certain activities. IOUs do not have nonpower functions; they do not perform these activities for the public good. These activities are performed by IOUs in order to generate low-cost hydro-electric power that provides stockholders an adequate return on investment. A prime example is dam safety. IOUs would not have built dams unless the hydrogeneration provided a financial return to stockholders. However, the great majority of TVA's dams were built for multiple purposes, and in most cases, TVA's main stream dams would not have been built if the sole purpose was generating electricity. These projects provide navigation and flood control benefits that accrue to the nation as a whole and not to a

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single group of stockholders. Secondly, readers may interpret this “nonpower” description to mean the actual source of funding. TVA’s power revenues pay a portion, and on some projects, all of the costs associated with these activities. An example is economic development which is a key component of TVA’s power program. In the past, TVA did carry out some activities in support of its regional development responsibilities that were funded through appropriations. Today, however, the majority of TVA’s activities associated with economic development are paid for with power revenues similar to IOUs. The use of the term nonpower in this analysis with IOUs could lead to the reader misunderstanding the source of TVA’s funding for these activities.

Cost Allocation of TVA’s Multipurpose Reservoir Projects

Although the draft GAO report addresses the similarities and differences between dams and reservoirs which have been developed by TVA and those developed by selected private power companies, it may not sufficiently address how the various parts of such projects are paid for. Section 14 of the TVA Act requires that each of TVA’s dam and reservoir projects be examined to determine how much of the capital cost of the project should be allocated to flood control, navigation, electric power production, and any other project purposes. Once such allocation is made, it must be approved by the President, after which time it becomes final and under Section 14 must thereafter be used in allocating future capital improvements and maintenance expenses. Operating costs are similarly reviewed and allocated, periodically being reassessed to ensure the allocations remain current.

TVA’s 54 dams and reservoirs fall into three separate and distinct groups with respect to allocations. In the first group are nine dams and reservoirs built primarily for power production purposes. These projects are identical to those built and operated by IOUs. They may provide some navigation, flood control, or recreation benefits, but were built primarily for power production purposes. Just like IOUs, 100 percent of the costs are paid from TVA’s power revenues.

In contrast, 24 TVA dam and reservoir projects have no hydroelectric facilities and serve no power production purposes. These projects are allocated to the one or more purposes for which they were constructed, and they have always been supported 100 percent by appropriated funding, as are similar projects throughout the country.

Finally, 21 TVA dam and reservoir projects are multipurpose projects that include hydroelectric facilities. Each one of these projects was built primarily for navigation and flood control purposes—not for electric power. Indeed, several would not have been built at all if power production had been their chief purpose. Combining all of the benefits allowed

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these projects to be economically feasible. The allocation methodology, simply stated, separates costs that can be identified to a single purpose (e.g., the powerhouse is allocated entirely to power and paid for with power revenues and the locks are allocated entirely to navigation and paid for with appropriations). Second, the remaining common costs of the project, such as the basic dam structure and reservoir lands, are allocated proportionally to all its purposes, including power. The power system pays its allocated share of the whole—including a portion of the thousands of acres of reservoir lands and all dam safety improvements.

In the 1930s, numerous private power companies challenged TVA's allocation method, claiming that it did not allocate a sufficient portion of the total costs to the power system. A special joint committee of Congress was created to investigate these and other charges. After a year-long investigation, the committee concluded that TVA's methodology was sound, and it found "no merit in the private power industry suggestion that the TVA power program, and therefore the rate payers who utilize the Authority's power, should bear all, or even substantially all, of the common investment in the multipurpose program."

In closing, we do appreciate the hard work you and your staff did in preparing this analysis and spending time to review the letter with us. Comparative information of this nature is difficult to simplify and put into meaningful terms. You and your staff are to be commended for the data synthesis and presentation. If I can be of further assistance to you now or in the future, please let me know.

Sincerely,



Kathryn J. Jackson

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives in this review were to (1) discuss the nonpower roles and responsibilities carried out by TVA and by selected investor-owned utilities (IOU) and (2) compare TVA's nonpower programs with programs managed by selected IOUs to illustrate similarities and to discuss whether any of these programs could be viewed as federal responsibilities or as unique programs.

To meet the requesters' time frames, we relied on information obtained through discussions with TVA officials and compared that information with information obtained through discussions with officials at a limited number of IOUs. We met with TVA's Resource Group, which has the principal responsibility for managing all of TVA's nonpower programs. In addition, we met with representatives of the Edison Electric Institute (a trade organization representing the IOU industry). We also discussed nonpower issues with officials of the U.S. Army Corps of Engineers (Corps) at headquarters and in one district office and with the headquarters and regional office officials from the Federal Energy Regulatory Commission (FERC) who are responsible for licensing activities involving nonfederal hydroelectric power facilities.

For the first objective, concerning the nonpower roles and responsibilities, we obtained information describing the nonpower roles and responsibilities carried out by TVA and the selected IOUs. Sources for this information included legislation on TVA, previously issued GAO reports on TVA and the IOU industry, IOU licenses granted by FERC, and discussions with TVA, IOU, and FERC officials. We also discussed the issues of roles and responsibilities with Corps headquarters and district office officials.

For the second objective, comparing TVA's and IOUs' nonpower programs, we obtained descriptions of TVA's nonpower programs using information from TVA's October 1997, "Report of the Appropriations Task Force" and other TVA sources, such as the fiscal year 1998 budget submission to the Congress. We used this information in discussions with a limited, judgmentally selected sample of IOUs to compare TVA's nonpower programs with those managed by the selected IOUs. For the IOU comparisons, we described to the IOUs the types of nonpower programs that TVA manages and, to the extent possible, then determined, through discussions and available supporting documentation, whether these entities have programs that could be viewed as having similarities to TVA's nonpower programs. We also discussed with the IOU officials and others, such as Corps officials, their views concerning whether any of TVA's nonpower programs could be viewed as federal responsibilities or unique programs. To the extent possible, we also obtained background and statistical information about the IOUs' nonpower programs and hydroelectric power program.

Because of the agreed-upon time for completing our work, we recognized that we could not perform work involving a statistically valid sample of IOUs. As a result, we decided, in consultation with the requesters' offices, that discussions with a limited number of IOUs, as well as the Edison Electric Institute, would provide an adequate comparison group for the purposes of our work. We selected four IOUs—two in the Southeast that operate in a geographic area similar to TVA's (Alabama Power, which operates in Alabama, and Duke Power, which operates in North and South Carolina); one in the Midwest (Ameren, which operates principally in Missouri and Illinois); and one in the West (Idaho Power, which operates in Idaho, Oregon, and Nevada). Each of these IOUs has multiple hydroelectric power facilities that are licensed by FERC. The comparative information on the IOUs discussed in this report is used for illustrative purposes only and cannot be projected to the universe of IOUs operating in the United States. In addition, because of the limited time frame we had to complete our work, we did not verify the accuracy of any statistical information obtained from TVA and the selected IOUs.

To aid our understanding of the nonpower roles and responsibilities, we discussed these issues with Corps headquarters officials and officials from one Corps district office. We selected the Corps' Nashville, Tennessee, District Office because it has management responsibility for the Cumberland River basin system—a river basin system adjacent to the Tennessee River system. All of TVA's multipurpose hydroelectric power projects are located on the Tennessee River or its tributaries. We also selected this office because it has in-depth knowledge about TVA's operations—it is responsible for the day-to-day operation and maintenance of the 14 navigation locks on the Tennessee River. In addition, this office manages several multipurpose projects on the Cumberland River.

We found differences among the nonpower programs managed by TVA and those managed by the IOUs. These differences exist for several reasons. For example, the definition of a TVA nonpower program may not fully match a similar type of nonpower program conducted by the IOUs. Similarly, the management philosophy each entity has towards the nonpower programs can differ and affect the extent of the resources used to carry out the various programs. Furthermore, TVA and the IOUs may emphasize individual programs to a greater or lesser extent. For these reasons, our comparisons should be broadly viewed as providing general information on the extent to which each entity carries out nonpower programs that can have some similarities.

We did not evaluate TVA's or the selected IOUs' effectiveness in carrying out any of the nonpower programs. Such an evaluation was beyond the scope of our work.

We performed our work during October 1997 through March 1998 in accordance with generally accepted government auditing standards.

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