



# EPI BRIEFING PAPER

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## **IF IT AIN'T BROKE, DON'T FIX IT!**

### **Potential Impacts of Privatizing the Tennessee Valley Authority**

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## Executive summary

The Obama administration is considering whether to divest all or part of the federally owned Tennessee Valley Authority (TVA) as a means to pay down the U.S. debt. The selling off of all or part of the TVA to private ownership would have far-reaching consequences, especially for the 9 million people in the 80,000-square-mile region—encompassing parts of Tennessee, northern Alabama, Mississippi, Kentucky, Georgia, North Carolina, and Virginia—to whom the TVA provides electricity and other services.

The proposal has sparked a debate about the benefits and problems that divestiture might bring. Conservatives have long opposed the TVA on the grounds that it is an illegitimate government intrusion into the marketplace. The Obama administration's fiscal year (FY) 2014, 2015, and 2016 budget proposals have called for reducing or eliminating the federal government's role in programs such as the TVA "which have achieved their original objectives or no longer require Federal participation." Worried that the TVA's bond debt, then at \$26 billion, could exceed its \$30 billion statutory cap and thus impact the federal debt, the administration has suggested ending federal ties in order to "help mitigate risk to taxpayers" and "put the Nation on a sustainable fiscal path" (OMB 2013, 2014, 2015).

At the same time, the TVA's major stakeholders have come out against divestiture. Opposition has been broad-based, from conservative congressional lawmakers from states and districts in the TVA service area; to the municipally owned and cooperative local power companies and the Tennessee Valley Public Power Association, which represents these distributors; to labor unions representing TVA employees.

This report presents an overview of the debate. It evaluates the pros and cons; summarizes the agency's organizational, financial, and economic situation; and examines the potential implications of privatization for ratepayers, communities, and the regional economy.

The TVA is a corporate agency of the United States, governed by a nine-person board appointed by the president and confirmed by the Senate. Its operations have been self-financed since 1999, requiring no taxpayer money. The TVA operates one of the nation's largest utility systems, accounting for about 3 percent of U.S. electricity capacity (EIA 2013). It had 37 gigawatts (GW) of electric power generation (summer net) capability in 2013, and over 16,000 miles of transmission lines.

Even though electric power generation and transmission is the TVA's dominant function, it remains integral to and integrated with the TVA's nonpower responsibilities, including river and land management, environmental stewardship, and economic development.

Opposition to divestiture received a major boost from a government-commissioned study prepared by Lazard Frères & Co. in 2014 (TVA 2014c). Lazard examined a range of options including privatization, public-sector spinoff, and status quo alternatives. It concluded that, although it had "recommended for privatization in other situations in the U.S. Power & Utility Industry," several factors led it to "recommend against pursuing a divestiture of TVA."

Lazard addressed the TVA's financial situation and gave it high marks for putting its operation on a more financially sustainable path. It concluded that the TVA's financial position had strengthened, and it was poised to cut its long-term debt over the next decade. It also identified several potential downsides; these included potentially higher electric-

ity rates and potentially adverse impacts on the TVA's power system and its nonpower functions, the management of which is highly integrated under the current TVA.

Building on and extending Lazard's findings, this report presents the findings of an assessment of two related types of impacts that could result from privatizing the TVA:

1. The impacts on the TVA's electric power system, i.e., on the new, restructured system's ability to provide reliable and affordable electricity to stakeholders in the region.
2. The impacts on the TVA's nonpower functions, especially its role in river and land management, environmental stewardship, and economic development.

Several general findings stand out in this analysis:

- It is difficult to see how divestiture would provide stakeholders with any greater benefits than the TVA system already provides.
- Privatization would sever the connection between most of the TVA's power and nonpower functions, resulting in dis-synergies and impairing and diminishing the various electric power, river and land management, environmental, and economic benefits that the TVA has delivered since the 1930s.
- Privatization could increase electricity rates, reduce system reliability, increase price volatility, and lower the credit rating of local distributors of the TVA's electric power.
- Privatization would inject uncertainty and complexity into the performance of all of the TVA's power and nonpower functions, both during and after the long, complicated process of carrying out proposed divestiture scenarios.
- Instead of a single authority with responsibility for planning, implementing, and governing the various functions, under divestiture there would be many different, sometimes competing responsible entities, including federal agencies, state regulatory bodies, and private utilities. Difficulties coordinating these entities could inhibit the ability to improve operations, build and rebuild facilities, and provide services with the same effectiveness and smoothness that the TVA offers today.

Specific findings of the assessment of privatization's impacts on the TVA's main power and nonpower functional areas are summarized below:

## ***Electric power and transmission impacts***

### **Electricity rates**

- Evidence strongly suggests that electric power rates, in the short run at least, would likely increase, perhaps significantly, above TVA status quo rates.
- Private owners of the TVA's power assets most likely would include additional costs in their rate structure, such as federal taxes and return on equity, that the TVA does not need to include because of its federal not-for-profit status.
- Divestiture is likely to introduce a high degree of uncertainty and volatility into electricity markets that could adversely impact electricity distributors and industrial customers in the TVA service territory.

- Divestiture would shift the responsibilities and burden of regulating the new owners of TVA assets to multiple state agencies.
- There could be an increase in the vulnerability of a privatized TVA system to price volatility, as it would now be reliant on external power markets.

### **Electric power reliability**

- The complexity and uncertainty associated with divestiture could adversely affect the TVA's reliability record.
- Divestiture would divide the TVA's well-integrated, balanced electric power system into independent and no-longer-accountable component parts, comprising a mix of electric power generation and transmission assets, whose management and operation would now fall under multiple private entities.
- Planning, investment, construction, and operation of the TVA's generation and transmission capacity would no longer be integrated and coordinated across the service area.
- The responsibilities for maintaining the system and coordinating with distributors and other utility systems would shift to unknown, multiple entities.
- Decisions about expanding, upgrading, managing, and repairing capacity—and other factors that affect the reliability of the electric grid—would shift from a single body, subject to long-term integrated planning, to multiple independent private utilities, overseen by several different state regulatory agencies.

### **Electric power distributors**

- Local power companies (LPCs) would have to make new power purchase arrangements with multiple power providers over time, instead of having to make new long-term power purchase agreements with one wholesaler (i.e., the TVA). This change would add new uncertainty to the LPCs' power contract terms and prices.
- LPCs may be required to purchase some electricity directly from unregulated wholesale markets, from independent power producers and other power providers outside their service areas, subjecting them to further sources of supply and price volatility.
- The potential sale of the TVA's assets could threaten local power distributors' bond ratings, sending negative signals to financial markets and to potential economic developers.

### **State and local taxes**

- Privatizing all or part of the TVA's capacity would create uncertainty about the sources and size of the new owners' tax payments.
- The tax collection process would become more complex and less certain as to the expected revenues states and local jurisdictions would receive; instead of collecting from one entity based on a straightforward formula and process, the states and municipalities would collect from multiple private power companies.

### **Clean energy and energy efficiency programs**

- Privatization would create uncertainty about whether the new owners would make a similar commitment and scale of investment as the TVA in nonhydro renewable generation.

- There would be uncertainty about the implications for current contracts with wind farms and other renewable sources provided outside the region; new owners might need to renegotiate these arrangements, based on their own business plans.
- The high level of integrated planning and implementation of clean energy facilities throughout the Tennessee Valley would disappear under privatization, though many private investor-owned utilities (IOUs) also are making efforts to expand their renewable portfolio and reduce their carbon footprints.
- The fate of the TVA's renewable energy research initiatives would be very uncertain—i.e., who would pay and take over responsibility for these programs, or would they be terminated?
- The TVA's federal connection may make it more amenable to internal and public pressures to support federal and state clean energy and emissions mitigation efforts; as a federal corporation, the TVA might be more directly compelled to respond to federal regulatory mandates and requirements than are privately owned utilities.

## ***Impacts on the TVA's nonpower functions***

### **River, land, and resource management**

- The potential separation of the TVA's integrated water management approach from its hydro-generation system would hamper both functions, negatively affecting the quality of services and economic costs.
- Severing the TVA's power generation function from river and land management could diminish both functions, as well as the TVA's economic development initiatives.

### **Environmental stewardship**

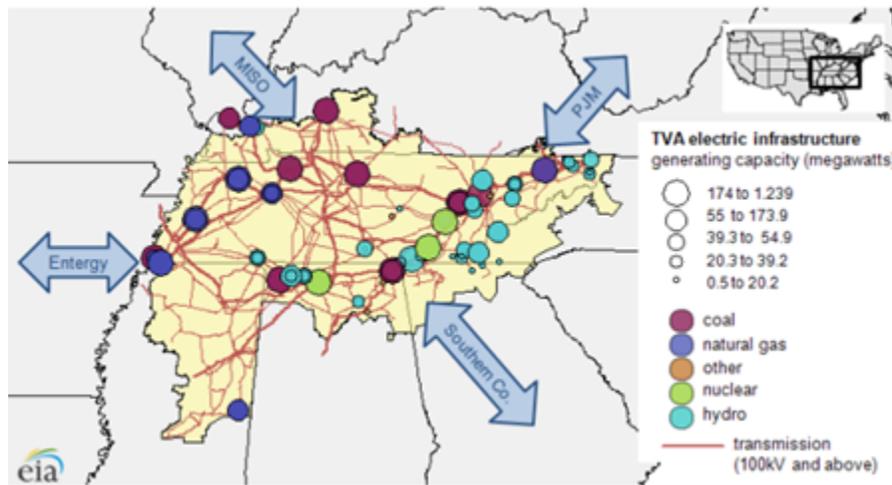
- The integrated approach that helps to optimize the TVA's environmental, power, and economic development objectives would no longer be in effect under most divestiture scenarios.
- Privatization would weaken if not sever the crucial linkages between the region's river and land management resources and environmental stewardship mission, which are highly integrated in the TVA's strategic planning activities.
- The direct tie between managing the TVA's power generation and its environmental mission would be weakened under divestiture.

### **Economic development**

- The TVA's economic development initiatives are closely associated with its river and land management functions, and benefit directly from access to the TVA's competitively priced, reliable electricity.
- Economic development is integral to the TVA's mission—it works with local power companies and regional, state, and local economic development agencies, providing a variety of incentives and services to attract and retain companies and help communities benefit from economic growth opportunities.
- Privatization would leave uncertain which entities would take over and finance this function.
- The separation of economic development from generation and transmission, as well as from the TVA's river and land management activities, could substantially diminish the scale and effectiveness of economic development activities.

FIGURE A

## TVA's electric infrastructure and service area



Source: EIA (2013)

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The old cliché is fitting here: “If it ain’t broke, don’t fix it.” There is no question that the TVA has needed to address serious financial problems and bring in new leadership to lead a renewal effort. The silver lining of the privatization debate is that it may have helped spur the TVA to make these necessary changes while preserving its overall capabilities as an integrated system. As TVA Chief Executive Officer Bill Johnson has observed, “I just don’t see how, as an economic proposition, this could be done better than it is today” (EIR 2013).

## Introduction

The Obama administration is considering whether to divest all or part of the federal government’s ownership of the Tennessee Valley Authority (TVA) as a means to pay down the U.S. debt. The Office of Management and Budget (OMB) has convened an interagency working group to conduct a strategic review of the TVA and examine options for addressing its financial situation. Among these options are selling off the TVA wholly to a single investor-owned utility (IOU) or to multiple IOUs, or maintaining the TVA as a wholly owned federal corporation but selling various TVA assets to IOUs or independent power producers (IPPs).

The prospect of the TVA’s divestiture has sparked concern among major stakeholders in the Tennessee Valley. The selling off of all or part of the TVA to private ownership would have far-reaching consequences, especially for the 9 million people in the 80,000 square-mile region—encompassing most of Tennessee, northern Alabama, northeastern Mississippi, southwestern Kentucky, and portions of Georgia, North Carolina, and Virginia—to which it provides electricity and other services. (See **Figure A** for a map of the TVA’s electric infrastructure and the geographical area it serves.)

The TVA operates one of the nation’s largest electric power and transmission systems, and the system is integral to a number of important nonpower functions over which the TVA has responsibility—river and land management, envi-

ronmental stewardship, and economic development—and that are vital to the economic and environmental well-being of the Tennessee Valley. The TVA’s operations cannot be fully understood without appreciating the multiple linkages among these critical activities.

In short, based on this assessment, it is difficult to see how divestiture would provide stakeholders in the Tennessee Valley, the federal government, or American taxpayers with any greater benefits than the current TVA system already provides.

## The TVA story

The Tennessee Valley Authority was one of the most successful and ambitious of President Franklin Roosevelt’s New Deal programs. Created by the Tennessee Valley Authority Act of 1933, the TVA was the fulfillment of the vision of populist Republican U.S. Senator George Norris of Nebraska, who for many years had called for harnessing the power of the Tennessee and other large rivers. Norris saw the enormous impact of periodic floods in large areas of the United States, but also the opportunity that the nation’s streams and rivers presented “to produce great amounts of electricity for homes and factories of the nation.” In his view, the improvements in flood control, navigation, and irrigation, in hand with the generation and development of electricity, were “inseparably linked” (Munzer 1969, 69).

Congressional support for the regulation and control of rivers feeding the Mississippi, including tributaries such as the Tennessee River, received impetus from the floods of 1927, which devastated huge areas of the Mississippi River valley. FDR, who had a lively interest in regional resource planning, had publicly promised that the development of the Tennessee Valley, through the harnessing of its river, would be a priority in his administration (Munzer 1969). As stated in the Tennessee Valley Authority Act of 1933, the TVA was created:

...to improve the navigability and provide for the flood control of the Tennessee River; to provide for reforestation and the proper use of marginal lands in the Tennessee Valley; to provide for the agricultural and industrial development of said valley; to provide for the national defense by the creation of a corporation of Government properties at and near Muscle Shoals in the State of Alabama and for other purposes.

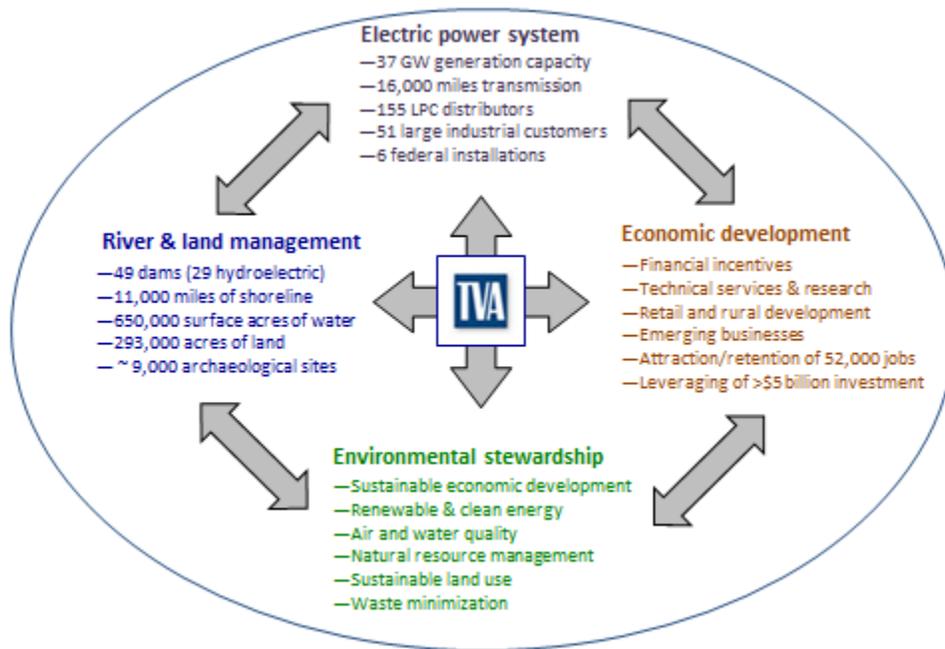
The TVA was also given the power “to construct dams, reservoirs, power houses, power structures, transmission lines, navigation projects, and unite the various power installations into one or more systems by transmission lines.”

By all accounts, the TVA has fulfilled its mission well, and it can claim significant accomplishments over its 80-year history (Munzer 1969; Encyclopedia 2004). For example:

- Aside from taming the river and enabling navigation, the TVA and the system of local power distributors (municipally owned and rural electric cooperatives) that it helped create brought electricity to the least-electrified region of the country. The TVA’s success in rural electrification was a model for the Rural Electrification Administration, later reorganized into the Rural Utilities Service under the U.S. Department of Agriculture.
- Along with stopping devastating floods, the TVA’s control of the river helped to end malaria in the United States. Up until this point, malaria was a common, debilitating disease that afflicted many people in the South.

FIGURE B

## TVA's integrated power and nonpower functions



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- It was a great spur to economic development—its reliable and affordable electric power and navigable water systems have attracted businesses and stimulated industrial growth, including a strong recreational industry, throughout the region (Encyclopedia 2004).<sup>1</sup>

In short, as noted in one history of the agency, the TVA became “[a]n important symbol of constructive government action and the idea that the public weal should vigorously challenge a negligent private will” (Encyclopedia 2004).

### The TVA system

The TVA is a corporate agency of the United States, governed by a nine-person board appointed by the president and confirmed by the Senate. However, its operations have been self-financing since 1999, *requiring no taxpayer money*. The TVA operates one of the nation’s largest utility systems, accounting for about 3 percent of U.S. electricity capacity (EIA 2013), and in 2013 it had 37 GW of electric power generation (summer net) capability and over 16,000 miles of transmission lines.

Even though electric power generation and transmission have become the TVA’s dominant function, they remain integral to its nonpower responsibilities, including river and land management, environmental stewardship, and economic development. The operation of the TVA system as a whole cannot be understood without appreciating the multiple linkages among these various functions (schematically illustrated in **Figure B**).

TABLE 1

## Power supply from TVA-operated generation facilities (year ending September 30, 2014)

Type of power supply	Summer net capability (GW)	Total power supplied (millions of kWh)	Percent of total power supplied
Coal fired (10 plants/41 active units; 18 inactive units)	11.933 (36%)	62,525	44%*
Nuclear (3 sites; 6 units in operation; 1 unit under construction)	6.724 (18%)	53,778	38%
Hydroelectric (29 conventional dams/109 generating units; 4 pumped storage units)	5.418 (15%)	13,228	9%
Natural gas and/or oil fired (98 combustion turbine power blocks; 87 simple cycle units; 11 combined cycle; 1 diesel generator/5 units)	9.242 (25%)	12,615	9%
Renewable resources (non-hydro; 16 solar sites; 3 wind turbines (out of service); capability for digester gas and biomass co-firing)	<1 (<1%)	5	<1%
<b>Total</b>	<b>33.347</b>	<b>142,151</b>	<b>100%</b>

\* This is down from 52% in 2011 (74,583 kWh); growth in nuclear and especially natural gas (6,809 million kWh in 2011) generation made up most of the difference.

Source: EPB (2012); TVA (2014b, 12)

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For example, the TVA's revenues, which derive almost solely from electric power generation, provide for flood control, navigation, and land management for the Tennessee River System and assist local power companies and state and local governments with economic development. The provision of low-cost power facilitates economic development in the region, and water stewardship is jointly managed with the TVA's hydro operations (*States News Service* 2014). Water-quality management and the operation of the TVA's nuclear and thermal electric power plants, which draw upon and release water effluents into the region's rivers and waterways, are also tightly linked.

While the TVA has accomplished its original mission to bring electricity to poor rural areas, tame and manage the region's rivers, and foster economic growth, it continues to carry out most of its original functions, to the benefit of the residents of its service area and to the nation as well. The integration of the TVA's power and nonpower functions was central in its original conception and continues to guide its strategic planning process today (summarized in Appendix A).

### ***The TVA's electric power system***

Electric power generation accounts for approximately 90 percent of the net power-related operations of the TVA, and transmission accounts for the remaining 10 percent (TVA 2014c). As summarized in **Table 1**, coal-fired and nuclear plants account for the largest share of power supplied from TVA-operated facilities, followed by hydroelectric, natural gas/oil fired, and a very small amount of nonhydro renewable energy resources (TVA 2013, 2014b).<sup>2</sup>

### **TVA power transmission**

The TVA owns and operates one of the largest and most reliable transmission systems in North America. It comprises 16,200 circuit miles of transmission line, 103,485 transmission line structures, 511 power stations and switchyards, 69 interconnections with 12 neighboring electric systems, and 237,000 acres of transmission right-of-way, and it delivered 161 billion kilowatt hours (kWh) of electricity to TVA customers in 2014. Since 2000, the TVA transmission system

has delivered 99.999 percent reliability to power distributors (its primary customers) and to industrial and federal customers across the region (TVA 2014b, 24; TVA 2015a).

### **TVA power distribution**

The TVA is primarily a wholesaler of electricity. It sells power to 155 local power companies (LPCs), which then resell power to their customers at retail rates. LPCs include 105 municipalities and other local governments and 50 customer-owned cooperatives, which operate not-for-profit public power electric systems. LPCs purchase power from the TVA under five-, 10-, or 15-year agreements. The two largest LPCs are the Memphis Light, Gas, and Water Division and the Nashville Electric Service.

The TVA Act defines the TVA's service area for selling power. The TVA and its LPC distributors cannot, without congressional authorization, provide power outside the "fence," or TVA's service area. Moreover, the TVA cannot be ordered to allow non-TVA entities to access its transmission lines to sell power within its service area. This arrangement reduces exposure by the TVA and its distributors to loss of customers to outside power companies.

The TVA's total operating revenues were \$11.1 billion in fiscal year (FY) 2014. Four states—Tennessee (65 percent), Alabama (14 percent), Mississippi (9 percent), and Kentucky (6 percent)—account for the largest shares of power sold in the TVA service area (TVA 2014b, 9). Sales to LPCs accounted for 90 percent (\$10.1 billion) of revenues in 2014. The TVA also sells directly to industry and customers with large or unusual loads (about 7 percent, or \$780 million of its revenues) and to federal agencies and other customers (about 3 percent, or \$157 million) (TVA 2014b, 10).<sup>3</sup> The TVA can sell power that exceeds system needs to other electric systems with which it interconnects, such as Southern Company (southeast of the TVA service area), Entergy (to the west); MISO (to the northwest), and PJM (to the northeast) (TVA 2014b, 12).

### **Move to cleaner energy**

The TVA has committed to making significant investments in a balanced energy portfolio, with a goal of producing ever-cleaner energy (low or zero carbon) over time. This effort includes investing in emissions-control equipment (targeting nitric oxide, nitrogen dioxide, and sulfur dioxide) at existing power plants (TVA 2014b, 32–33).<sup>4</sup> In response to the EPA's proposed rules for reducing carbon at existing power plants, the TVA said that its 2013 carbon emissions were 30 percent below 2005 levels and would be 40 percent below by 2020. It further noted that it achieved these reductions by a combination of changing its generation mix away from coal and toward noncarbon sources and focusing on energy efficiency and demand-side management (TVA 2014d).

For example, the TVA has agreed to retire 18 of its 59 coal-fired units by the end of 2017. It has added new natural gas-fired generation and is poised to bring an additional nuclear unit online in 2015 at its Watts Bar site. It also is investing in a broad portfolio of energy efficiency, demand response, and system load enhancement programs through its EnergyRight Solutions programs (TVA 2014b, 20–21; TVA 2013, 20).<sup>5</sup> The TVA has also initiated several programs to increase the amount of renewable energy sources in its power generation mix.<sup>6</sup>

### ***The TVA's nonpower functions***

The TVA's nonpower functions include river and land management, environmental stewardship, and economic development, which are closely linked to its electric power functions.

## River and land management

In operating the Tennessee River and reservoir system, the TVA applies integrated river system management to carry out navigation, flood control, and land management. Its systemwide flow requirements ensure that enough water flows through the river system to allow year-round navigation, enhance recreational opportunities, protect water quality and aquatic resources, and support power production. Closely linked is the TVA's land policy, designed to protect and preserve undeveloped public lands managed by the TVA along reservoirs throughout the Tennessee Valley (*U.S. Fed News* 2006).

## Environmental stewardship

An integral element in the TVA's strategic plan (see Appendix A) is its environmental policy, which "identifies areas that will allow TVA to produce cleaner and still affordable electricity and provide environmental leadership" in partnership with its stakeholders. The main elements of the policy include climate change mitigation, air quality improvement, water resource protection and improvement, waste minimization, sustainable land use, and natural resources management. These principles help guide the TVA's power, land and resource management, and economic development activities (TVA 2008).

## Economic development

The TVA's competitive electricity prices are key to business attraction and job creation in the region. The TVA also serves as a catalyst for sustainable economic development in the region, consistent with its environmental stewardship mission. It works with local utilities and other strategic partners to recruit new companies and investments, provide economic development services, retain and support existing companies, and prepare communities for economic growth. Strategic partners include state agencies; local utility officials; regional, state, and local economic development associations; chambers of commerce; and community groups (TVA 2013).<sup>7</sup>

## The TVA's economic and financial situation

The Obama administration's call for consideration of divestiture of the TVA in its federal budget proposals was in part driven by concerns that the TVA has had a history of cost overruns, poor financial management, and accountability problems, and that it was on track to exceed its statutory debt limit of \$30 billion over the next decade. Moreover, public perception of the TVA had been harmed by the Kingston coal ash spill in December 2008.

Over the past few years, however, the TVA has undergone organizational and management changes that appear to have improved its financial and economic prognosis. Since Bill Johnson, former chairman, president, and CEO of Progress Energy Inc., took over as president and CEO in January 2013, the TVA appears to be on a more sustainable financial path—it has cut costs and is providing more competitive rates to its residential and industrial customers. The principal characteristics of the TVA's finances and economics, which are important considerations for divestiture scenarios, are summarized below (greater detail is available in Appendix B) (TVA 2014b, 2013; EPB 2014, 2012).

### *TVA financing*

The TVA's operations were initially funded by federal appropriations, but direct congressional appropriations for its power generation system ended in 1959. Since 1999, Congress has not appropriated any funds for the TVA's operations; they are supported solely by sales of electric power to LPCs and industrial and federal clients. For example, in

2000 the TVA started paying for essential stewardship activities with power revenues primarily, and it funds the remainder with user fees and other revenues derived in connection with its activities (TVA 2013).<sup>8</sup> In short, all of the TVA's functions, both power and nonpower, are today funded almost entirely through the sale of electricity and other earned revenues.

### ***TVA expenditures, assets, and financial obligations***

The TVA's principal operating expenses include fuel and purchased power expenditures (about 29 percent and 11 percent, respectively, of total expenses in 2014), operations and maintenance (35 percent), depreciation and amortization (19 percent), and payments in lieu of taxes (PILOT, 6 percent). Because of its tax-exempt status, the TVA makes PILOT or "tax equivalent" payments annually to state and local governments in the eight states where it sells electricity or owns power production assets and properties (generating plants, transmission, lines, substations, etc.) to make up for tax revenues that might have been collected if the TVA were operating as a private firm. The TVA's PILOT totaled \$540 million to all jurisdictions in 2014 (TVA 2014b).

The TVA's total assets (including cash, property, plant equipment, and other assets) totaled \$46 billion in 2014. Its obligations include capital expenditures and long-term debt, employment and pension obligations, and proprietary capital (see Appendix B, Table B-1). Its long-term debt of \$23 billion in 2014 is somewhat below its \$30 billion statutory debt limit (TVA 2014b, 47).

### ***Electric power rates***

The TVA Act gives the TVA board sole authority for setting rates; no judicial review or state or federal regulatory approval is required. The TVA is required to charge rates that will produce gross revenues sufficient to cover operational and maintenance expenses, fuel cost recovery, PILOT, debt service, repayments to the U.S. Treasury for prior federal investments in the TVA, and any additional amounts the TVA board considers desirable for investment in new power assets, paying off other indebtedness, and other purposes.

According to several benchmarking analyses and comparisons—by Lazard Frères, the Electric Power Board of Chattanooga (EPB), the TVA, and the U.S. Energy Information Administration (EIA)—the TVA's electric power rates are competitive with those of other utilities nationally and regionally (see Appendix C for a summary of these analyses). For example, in FY 2014, the TVA's 12-month average retail rate (c/kwh) was the 35th lowest of the top 100 U.S. utilities, and its 12-month average industrial rate was the 16th lowest of the top 100 U.S. utilities (TVA 2014b).

## **To divest or not to divest**

Despite TVA's impressive record—it arguably is one of the most successful public policy initiatives in the nation's history—the Obama administration has awakened a debate over whether the agency should remain under federal control. The responses do not divide along predictable partisan lines. The pros and cons are summarized here, and reviewed in greater detail in Appendix D.

### ***Support for divestiture***

Challenges to the TVA's existence as a federal entity have a long history. From its beginning in 1933, Republican lawmakers and conservatives opposed the TVA as an illegitimate government intrusion into the marketplace. More

recently, conservative journals and think tanks—notably the Reason Foundation in 1996 and the Heritage Foundation in 2014—have criticized the TVA’s performance, claimed that it no longer provides low-cost electricity, and warned of a bailout if TVA exceeds its \$30 billion statutory debt limit. They call for the TVA to sell its assets in a competitive auction to bring it “under the rigors of market forces” (Canan 1996; Glozer 2014).

A series of federal government documents since the 1990s have echoed these proposals. A 1997 Congressional Budget Office (CBO) report, *Should the Federal Government Sell Electricity?*, and several “budget options” reports suggest transferring much of the TVA’s electric power assets to private or perhaps local governments (CBO 2007).<sup>9</sup> A 2011 Government Accountability Office study, while not explicitly calling for divestiture, reported on the TVA’s history of overruns and construction delays and expressed concerns about whether the TVA could address these issues, without pushing its debt over the statutory limit.

In a similar vein, the Obama administration’s FY 2014 and 2015 federal budget proposals called for “[r]educing or eliminating the Federal Government’s role in programs such as TVA, which have achieved their original objectives and no longer require Federal participation.” Worried that the TVA’s bond debt, then at \$26 billion, could exceed its \$30 billion statutory cap and impact the federal deficit, the administration called for exploring an end to federal ties, which could “help mitigate risk to taxpayers,” and “put the Nation on a sustainable fiscal path.” To evaluate this prospect, the OMB undertook a “strategic review for addressing TVA’s financial situation, including the possible divestiture of TVA, in part or as a whole” (OMB 2014, 40; 2013, 51). This review, now completed, and supplemented by the commissioned study by Lazard Frères, informed the administration’s FY 2016 budget proposal, which said that the TVA has taken “significant steps to improve its operating and financial performance and is committed to resolve its capital financing constraints.” Nevertheless, cutting or reducing the federal role in “programs such as TVA” remain on the table (OMB 2015, 81).<sup>10</sup>

## ***Opposition to divestiture***

At the same time, the TVA’s major stakeholders have come out against the federal government’s various divestiture propositions and pronouncements. The opposition has been broad-based, and includes conservative congressional lawmakers from states and districts in the TVA service area; the municipally owned and cooperative local power companies; the Tennessee Valley Public Power Association, representing these distributors; and labor unions representing TVA employees, notably the International Federation of Professional and Technical Engineers (IFPTE), the International Brotherhood of Electrical Workers (IBEW), and the International Association of Machinists (IAM). Nationally, the Building and Construction Trades Department of the AFL-CIO and the AFL itself also have stated their opposition to privatizing the TVA (see Appendix D).

The congresspersons have raised doubts about the impact of divestiture on electricity rates and argue that, because the TVA is self-financing, its debt does not contribute to the federal deficit. At least one representative says he doubts that Congress would go along with it in any case (Collins 2014). LPC representatives raise similar points, calling the TVA a model of self-sufficiency and “an engine for economic growth” (Sigo 2014a, 2014b). They also raise concerns that uncertainty about the future of the TVA is sending a negative signal to financial markets as well as to potential economic developers in the region. In short, as one LPC executive concludes, severing the TVA’s ties to the federal government “would serve no useful purpose to TVA’s customers throughout the Tennessee Valley” (Sigo 2014a). The labor union reactions echo these arguments. For example, an AFL-CIO resolution in 2013 calls the logic used to support the pri-

vation proposal in Obama's budget fundamentally flawed, and argues that privatization would diminish the TVA's critical role as a provider of inexpensive electricity and economic development, as well as an environmental steward of the Tennessee Valley watershed (AFL-CIO 2013).

### Lazard Frères study

Opposition to divestiture received a major boost from the commissioned study prepared by Lazard Frères & Co., released on June 4, 2014, as part of a mandatory Form 8-K filing with the Securities and Exchange Commission (SEC). Lazard Frères, a premier global financial advisory and asset management firm, was engaged to assist in analyzing financial data for the Obama administration's strategic review, to address the authority's financial situation, and to assess the implications of a possible divestiture of the utility. Lazard examined a range of options including privatization, public-sector spinoff, and status quo alternatives. It found that although it had "recommended for privatization in other situations in the U.S. Power & Utility Industry," several factors led it to "recommend against pursuing a divestiture of TVA" (TVA 2014c). Its principal conclusions include the following:

- The TVA is in much better shape than it had been a year-and-a-half previously (as of the writing of the report) and exhibiting better discipline and behavior in its spending. The utility has cut its capital spending plans by \$13 billion and annual operating costs by \$500 million. To help achieve this, the TVA scrapped aging coal plants and suspended work on the Bellefonte Nuclear Power Plant. The TVA is expected to pay down its debt from a peak of \$26.5 billion to only \$20.8 billion by 2023 (Flessner 2013b).
- Given the TVA's current strong financial position, its ability to self-fund its construction program, and anticipated improvements in cost structure, environmental profile, and asset mix as a result of long-term initiatives, "there is no impetus for the federal government to change course" (Flessner 2013b). (See Appendix E for a more detailed summary of Lazard's financial assessment.)
- The TVA's financing is not a "true draw on the government balance sheet, as TVA receives no current appropriations, and its debt is not guaranteed by the Federal Government." Plus, "TVA is not expected to exceed its \$30 billion statutory limit by 2023, and deleveraging contemplated by TVA's financial forecast would appear to *help* the federal budget over the next decade" (TVA 2014c).
- Selling the TVA wouldn't yield much for American taxpayers, but it could prove costly for Tennessee Valley residents and the region's economy and environment. If the TVA had to earn the financial returns of private utilities, *electricity rates would jump 13 percent* (Flessner 2013b).
- If the TVA were privatized, "it is unclear how TVA's non-power mission and activities would logically fit" with other federal agencies or a revamped utility. Dismantling the TVA's power and nonpower programs could threaten water quality programs, economic development initiatives, recreational facilities, and land management activities (Flessner 2013b).
- The high level of complexity associated with the divestiture "would likely lead to a costly, multi-year process to execute any such strategy, during which time TVA would experience organizational disruption and which would result in an uncertain outcome." In addition, the complex network of TVA stakeholders would add to the difficulty of divesting the TVA "in a manner that creates value for all parties" (Varela 2014).

## Evaluating the potential impacts of divestiture

Although the Lazard study undoubtedly dampened concerns that the TVA would be privatized, the White House responded with a statement noting that the study “identifies several important risks” for the utility and federal taxpayers *if* the TVA fails effectively to manage its costs or its projected power needs. This response and the mention of the TVA in its budget proposals, including for FY 2016, suggest that some in the administration still believe that reducing or cutting the federal government’s role “in programs such as TVA, which have achieved their goals, may help mitigate the risk to taxpayers” (Flessner 2013b). Thus, with ongoing concerns about the federal debt, there will likely continue to be pressure to consider severing federal ties to the TVA.

### ***Key factors in the TVA’s divestiture***

In a 2013 policy brief that examined the question, “Should the Federal Government Sell TVA?” Mary English Ph.D., a senior researcher at the Howard H. Baker Center for Public Policy at the University of Tennessee, identified eight factors that need to be taken into consideration in any effort to sell the TVA (English 2013). Her list provides a useful, broad framework for guiding effective analysis into this issue:

- *Corporate governance*—Would a private-sector governance structure (e.g., an investor-owned utility, or IOU) be better than the TVA’s current structure?
- *External regulation of rates and other utility decisions*—If the TVA were privatized, who would be responsible for regulating the power functions of the new owner?
- *The TVA power system and its components*—If parts of the TVA were divested, would the system still operate effectively? To what extent would the system’s functionality be impaired? If the new entity were now reliant on external power markets, would the TVA’s system vulnerability to price volatility increase?
- *Power-related functions of the TVA*—How would privatization affect the TVA’s energy efficiency, demand response, and other programs, and the quality of its service to residents in the region?
- *Long-term power system planning*—How would divestiture affect the TVA’s integrated, long-term system planning process? Would such planning become more difficult if the TVA had to contend with uncertainties created by the sale of parts of the power system?
- *Nonpower functions of the TVA*—Who would be responsible for the management and upkeep of the non-power responsibilities in the TVA’s mandate if the TVA is privatized? How would privatization affect the private investments in water-based recreation and retirement communities?
- *Ownership and value of the TVA’s assets*—Who would get the proceeds of the sale of TVA’s assets, since TVA ratepayers, not federal appropriations, have paid for maintaining and improving these assets?
- *The TVA’s debt*—How would it be managed?

In a policy brief, University of Tennessee researcher Mary English identified eight of the most important factors that would need to be considered in any divestiture effort (see box, “Key factors in the TVA’s divestiture”). Although the

Lazard study sheds light on several of these issues, it primarily focused on assessing the TVA's financial condition, which it concluded was now strong and that the TVA appeared poised to cut its long-term debt over the next decade. Lazard also touched on the potential implications for the TVA's power and nonpower functions, making estimates, for example, that privatization could drive up electricity rates, and suggested that "any reductions in the scope of the non-power mission and activities could potentially have a negative impact on the region" (TVA 2014c, 16).

However, Lazard did not address these issues in any depth. Although a comprehensive examination is also beyond the scope of the current study, the discussion below builds on Lazard's findings to take a closer look at two sets of issues that are of particular concern to the stakeholders in the TVA's service area: the *impacts of divestiture on the TVA's power system*, and *the implications for the system's nonpower functions*, which are critical to the economic and environmental well-being of the region. This analysis hopefully will provide insight into some of the more important implications of a divestiture of the TVA, the consequences of unraveling the TVA's unique integrated approach to managing multiple missions and activities that comprise the services and benefits it provides, and the importance of maintaining an economically and environmentally sustainable publicly owned TVA.

### ***Defining divestiture options and scenarios***

There are numerous possible scenarios for selling all or parts of the TVA to other owners. English suggested three different types of divestiture:

- The TVA is acquired by a single IOU;
- The TVA is divided up among regional IOUs in the South;
- The TVA remains a wholly owned federal corporation, but some assets are sold to IOUs or IPPs.

She points out that though the Federal Energy Regulatory Commission (FERC) is more likely to object to the first option for competitiveness reasons, it is more likely to accept the second. In reality, there are many different permutations possible for how the TVA's assets could be divided up and who would assume ownership of them. The CBO budget option report suggested a potential scenario in which a much smaller TVA maintains control over the hydro-generation, river and land management, and other nonpower functions, while the remaining assets are sold off to private buyers.

Lazard chose to evaluate a wider range of ownership scenarios, including several public-sector spinoff scenarios such as selling the TVA's assets to its power distributors. The privatization scenarios include variations of a sale of 100 percent of TVA power functions to private utilities, sale of 100 percent of power functions and integration (via acquisition) of the TVA's LPCs, privatization only of the TVA's nonhydro assets, the sale of all its generation assets to an IOU or an IPP (TVA retains transmission assets), and other possibilities (e.g., the TVA divesting its transmission functions).

In short, there are a large number of possible acquisition and ownership scenarios. For the current study's limited purposes, it is assumed that 100 percent of the TVA's generation and transmission assets would be sold to multiple private utilities—most likely to a combination of investor-owned utilities and independent power producers or other buyers (e.g., as identified in the Lazard study: a traditional private equity consortium, or an infrastructure consortium). It should be noted that since IPPs typically do not own and operate transmission and distribution facilities, all transmission assets would be sold to IOUs or other buyers. At the same time, the great uncertainty—and large number of pos-

sible variations—associated with the resulting ownership structure in an actual divestiture will in itself be a factor that needs to be considered in evaluating whether the TVA’s privatization is in the public interest.

### ***Impact on the TVA’s electric power system***

A central concern of stakeholders in the TVA’s service area—including power distributors, state and local governments, residents, commercial businesses, industry, TVA employees, unions, and officials from federal facilities served by the TVA—is that the power system, whether under the TVA or private or other public management, would continue to provide reliable and affordable electricity. Key issues concerning the impacts of divestiture options on the region’s electric power system include the implications for electricity rates, the mix and reliability of generation and transmission resources, the electric power distributors, state and local tax revenues, and the utility’s clean energy and energy efficiency initiatives.

Ideally, an in-depth analysis of TVA costs and rates would be based on a review of actual revenue requirements and costs of service used to determine existing rates. The impacts of alternative ownership scenarios could then be developed using reasonable equity return and capital structures. The analysis would look at the TVA’s actual depreciation rates and state and federal income tax rates, rather than assuming tax rates, to determine the impact on rates of alternative TVA restructuring proposals.<sup>11</sup> While applying such a systematic, empirically based analytical model and methodology would be preferable, the current study can provide only a preliminary, limited analysis of ownership scenarios and their impacts on the TVA’s electric power system, referencing the work of existing studies, such as Lazard and other sources (e.g., English 2013).

### **Electricity rates**

The available evidence strongly suggests that, even though a transfer of ownership of the TVA’s power assets to private entities theoretically might produce efficiencies and reduced costs in some scenarios, electric power rates, in the short run at least, would likely increase, perhaps significantly, above TVA status quo rates. Divestiture also is likely to introduce a high degree of uncertainty and volatility into electricity markets that could adversely impact electricity distributors and consumers in the TVA service territory.

The results of electricity price benchmarking or comparisons conducted by Lazard, EPB, EIA, and the TVA (see Appendix C) show that the TVA’s rates are highly competitive with those of private utilities (IOUs and IPPs), including those operating in Southeastern states. However, if the TVA’s electric power assets are sold to private utilities, would ratepayers in the TVA’s service area find themselves paying higher or lower prices, or would the rates remain about the same? The answer depends on how electricity rates would be calculated under different ownership scenarios, comparing the status quo TVA scenario with scenarios in which ownership of TVA power assets is shifted to private utilities, i.e., IOUs or IPPs, or a combination of the two.

*The TVA’s cost advantages.* **Table 2** compares factors that would affect electricity rates set by the TVA, IOUs, and IPPs, based largely on the Lazard assessment of potential rate impacts from divestiture scenarios. It shows that the TVA’s federal ownership and not-for-profit status provide cost advantages that prospective private utility owners do not enjoy, notwithstanding other factors that may or may not advantage the latter under divestiture scenarios.

For example, the TVA is allowed to set its rates to cover its operation and maintenance, fuel recovery costs, payments to states and counties in lieu of taxes, debt service, repayment of the federal investments in the TVA's power facilities, and any additional margin the TVA considers desirable for investment in power system assets and for other purposes. A privatized TVA most likely would include many of these expenses in its rate calculations, though depending on assumptions about divestiture options it might also be required to add in a rate of return on equity and payments to cover federal, state, and local taxes, which the federally owned TVA is not required to pay.

The TVA does make tax-equivalent payments, which make up for tax revenues forgone by state and local jurisdictions due to the TVA's tax-exempt status. Even assuming, though, that these payments are comparable to what private owners of the TVA's power assets would have to pay, private utilities would still incur additional costs from federal taxes, which they would presumably pass on to customers in the form of higher rates.

Similarly, because of the TVA's federally backed status—i.e., an implicit federal guarantee for its debt—it enjoys a relatively higher credit rating than IOUs and IPPs typically are given, which is reflected in its greater access to and lower costs for debt capital. Unlike the TVA, private-sector utilities require a more balanced income structure—closer to a 50-50 debt-to-equity ratio—to support their credit ratings. IOU shareholders, in addition, require a return on the equity component of a publicly traded utility's capital structure.

These factors led Lazard to estimate in an illustrative model that the TVA's annual revenue could be as much as \$1.8 billion lower than an illustrative equivalent IOU structure (TVA 2014c, 46). Lazard then concludes that while TVA divestiture would not yield much for American taxpayers, it could be costly for Tennessee Valley residents and the region's economy and environment. More specifically, as previously noted, it estimated that *if the TVA had to earn the financial returns of private utilities, electricity rates would rise by 13 percent* (Flessner 2013b).

*Uncertainty and volatility.* Lazard cautions that there are a number of nonrevenue factors that could affect relative electricity rates and tip the scales back toward private utilities (TVA 2014c, 47). On the other hand, given the complexity associated with the implementation of a potential TVA divestiture, likely to involve a costly, multiyear process with an unknown outcome, Lazard observes that the “uncertainty regarding a prolonged strategic review process may also impact TVA's ability to operate effectively” (TVA 2014c, 12).

The TVA currently is protected from competition and its rates are kept low by its regulatory power, which allows it to set rates based on its not-for-profit status. Divestiture would shift the regulatory responsibility and setting of IOU rates to multiple state regulatory agencies, based on cost-of-service and well-established rate-setting processes. The TVA's distributors (municipals and cooperatives) would in turn face greater uncertainties about the reliability and prices of electricity supplied by multiple private utilities rather than from a single source overseeing an integrated system of generation and transmission assets. Meanwhile, state agencies in the Tennessee Valley region would have to take on new regulatory responsibilities and financial and resource burdens that they did not have before.

There would also be added uncertainty and volatility in the supply and prices of electricity if one or more of the purchasers of TVA generation are IPPs, as wholesale prices of electricity supplied by these sources would be subject to the vagaries of unregulated wholesale electricity markets. That is, as English's review of divestiture factors notes, there could be an increase in the vulnerability of a privatized TVA system to price volatility, as it would now be reliant on external power markets (English 2013).

TABLE 2

## Factors affecting electricity rates and other impacts—TVA vs. private utilities

Factors	Tennessee Valley Authority (TVA)	Investor-owned utilities (IOUs) (e.g., Duke Energy, Southern Company, Xcel Energy)	Independent power producers (IPPs) (e.g., Calpine, Dynegy, NRG)
<b>Ownership/governance</b>	- Federal government owned	- Owned by private investors - Ownership typically widely distributed as publicly traded shares - May also be owned by private investors - Shareholder-elected board of directors	- Owned by private-sector investors—ownership typically widely distributed as publicly traded shares, but may also be owned by private investors - Shareholder-elected board of directors
<b>Market structure</b>	- Provides generation and transmission services to LPCs - Protected from competition, but cannot sell outside the “fence”	- Provides regulated generation, transmission, and distribution services to retail and wholesale customers within a defined service territory - Distribution function owned by IOU, whereas transmission and generation sometimes owned by third parties	- Provides generation services to wholesale customers under electricity rates driven by market supply and demand - IPPs typically sell power, capacity, and ancillary services
<b>Rate-setting mechanism</b>	- Independent, statutory rate-setting authority - Rates approved by TVA board - TVA acts as regulator for LPCs	- Regulatory structures vary across U.S. - Rates typically set by state regulatory agencies based on cost of service and well-established rate-setting process - May operate nonregulated (though usually power-related) businesses through affiliates	- Limited regulatory oversight by FERC - Regional operators (independent system operators (ISOs), and regional transmission organizations (RTOs)) play key role regulating markets - No/limited state regulatory influence on pricing
<b>Taxation</b>	- Does not pay federal taxes - Exempt from state/local taxes - Pays PILOT, which approximate state/local taxes	- Pays federal taxes; pays applicable state and local taxes - Tax rate: 35%	- Pays federal taxes, pays applicable state and local taxes - Tax rate: 35%
<b>Capital access/credit</b>	- Self-financed through internally generated cash flows and taxable debt issuances	- Financed through internally generated cash flows, taxable debt, and shareholder equity	- Financed through internally generated cash flows, taxable debt, and shareholder equity
<b>Credit rating</b>	- S&P: AA+; Moody's: Aaa	- Most have investor-grade credit rating (A to BBB range for S&P).	- Credit ratings have historically been noninvestment grade
<b>Cost of debt</b>	- Interest rate: 3.2% - After-tax cost of debt: 3.2% - Cost of equity: NA	- Weighted average “pre-tax” cost of capital: 6.7%–7.6% - Weighted average cost of capital: 4.4%–4.9%	- Weighted average “pre-tax” cost of capital: 7.6%–9.1% - Weighted average cost of capital: 5.1%–6.1%

Source: Adopted from TVA (2014c, 45)

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### Electric power system reliability

The complexity and uncertainty that would be associated with a divestiture could also have an adverse impact on the TVA’s sterling reliability record. The TVA is responsible for guaranteeing the reliability of one of the nation’s largest electric power systems, which includes one of the largest single-owner transmission systems in the United States. This responsibility includes planning, investment, construction, maintenance, and operation of power plants to maintain a balanced mix of power generation capacity—coal, nuclear, natural gas, fuel oil, hydropower, and a small amount of renewables—to meet electric power demands across its seven-state, 80,000-square-mile service territory. The TVA is also responsible for planning, construction, maintenance, vegetation management (keeping transmission rights of way

clear of trees and plants), security, and operation of the 16,000-mile transmission system that links the TVA's power generation facilities to the local power distributors and interconnections with utility systems outside its service area.

The TVA conducts a long-term strategic planning process to guide its efforts to achieve its operational goals, which include maintaining a balanced generation portfolio and the reliability of its transmission assets, not to mention coordinating its power and nonpower functions. For example, the TVA is updating its Integrated Resource Plan ("IRP"), which called for a planning direction consistent with its environmental policy, along with a goal of meeting its customers' power needs while addressing the substantial challenges facing the electric utility industry. In the new IRP, to be published in 2015, the TVA's resource recommendations are expected to balance costs, energy efficiency, system reliability, and environmental responsibility for the TVA's stakeholders (TVA 2014b).

*System functionality impacts.* However, as English asks, to what extent would shifting all or most of the TVA's electric power facilities to private ownership impair this system's functionality? Divestiture would divide TVA's well-integrated, balanced electric power system into independent and no longer accountable component parts, comprising a mix of electric power generation and transmission assets, whose management and operation would now fall under multiple private entities. Planning, investment, construction, and operation of TVA's generation and transmission capacity would no longer be integrated and coordinated across the service region. Instead, decisions about expanding, upgrading, managing, and repairing capacity would fall to several independent private utilities, overseen by several different state regulatory agencies.

Depending on the divestiture option, the responsibilities for maintaining the system and coordinating with distributors and other utility systems also would change. If linkages between TVA generation facilities are split up or severed from transmission, and if LPCs would have to cut separate power purchase contracts with different utilities, uncertainty would arise regarding who would have the responsibility for ensuring there would be sufficient capacity growth, adequate maintenance and repair of facilities, and other factors that affect the reliability of the newly structured electric power grid in the Tennessee Valley. The complex and time-consuming nature of the divestiture process itself would create additional uncertainty in the planning and implementation of the system enhancement and maintenance required to ensure reliability over this period.

### **Electric power distributors**

The TVA is both a wholesaler of electricity to and regulator of the local power companies that distribute retail electricity to almost all the residents and businesses in the Tennessee Valley service territory. A privatized TVA system would have major implications for the TVA's LPCs, including potential impacts on their financial position, rate structure, and services. In addition, as Lazard observes, "The highly complex and well-established stakeholder ecosystem in which TVA operates is likely to present a daunting challenge for divestiture in respect of the numerous entities with varying interests in TVA which must cooperate to make a divestiture successful." LPCs, all of which are public power entities, are the most important of these relationships, and, as Lazard further notes, the continuity of the TVA's contractual arrangements with LPCs would be "an important aspect of any divestiture with significant implications for TVA's credit profile, earnings, and for valuation" (TVA 2014c, 73).

*Uncertain power arrangements.* Although existing power purchasing agreements made between LPCs and the TVA prior to a divestiture are likely to remain in effect over the short run, new arrangements between the distributors and the new

owners of the TVA's power would have to be made over time. Instead of having to make new long-term power purchase agreements with one wholesaler (i.e., the TVA), LPCs would now have to cut new deals with multiple power providers (i.e., IOUs), adding new uncertainty about the LPCs' power contract terms and prices. LPCs may also be required to purchase electricity directly from unregulated wholesale markets, from IPPs, and from other power providers outside their service areas, subjecting them to further sources of supply and price volatility. In short, this would create uncertainty for the ability of the power distributors to provide electricity to their customers reliably and at affordable rates, as well as other adverse impacts.

*Credit rating threat.* It was for these reasons that the local power distributors strongly opposed the Obama administration's consideration of possible divestiture of the TVA. As already noted, the potential selling of the TVA's assets sends a negative signal to financial markets. This was evidenced by Moody's Investors Service's warning that even just the possibility of divestiture in the Obama budget proposals could result in downgrading of the local power distributors' bond ratings. As Moody's notes, the TVA holds down its costs in part because it generates power from diverse sources, shielding it from supply constraints and cost spikes. As a result, TVA distributors pay less for power than the national average. Removing that advantage, LPCs would likely lose some of their customer base to large, publicly traded power companies (Sigo 2014b).

### **State and local tax revenues**

Another important issue is how divestiture would affect the revenues the TVA provides to states and local governments in its service area as payments in lieu of taxes (PILOT), which have consistently amounted to over a half billion dollars a year in recent years. The TVA is exempt from federal income taxation, and the TVA's property, franchises, and income are not subject to taxation by states or their subdivisions. However, Section 13 of the TVA Act requires the TVA to make tax-equivalent payments to states and counties in which the TVA conducts power operations or in which power-producing properties were previously subject to state and local taxes. Specifically, the TVA pays the states and their subdivisions 5 percent of gross revenues from the sale of its power during the preceding year, excluding revenues from sales or deliveries to other federal agencies and off-system sales with other utilities. A minimum payment is required under certain circumstances. Moreover, except for certain direct payments the TVA is required to make to counties, the distribution of tax-equivalent payments within a state is determined by individual state legislation (TVA 2014c, 28).

*Tax uncertainty and complexity.* Privatizing all or parts of the TVA's capacity would create uncertainty about the sources and size of the new owners' tax payments that may substitute for the PILOT revenues, which are not insignificant for the local jurisdictions that receive them. It is not possible a priori, without specifying ownership scenarios, to estimate whether the new state and local taxes that new private owners would be required to pay would be smaller, greater, or about the same as current and expected PILOT revenues. It may well turn out to be that a privatized TVA system would generate equal or greater state and local tax revenues. On the other hand, the additional tax revenues, above TVA PILOT levels, would be reflected in higher costs for the new owners of TVA assets, which in turn could be passed along to customers in the service area.

In any case, the tax collection process would become more complex and less certain as to the expected revenues states and local jurisdictions would receive. Instead of collecting from one entity based on a straightforward formula and process, the states and municipalities would have to collect from multiple private power companies, each doing its best to adjust its accounting and reporting processes to minimize the taxes it would need to pay.

## Clean energy and energy efficiency programs

Another crucial issue is how privatization would affect TVA's clean energy, energy efficiency, demand response, and other programs, and the subsequent impacts on the quality of the TVA's services to the residents in its service territory (English 2013). Would the TVA's energy efficiency and nonhydro renewable energy programs be diminished under IOU or IPP ownership? The TVA incorporates its plans for investing in these kinds of programs into its integrated planning strategies (see Appendix A). Although the TVA's nonhydro renewable generation capacity is currently very small (under 1 percent of its total power generation), consisting mostly of wind generators and solar, it has committed to increasing its portfolio of cleaner (low- and zero-carbon) electricity. This commitment includes the support of energy efficiency and demand response programs—which help to limit its load requirements—and the closing of 18 coal plants, further investments in nuclear, and a higher amount of renewables in its generation portfolio.

*Clean energy projects and research.* In its FY 2014 SEC filing, the TVA reported that it anticipated spending significant amounts on environmental projects through 2025, including investments in new lower-carbon energy generation such as natural gas, nuclear, and renewables, to reduce its environmental footprint.<sup>12</sup> Within the TVA's service area, the most viable renewable resources are hydroelectric, biomass (solid and methane recovery), solar, and wind (TVA 2014b, 33).<sup>13</sup> For example, as of September 2014, the TVA was party to contracts for 1,500 MW (nameplate capacity) of electricity from eight wind farms in Illinois, Kansas, and Iowa; 27 MW from 15 wind turbine generators near Oak Ridge, Tenn.; 4.8 MW from a landfill gas facility near Knoxville, Tenn.; and 4.5 MW from a solar farm in Haywood County, Tenn. Recent studies show that the estimate of known wind resource potential has increased within the TVA service area, and these resources may be a source of energy for the TVA in the future (TVA 2014b, 19).

The report to the SEC also noted that the TVA makes annual investments in science and technological innovation to help it meet its future business and operational challenges. Its annual research portfolio and research strategic plan is based on a broad range of operational and industry drivers that help assess key technology gaps and other issues that should be addressed through research and development. Its core research directly supports optimization of the TVA's generation and delivery assets, air and water quality, and clean energy integration (TVA 2014b, 25).

*Clean energy uncertainties.* Privatization would create uncertainty about whether a similar commitment and scale of investment in nonhydro renewable generation would be maintained. This includes uncertainty about the implications for current contracts with wind farms and other renewable sources provided outside the region. The new owners might need to renegotiate these arrangements, based on their own business plans. Most important, however, is that the renewable investments have been made in response to the TVA's long-term strategic planning, which considers how to balance investments in these and other generation and transmission assets to meet the goals of its power and nonpower functions.

This level of integrated planning and implementation would disappear under privatization, though many private IOUs also have made efforts to expand their renewable portfolio and reduce their carbon footprints. And the fate of the TVA's renewable power research initiatives would be uncertain—who would take responsibility and fund these programs, or would they be terminated? It could be argued that private utilities would be more inclined to move toward cleaner energy than the TVA under current and proposed carbon and clean air regulations. However, the opposite may more likely be true: The TVA's federal connection makes it more amenable to internal and public pressures to support federal

efforts to reduce emissions of all kinds and invest in cleaner generation. As a federal corporation, the TVA might be more directly compelled to respond to federal mandates and requirements.

*EPA carbon standard.* It is beyond the scope of the current study to benchmark the TVA's clean energy and energy efficiency programs with those of IOUs and IPPs, or to provide an empirically based assessment of whether the status quo TVA or a privatized TVA would perform better in this area, though the exercise would be very instructive. For example, the TVA, concerned about implementing the EPA carbon emissions standard (based on the Clean Air Act amendment 111(d)), has already been moving in the direction of cutting back on coal-based generation, making improvements in energy efficiency and expanding its nonhydro renewable mix (TVA 2015h).<sup>14</sup> At the same time, some private utilities have actively opposed state legislative initiatives that require them to adopt energy efficiency and renewable energy portfolios and standards (Kowalski 2014; Funk 2014),<sup>15</sup> and they have been balking at the EPA carbon rule, which would pressure utilities to cut their reliance on coal-fired electricity generation and adopt more noncarbon and lower-carbon sources (notably, nuclear, renewables, and natural gas).

### ***Impact on the TVA's nonpower functions***

Lazard, English, and TVA stakeholders, among others, have expressed concerns about how divestiture options might adversely affect the critical linkages between the TVA's power and nonpower functions, which the TVA currently operates as an integrated system. The TVA's nonpower functions, funded mainly out of the proceeds of its power and transmission operations (but not included directly in its rates), have generated invaluable economic, environmental, and social benefits to the TVA region's inhabitants, as shown earlier. The linkages among nonpower activities themselves, which divestiture could sever or modify, are also essential to benefits that the TVA system currently provides.

English (2013) asks who would be responsible for the management and upkeep of these responsibilities in the TVA's mandates if the TVA is privatized. This begs the question of who would pay for these functions, which until this point have been financed almost entirely by the TVA's electricity sales. Would IOUs (some of which support nonpower activities) take on the responsibilities and costs? This responsibility would lead to increases in their overall costs, which most likely would be passed on to their customers in the form of higher electricity prices. Alternatively, other federal agencies (e.g., the U.S. Army Corps of Engineers) might assume responsibility for financing and managing the nonpower assets and functions. However, this would mean that the costs for carrying out these functions would be passed on to U.S. taxpayers.

Most importantly, severing the linkages among the power and nonpower functions could reduce if not eliminate many of the synergies built into the integrated system, synergies that have enabled the numerous economic, environmental, and social benefits the TVA has given to the Tennessee Valley region over its history. Indeed, Lazard cautions that "it is unclear how TVA's non-power mission and activities would logically fit" with other federal agencies or a revamped utility. Dismantling the TVA's power and nonpower programs could threaten water quality programs, economic development initiatives, recreational facilities, and land management activities (TVA 2014c, 12).

An in-depth examination of these impacts would focus on the TVA's three major nonpower functions, including river, land, and resource management; environmental stewardship; and economic development. Key concerns in this analysis would be what the costs might be for maintaining the function's activities and what other entities would be responsible for them in a divestiture, what the adverse impacts of divestiture might be on the nature and quality of these functions,

how stakeholders in the region might be affected, and what economic gains or losses might result from a divestiture. While such an analysis is beyond the scope of the current study, the sections below present a first-order assessment of how the TVA's power and crucial nonpower functions might be affected by privatization.

### **River, land, and resource management**

A key question asked by Lazard was whether the potential separation of the TVA's water management and hydro-generation functions would hamper both functions, negatively affecting the quality of services and economic costs. The TVA's dams, which also generate hydro-electric power, make navigation possible and limit flood damage. As the U.S. Government Accountability Office notes, "TVA manages the Tennessee Valley 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" (GAO/RCED 1998).

*Water quality linkage.* For example, in managing the river systems, the TVA uses an integrated method balancing water quality with other demands of the system. Water quality management includes monitoring the river system, maintaining fish populations, maintaining clean marinas and clean boating, improving release water at dams, and controlling stream discharges from industries operating on the Tennessee River. These discharges include heated water from coal-fired and nuclear plants, and storm water, sewage, and substances produced by activities such as coal and ash handling and equipment cooling. The TVA's responsibilities include monitoring and mitigating the thermal impacts of its nuclear and coal plants on water quality, a function that requires coordinating across the power and water management systems in the region. Water quality is not only important for people who live in the TVA region but also for businesses and industry, not to mention for plant and animal life in the river ecosystem. Separating the TVA's river management functions from its electric power activities could therefore create dis-synergies adversely affecting both functions.

*Land management.* Similarly, there are direct linkages among the TVA's power generation function, river management, and land management. Land reclamation has been part of the TVA's activities since it was founded. With the participation of public agencies and officials and private organizations, the TVA develops comprehensive plans for the management of the public land around each of its lakes. Its land policy protects and preserves undeveloped public lands managed by the TVA along reservoirs throughout the Tennessee Valley, which in turn is meant to protect the integrated operation of the TVA reservoir land and power system and provide continuing economic growth. This includes managing 239,000 acres of public land and 11,000 miles of public shoreline, including 80 public recreation areas (hiking trails, campground, day-use sites, and boat launching ramps) (*U.S. Fed News* 2006). Severing the TVA power functions from its land management activities could therefore diminish both, as well as TVA's economic development initiatives in the valley. In a comparison of TVA and IOU nonpower activities, the GAO reports that, even though IOUs also have some nonpower programs, none is as comprehensive as TVA's (GAO/RCED 1998).

### **Environmental stewardship**

The management of the region's river and land resources is closely tied to its environmental stewardship mission, reflected in the utility's strategic planning process (linking its IRP, NRP, and environmental policy; see Appendix A). According to its SEC filing (FY 2013), the TVA's environmental policy includes objectives for an integrated approach to providing cleaner, reliable, and affordable energy; supporting economic growth; and proactively providing environmental stewardship. Other stewardship areas include water resource protection and improvements, sustainable land use, and natural resource management, as discussed above (TVA 2014b, 26).

*Weakened linkages.* There is a direct tie between the TVA's management of power generation and its environmental mission. The TVA's activities, particularly its power generation assets, are subject to comprehensive regulation under environmental law and regulations relating to air pollution, water pollution, and management and disposal of solid and hazardous wastes, among other issues. Privatization would weaken if not sever the crucial linkages between the TVA's power assets and its environmental stewardship responsibilities. Although IOUs also must comply with stringent environmental regulations in operating their power resources, the integrated approach that helps to optimize TVA's environmental, power, and economic development objectives would no longer be in effect under most divestiture scenarios.

## **Economic development**

Economic growth in the region, including the development of recreational and retirement opportunities, is closely associated with the TVA's river and land management functions. The TVA's systems of dams and locks, which make navigation possible on the river, have a significant impact on the region's economy. Many industries in the region depend on waterways to move raw materials affordably. Efficient river transportation of food products for processing in TVA regions lowers the price of groceries for consumers nationwide. TVA estimates that shipping goods by barge rather than by truck or rail cuts transportation costs by about \$550 million each year (TVA 2015e).<sup>16</sup>

*Achievements.* The TVA's direct involvement in economic development has resulted in significant achievements (see box, "The TVA's economic development achievements"). Most recently, the TVA reports that its economic activities helped to attract and retain more than 60,300 jobs and spurred a record \$8.5 billion in business investments in the TVA region in FY 2014. More than 194 companies were recruited to the region or expanded existing operations, contributing to these job totals and business investments (TVA 2014a; TVA 2014b, 27).

### ***The TVA's economic development achievements***

The TVA has been recognized in *Site Selection* magazine, which chose TVA as one of the top 10 North American utilities for achievements in economic development for a ninth consecutive year in 2014 (Bruns 2014). According to the TVA, its economic development achievements include the following (TVA 2015b):

- The TVA's technical services, research, and financial assistance helped leverage \$5 billion in business investments in the TVA service area in FY 2013 and \$5.8 billion in 2012.
- The TVA has helped recruit or expand more than 150 companies, attracting and retaining 48,000 jobs in 2012 and creating 52,000 new jobs in 2013, bringing the TVA's total contribution of over 350,000 new or retained jobs and \$37 billion in investment since 2005.
- The TVA's Megasites program, which teams the TVA with local partners to market large industrial tracts to manufacturers, won a Gold Excellence award from the International Economic Development Council for excellence in economic development, 2012.

Economic development is integral to the TVA's overall mission. The TVA works with local power companies and regional, state, and local economic development agencies to attract new companies and investments, encourage existing businesses and industries to stay and grow in the valley, and help communities prepare for economic growth opportu-

nities. The TVA's success is partly due to its proactive initiatives, using its experience and expertise to help communities attract and retain new businesses. Its initiatives include incentives and services such as investment credits and loan funds, site selection assistance, and engineering and design services (TVA 2015c).

It also is in part attributable to the TVA's competitively priced and reliable electric power, which the agency can supplement with various forms of rate credits and overlay power that help businesses use electricity more efficiently and cost effectively (TVA 2015d). The TVA's reliable, affordable electricity, coupled with the region's inland waterway system, interconnected with an extensive system of highways, railways, and commercial airports (TVA 2015c)<sup>17</sup> and a large pool of skilled workers, have also helped spur a substantial growth of manufacturing activity in the region, including transportation-related manufacturing, aviation and aerospace, defense, chemicals, metals manufacturing, and food processing.

*Impaired capability.* Privatization raises questions about whether the new TVA ownership would be willing and able to take over the TVA's economic development capabilities. For example, Lazard notes that the TVA measures the success of its nonpower mission through job creation and investment metrics across the seven-state region in which it operates. It asks, however, whether the separation of economic development from generation and transmission would impair the economic development capability (TVA 2014c, 72).<sup>18</sup> That is, would these activities be reduced, as the synergies that benefited the TVA's efforts in an integrated system would now be divided into multiple efforts? Instead of a regionwide emphasis, the new system might benefit some parts of the region but not others, assuming the new utility owners continued to promote economic development opportunities at all.

TVA CEO Bill Johnson gives us a sense of what might be lost if privatization proceeds. He observes that every utility and power provider does economic development, mostly on the IOU side; they do it to increase their sales. "It's good business," he says. However, "we do it for a different reason. We do it so we can bring jobs and vitality to the Valley. And we do it in a form and a fashion, and on a scale that nobody else does. We're like our own economic development company. I've not seen anybody else who would approach it like this, especially if you have to invest some of your shareholder dollars" (EIR 2013).

## Conclusion

Although the Lazard study has helped to put to rest some of the concerns about privatization of the TVA raised by the Obama administration's budget proposals, the option of severing the federal relationship with the agency remains under consideration. Lazard addressed the TVA's financial situation and gave the agency high marks for putting its operation on a more financially sustainable path over the past couple of years. It concluded that the TVA's financial position has strengthened and that the TVA is poised to cut its long-term debt over the next decade. It therefore recommended against divestiture, identifying—but not analyzing—several potential downsides for the TVA, its stakeholders, and the federal government under privatization scenarios. These include the potential impacts of privatization on the TVA's power system and its nonpower functions, whose management is highly integrated under the current TVA. This analysis has attempted to conduct a first-order assessment of these impacts, including the implications of severing the linkages among these functions.

*Dis-synergies, uncertainty, and complexity.* A few basic findings consistently stand out in the analysis. Over its 80-year existence, the TVA has had an excellent track record in almost every area of its operation, and its success has delivered

substantial benefits throughout the Tennessee Valley. These include delivering affordable and reliable electricity and other services to 9 million people living in an area of 80,000 square miles, continuing to play an essential role in improving navigation and reducing the damage from destructive floods on the Tennessee River, maintaining and providing recreational use for public lands and waters, promoting environmental stewardship, and fostering economic growth throughout the region. These accomplishments have not occurred in a vacuum. They directly reflect mutually enhancing synergies enabled by the conscious integration of the TVA's power and nonpower functions, guided by the TVA's strategic planning process.

Privatization of the TVA, therefore, would result in breaking apart the connections among most of the TVA's power and nonpower functions, which in turn is likely to create dis-synergies that hamper the TVA's performance in the functional areas in which it operates. A second consequence of privatization would be the injection of uncertainty and complexity into the performance of the TVA's functions, both during and after the long, complicated process of divestiture. Instead of a single authority with responsibility for planning, implementing, and governing the various functions, there now would be many different responsible entities—including federal agencies (such as FERC, DOE, NRC, and EPA), state regulatory bodies, and private utilities, which may or may not coordinate in carrying out their missions in the functional areas. Indeed, some missions may actually be in competition with each other, requiring third-party regulators to try to coordinate activities to achieve common goals.

In carrying out this analysis of the potential impacts of divestiture on the TVA's functions and activities, it becomes hard to see how divestiture would provide stakeholders in the Tennessee Valley, the federal government, or American taxpayers with any greater benefits than the TVA system already provides. On the contrary, privatization could result in dis-synergies, impairment, and diminishment of the various electric power, river and land management, environmental, and economic development benefits that the TVA has delivered to the nation since the 1930s.

The old cliché is appropriate here: “If it ain't broke, don't fix it.” There is no question that the TVA has needed to address serious financial problems and bring in new leadership to lead a renewal effort. And the silver lining of the privatization debate is that it may have helped spur the TVA to make these necessary changes while preserving its overall capabilities as an integrated system. As TVA CEO Johnson has observed, in an interview in which he discusses the potential impact of privatization on the TVA's nonelectric functions: “I just don't see how, as an economic proposition, this could be done better than it is today” (EIR 2013).

## About the author

**Joel S. Yudken** is principal and founder of High Road Strategies LLC, an economic policy research, analysis, and design consultancy with a focus on sustainable manufacturing, energy, and workforce issues. Before founding the firm in 2006, Yudken served as sector economist and technology policy analyst at the AFL-CIO and manufacturing policy analyst for the AFL-CIO Industrial Union Council. Prior to that he worked for the NIST Manufacturing Extension Partnership; Work & Technology Institute; the U.S. House Committee on Banking, Finance and Urban Affairs; and U.S. Sen. Barbara Boxer (as an American Association for the Advancement of Science congressional fellow). He has written and spoken extensively on a wide range of policy issues, including manufacturing competitiveness, climate, energy and electricity regulation, economic conversion, the Internet, workforce development, and technology R&D. Yudken has a master's degree in engineering-economic systems and a Ph.D. in technology and society from Stanford University.

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## Appendix A. TVA's strategic planning process

The TVA's integrated strategic plan and its components are designed to guide and coordinate across the multiple functions. This reflects the fact that the TVA was created and operates as a complex, integrated system. The main components of the TVA's strategy are illustrated in **Figure A-1**. The TVA's strategic plan lays out the policies and implementation process for achieving its energy, environmental, and economic development missions. It incorporates the Integrated Resource Plan (IRP) and the Natural Resource Plan (NRP). The IRP is the TVA's power generation strategy, which it updates periodically. Its purpose is to identify the "portfolio most likely to help TVA lead the region and the nation toward a cleaner and more secure energy future." The NRP focuses on biological and cultural resources, water resources, recreation, coordinated public engagement, and reservoir lands planning (TVA n.d.). Its goals are to:

- align the TVA's stewardship programs and plans with its environmental policy,
- guide the TVA's land and resource management decisions and actions,
- integrate effective, efficient natural resources stewardship objectives to optimize the public-use benefits of TVA-managed lands,
- strike a balance between competing and sometimes conflicting resource uses of TVA-managed lands.

The environmental policy's stated objective is to provide board-level guiding principles to successfully lead the TVA to reduce its environmental impact while continuing to provide reliable and competitively priced power to the valley. It was created to apply a more systematic and integrated approach toward managing energy production and environmental stewardship. Approved in 2008 by the TVA board of directors, it is to be reviewed every two years (TVA 2008).

## Appendix B. TVA expenditures and financial obligations

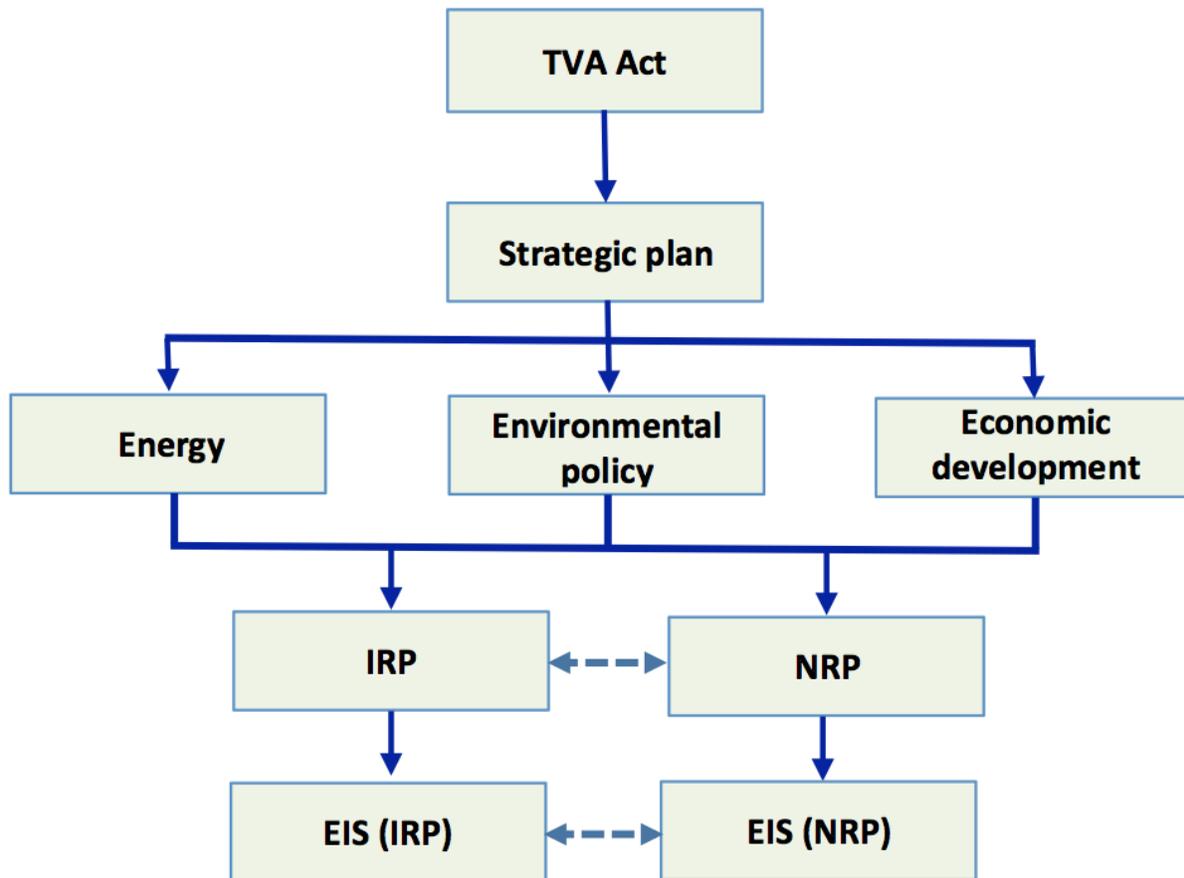
### *TVA expenditures*

The TVA's operating expenses—equal to fuel and purchased power, operations and maintenance, depreciation and amortization, and payments in lieu of taxes—accounted for 89 percent of total expenses in 2014; interest payments made up the remaining 11 percent. As **Table B-1** illustrates, the TVA's operating expenses have grown substantially over the past 10 years, largely driven by increased fuel costs and operating and maintenance expenses over this period.

- **Fuel expenses.** Fuel costs were 29 percent of the TVA's operating expenses in 2014. The TVA's consumption of various types of fuel largely depends on the demand for electricity by the TVA's customers, the availability of various generating units, and the availability and cost of fuel. Coal expenses account for over two-thirds of fuel expenses, natural gas and fuel oil for 19 percent, and nuclear fuel for about 11 percent. Fuel expenses can be volatile and depend on many factors, such as weather, changes in supply and demand, and environmental policies.
- **Purchased power.** To supplement its power generation, the TVA acquires power from a variety of outside power producers. During 2014, the TVA purchased 18.85 billion kWh, about 11 percent of its total power supply, and of that 89 percent was acquired through long-term purchase agreements, 10 percent on the spot market, and 1 percent through short-term purchase agreements (a duration of one year or less).

FIGURE A1

## IRP-NRP framework



Source: TVA, Natural Resource Plan (n.d.)

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- **Operating and maintenance expenses (O&M).** O&M accounted for 35 percent of total operating expenses in 2014. As Lazard notes, the TVA is undertaking cost reduction initiatives to reduce O&M costs by \$500 million by 2015, with the goal of keeping rates low, keeping reliability high, and continuing to fulfill its broader mission of environmental stewardship and economic development. Since about 80 percent of these costs are related to labor, some staffing reductions are likely, though the TVA will try to minimize the impact on current personnel by making the job cuts through attrition, retirements, and elimination of open positions.
- **Depreciation and amortization (D&A).** D&A is the third-largest expense, accounting for 19 percent of the TVA's operating expenses in 2014. D&A expenses are calculated using accounting conventions based on the TVA's property, plant, and equipment.
- **Payments in lieu of taxes (PILOT) or tax equivalents.** The TVA provides tax-equivalent payments annually to state and local governments in the eight states where it sells electricity or owns power production assets and prop-

TABLE B-1

## Selected financial data for the years ended September 30 (dollar values are in millions)

	2014	2009	2004
<b>Revenues and expenditures</b>			
<i>Sales (millions of kWh)</i>	158,057	163,804	165,858
<i>Peak load (MW)</i>	33,352	32,572	NA
<i>Operating revenues</i>	\$11,137	\$11,255	\$7,439
Total fuel & purchased power expense	\$3,824	\$4,745	\$2,081
Fuel expense	\$2,730	\$3,114	\$1,309
Coal	\$1,873	\$2,127	\$1,254
Natural gas	\$531	\$129	\$22
Fuel oil	\$48	\$38	\$17
Nuclear fuel	\$307	\$267	\$16
Purchased power expense	\$1,094	\$1,631	\$772
Operating and maintenance expense	\$3,341	\$2,395	\$2,339
Depreciation and amortization	\$1,843	\$1,598	\$1,115
Payments in lieu of taxes (equivalents)	\$540	\$540	\$340
<i>Total operating expenses</i>	\$9,548	\$11,356	\$7,462
Net interest expense	\$1,169	\$1,272	\$1,310
<i>Total expenses</i>	\$10,717	\$10,550	\$7,185
Construction expenditures	\$2,384	\$1,793	\$1,552
<i>Net income</i>	\$469	\$726	\$386
<b>Financial obligations</b>			
Employment	11,542	12,219	12,742
Pension obligations at end of year	\$12,265	NA	NA
Fair value of net fund assets at end of year	\$7,507	NA	NA
<i>Total assets</i>	\$45,596	\$40,017	\$34,280
Long-term debt	\$23,227	\$22,728	\$20,480
<i>Total debt</i>	\$24,887	\$22,640	NA
Current liabilities	\$4,449	\$4,525	\$5,511
Noncurrent liabilities	\$35,043	\$31,374	\$26,505
<i>Total liabilities</i>	\$39,492	\$35,799	\$32,016
<i>Proprietary capital</i>	\$6,104	\$4,218	\$2,264
Power program appropriation investment	\$258	NA	NA
Power program retained earnings	\$5,240	NA	NA
Nonpower programs appropriation investment net	\$601	NA	NA
<i>Total liabilities and proprietary capital</i>	\$45,596	\$40,017	\$34,280

Sources: TVA (2014b); EPB (2012, 2014)

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erties (generating plants, transmission, lines, substations, etc.) previously subject to state and local taxation. The TVA paid out \$540 million as tax-equivalent payments in 2014, accounting for 6 percent of its operating costs. Tennessee was the largest beneficiary in 2013, with 61 percent of the tax-equivalent payments, and Alabama was second with 20 percent (TVA 2013).<sup>19</sup>

- **Interest expense.** Interest expense accounted for 11 percent of the TVA's total expenses in 2014. It includes the interest on long-term debt obligations, amortization of debt discounts, issuances, and reacquisition costs. Its share of total debt has fallen from a high of 7.45 percent since 1993 to about 5 percent in 2014.

## ***TVA assets and financial obligations***

The TVA's total assets (including cash assets, property, plant equipment, and other assets) totaled \$46 billion in 2014. Its obligations include capital expenditures and long-term debt, employment and pension obligations, and proprietary capital (see Table B-1). Of special note is the long-term debt, which was \$23 billion in 2014, still somewhat below the mandated \$30 billion statutory debt limit (TVA 2014b, 47). TVA's pension obligations are another important financial concern. The TVA sponsors a qualified defined pension plan for most of its 12,000 full-time annual employees and provides benefits to 23,400 retirees or beneficiaries. As of September 30, 2014, the TVA's pension liabilities were \$12.2 billion and its pension assets were \$7.5 billion, or 61 percent of its liabilities (TVA 2014b, 40). Specific assets, obligations, and liabilities of note include the following:

- **Employment and pension obligations.** The TVA had 11,542 employees as of September 30, 2014. It sponsors a qualified defined benefit plan, and 4,255 participants were trade and labor employees. The TVA Act requires the TVA to pay trade and labor workers and certain contractors prevailing wages. The TVA also sponsors a qualified defined benefit pension plan for most of its full-time annual employees. The plan currently has approximately 36,000 participants, of whom approximately 23,400 are retirees or beneficiaries currently receiving benefits. As of September 30, 2014, the plan had assets of \$7.5 billion compared with liabilities of \$12.2 billion, a 61 percent ratio. Approximately \$650 million of benefits are paid to participants annually.
- **Assets and equity.** The TVA's assets include current assets (including cash and cash equivalents, accounts receivables, inventories, etc.), property, plant, and equipment (including completed less accumulated depreciation, construction in progress, and nuclear fuel), investment funds, and regulatory and other long-term assets (TVA 2014b, 40).<sup>20</sup>
- **Capital expenditures and long-term debt.** In order to meet the challenges related to fluctuating fuel prices or compliance with current and emerging environmental laws and regulation, the TVA will need to install clean air equipment on coal-fired units and replace generating capacity of idled or retired coal-fired units with cleaner-emissions nuclear and gas-fired units. The TVA plans to pay for these additions through a combination of bonds, alternative financing, efficiency improvements, and rate increases. The TVA is not authorized to issue bonds in excess of \$30 billion at any one time. Although constrained by the TVA Act, TVA management believes that the challenges described above can be met without this limit becoming an issue (TVA 2014b, 40).<sup>21</sup>
- **Proprietary capital.** This category includes power program appropriations, nonpower program appropriations, and power program retained earnings. The TVA's power program and stewardship (nonpower) programs were originally funded by appropriations from Congress. But since 1959, the power program has been self-financing from power program revenues. The TVA Act requires the TVA to continue to make payments to the U.S. Treasury as a return on the remaining power program appropriation investment. After appropriations for the TVA's power program ended, the TVA still received appropriations for certain multipurpose and other nonpower mission-related activities as well as for its stewardship activities, until 1999.

## Appendix C. Electric power rates

Because electricity rates are central to any analysis of divestiture economic impacts, it is instructive to examine how they are set by the TVA and how they compare with those charged by private investor-owned utilities (IOUs) or independent power producers (IPPs) operating in nearby regions. The TVA Act gives the TVA board sole authority for setting rates the TVA charges for power (no judicial review or approval by any state or federal regulatory body is required). The TVA is required to charge rates that will produce gross revenues sufficient to provide funds for:

- operation and maintenance of its power system;
- payments to states and counties in lieu of taxes (tax equivalents);
- debt service on outstanding indebtedness;
- payments to the U.S. Treasury in repayment of and as a return on the government's appropriation investment in the TVA's power facilities;
- such additional margin as the TVA board considers desirable for investment in power system assessments; retirement of outstanding bonds, notes, or other indebtedness (bonds); additional reduction of the Power Program Appropriation Investment; and other purposes.

The TVA rates also include a fuel cost recovery mechanism that automatically adjusts each month, for natural gas, fuel oil, purchased power, coal, emission allowances, nuclear fuel, and other fuel-related commodities. In addition, on August 22, 2013, the TVA board approved a five-year extension of an environmental adjustment, started in 2004, to collect revenue for environmental expenditures to further TVA's environmental performance, as well as comply with more stringent air, water, and waste regulations (TVA 2013).<sup>22</sup>

The Lazard study and the Electric Power Board of Chattanooga (EPB) have conducted benchmarking evaluations comparing the electric power rates of the TVA (EPB 2012), and of the TVA in tandem with its local power distributors (EPB 2014), with privately owned and selected public electric power companies. The EPB study examined 10 utilities in terms of capacity, sales and revenues, electric rates, expenses, generation, cash flows, assets, liabilities, and equity position (EPB 2014). It also compared electricity rates for the state of Tennessee—the TVA and its power distributors serve the vast majority of Tennessee homes and businesses, and hence this is a proxy for TVA plus power distributors' (TVA+PD) rates—with 14 other states, selected for their proximity to Tennessee for purposes of comparison.

Several of the findings of the electric rate benchmarking studies are summarized in **Table C-1**. The TVA and its distributors' residential rates are especially competitive with other utilities and other regions. For example:

- An Energy Information Administration (EIA) ranking showed that Tennessee had the 11 lowest average retail electric rates in the nation in 2014 (EIA 2014).
- A comparison of five power distributors for the TVA with a number of regional power companies showed that the TVA distributors' residential rates are lower on the whole than the power companies', but commercial and industrial rates are higher for the LPCs compared with the power companies examined; in any case, the TVA's rates are on the whole competitive with other power companies.

TABLE C-1

## Comparison of electricity rates *TVA and selected utilities*

Power rates (¢/kWh)	2013	2009	2004
<i>TVA all-in rates (total revenue ÷ no. kWh sold)</i>	6.8	6.9	4.5
<i>TVA+PD all-in rates</i>	8.8	8.6	5.9
<i>Residential (average rate, TN)</i>	10.1	9.3	6.9
<i>Commercial (average rate, TN)</i>	10.2	9.5	7.1
<i>Industrial (average rate, TN)</i>	6.5	6.7	4.5
	Residential	Commercial	Industrial
<b>TVA power distributors (PD)</b>			
<i>EPB (Electric Power Board of Chattanooga)</i>	10.0	9.8	6.8
<i>Hunt (Huntsville Utilities)</i>	9.3	9.1	8.0
<i>KUB (Knoxville Utility Board)</i>	9.9	9.8	5.8
<i>MLGW (Memphis Light, Gas, and Water)</i>	9.4	9.6	—
<i>NES (Nashville Electric Service)</i>	10.4	9.8	6.7
<i>Average TVA power distributors</i>	9.8	9.6	6.8
<b>Selected non-TVA power companies</b>			
<i>AL Pco (Southern Co.) Alabama Power Company</i>	11.6	10.6	6.0
<i>GA Pco (Southern Co.) Georgia Power Company</i>	11.9	9.7	6.0
<i>MS Pco (Southern Co.) Mississippi Power Company</i>	12.3	10.1	6.5
<i>Dominion Carolinas (Dominion Resources)</i>	10.7	8.7	5.6
<i>Duke Carolinas (Duke Energy)</i>	10.1	8.0	5.6
<i>E MS (Entergy) Entergy Mississippi</i>	9.4	9.1	6.3
<i>FPL (Florida Power &amp; Light)</i>	10.4	8.6	6.9
<i>Average privately owned power companies</i>	10.9	9.3	6.1

Source: EPB (2014); EIA (2014)

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- The Lazard study's benchmarking analysis similarly showed that the TVA's retail rates were in the second quartile nationally (among 100 U.S. companies) and near the median within the region in 2012; the TVA's industrial rates were in the second quartile both nationally and regionally.

## Appendix D. Pros and cons of divesting the TVA

### *Support for divestiture*

Both the Obama administration's proposed FY 2014 and 2015 federal budgets called for "[r]educing or eliminating the Federal Government's role in programs such as TVA, which have achieved their original objectives and no longer require Federal participation." It raised concerns that the TVA's bond debt, now at \$26 billion—especially considering projected investments in upgrading and constructing new nuclear power facilities and pollution control and related energy efficiency projects—could quickly exceed its \$30 billion statutory cap, with a perceived impact on the federal deficit. Ending federal ties, therefore, could "help mitigate risk to taxpayers," and "put the Nation on a sustainable fiscal path." While the FY 2015 budget proposal gave credit to the TVA for taking significant steps to improve its future

operating and financial performance, it announced that the administration has begun a “strategic review for addressing TVA’s financial situation, including the possible divestiture of TVA, in part or as a whole” (OMB 2014, 40; OMB 2013, 51). Although this review has since been completed, and the FY 2016 budget gives the TVA credit for taking “significant steps to improve its operating and financial performance and is committed to resolve its capital financing constraints,” eliminating or reducing the federal role in “programs such as TVA” continues to be under consideration (OMB 2015, 83).<sup>23</sup>

Challenges to the TVA’s existence as a federal entity began at its inception in 1933 and continue to the present day. To private power companies, the creation of the TVA was an illegitimate government intrusion into the marketplace. President Dwight Eisenhower called the TVA “creeping socialism,” and might have tried to sell it, except for opposition from Tennessee Valley residents (Smith 2013). Three federal suits challenging the TVA’s right to produce and distribute electricity, however, ended in a ruling by the Supreme Court in 1939 that declared that the TVA’s electric power generation and transmission were constitutional (Encyclopedia 2004).

### **Conservative challenge**

Although the TVA’s accomplishments by the 1990s had become widely recognized, some questioned whether it was necessary for the federal government to continue playing this role. The strongest critiques have appeared in conservative-leaning journals such as *The Economist* (1989) and think-tank reports, most notably those from the pro-free market Reason Foundation (Canan 1996) and the Heritage Foundation (Glozer 2014). They each make a case that the TVA’s power operations would be better run and more efficient under private management.

The critiques also argue that hidden subsidies and tax preferences insulate the TVA from price competition and enable it to evade commercial accountability. The Heritage Foundation report argues that the TVA no longer provides low-cost electricity to its customers, and poses a threat of a bailout to taxpayers if it goes over its statutory debt limit. A lack of effective oversight, it says, has resulted in costly decisions, excessive expenses, high electricity rates, and growing liabilities for taxpayers. The best way to “restore efficiency to the TVA system,” it concludes, “is to sell all its assets via a competitive auction and bring it under the rigors of market forces and public utility regulation” (Glozer 2014).

### **CBO and GAO reports**

A series of federal government documents since the 1990s have echoed these proposals, perhaps motivated by the movement toward deregulation and downsizing of government, consistent with other steps by Congress toward deregulation, especially in the electricity sector. For example, a Congressional Budget Office 1997 report, *Should the Federal Government Sell Electricity?*, was a response to requests by policymakers questioning government involvement in the business of producing and marketing electric power. It referenced not only the TVA but also other major power marketing authorities, including the Bonneville Power Authority and the Southeastern Power Authority (CBO 1997).<sup>24</sup>

The CBO report concluded that privatization offers the greatest opportunity for increasing the efficiency of power production and produces the greatest return to the Treasury, resulting “from a competitive sale to the highest bidder with no restrictions on who may bid, no limits on subsequent power rates, and no guarantees of federal support” (CBO 1997). In 2005 and again in 2007, 2009, and 2011, CBO’s budget option reports suggested transferring much of the TVA’s electric power assets to private or perhaps local governments. Typically the reports call for keeping the hydro generation part of the system but selling off the nonhydro generation and transmission properties. That is, the CBO

recommends that the TVA sell all of its power assets “for which a commercial market exists, except for hydropower resources, which would be retained, in any case because the assets serve multiple purposes, such as flood control and recreation” (CBO 2007).

A key claim is that electricity generation and transmission are fundamentally private-sector activities. Other arguments supporting divestiture include the following:

- Selling the TVA’s nonhydropower assets would reduce the risk to taxpayers now posed by the TVA’s plans to spend millions of dollars on new nuclear plants.
- The TVA’s hybrid public–private nature gives it an unfair advantage. It controls its own spending and rate setting, with no regulatory oversight, and has ready access to capital because investors assume the obligations will be backed by the government in case of a default—although under current law the debt is not government backed.
- Divestiture would eliminate the implicit subsidy that the TVA receives when its federal status enables it to earn high bond ratings.
- Movement of the TVA’s electric power assets to a competitive environment could increase efficiencies relative to federal operation.
- The sale would help reduce the deficit.

Meanwhile, a 2011 Government Accountability Office study that evaluated the TVA’s financial situation and the utility’s ability to meet its operational and financial goals noted the agency’s history of cost overruns and construction delays. It expressed worry about possible investments in needed capital improvements, such as new and upgraded generation capacity and pollution control devices, because they could push the TVA’s debt over the statutory limit. The TVA’s only options for addressing these needs, the report argued, are limited to raising its rates, reducing operating costs, delaying some capital improvements, or modifying its debt structure (GAO 2011).

## ***Opposition to divestiture***

The divestiture propositions in the recent federal budget documents have sparked a substantial reaction from almost all the major stakeholders involved with the TVA, as well as from leading congressional lawmakers representing states and districts in the TVA’s service area. Both conservatives and liberals in the Tennessee Valley have criticized the federal budget divestiture proposal.

### **Congressional opposition**

For example, U.S. Sen. Lamar Alexander (R-Tenn.) called it “one more bad idea in a budget full of bad ideas—after deducting its debt, selling TVA would probably cost taxpayers money.” He argues that there is no assurance that selling the TVA to profit-making entities would reduce electric bills in Tennessee and would likely lead to higher electricity rates. He also insists that the TVA is critical for U.S. security, referring to the government’s tritium production facilities that depend on TVA-generated electric power. Alexander recognizes the value of TVA’s nonpower activities as well. For example, in May 2013 he persuaded the TVA to spend \$900,000 to keep federal trout hatcheries operating near some TVA dams where state residents like to fish. These hatcheries were closing in response to sequester cuts in the Department of the Interior’s budget (McTague 2013; Flessner 2013a).

Other regional lawmakers such as Tennessee's other Republican senator, Bob Corker, U.S. Sen. Richard Shelby (R-Ala.), and several congressional members also have expressed concerns. Corker says he is doubtful about divestiture but is looking for solutions short of full privatization. Shelby cautions that any proposals would need to ensure that electricity remain affordable to ratepayers in the region (Flessner 2013a). U.S. Rep Mo Brooks (R-Ala.), recognizing that the Constitution grants federal control over America's navigable waterways, argues that there is "no circumstance that justifies forcing TVA to abandon its flood control and navigable waterway roles it has performed so admirably for more than seven decades." Since the TVA is self-sufficient, receives no taxpayer subsidies, and is responsible for its own capital debt, it doesn't "contribute one dime to America's out-of-control deficits or troubling accumulated debt" (*State News* 2013).<sup>25</sup> U.S. Rep. John J. Duncan (R-Tenn.) says he doesn't believe the plan to sell the TVA is a serious proposal and, even it were, Congress would never go along with it (Collins 2014).

### **LPC opposition**

Some of the TVA's principal stakeholders have also expressed opposition to the divestiture proposal, notably the municipally owned and cooperative LPCs and the Tennessee Valley Public Power Association (TV PPA), a nonprofit organization representing these distributors. The TV PPA has opposed spinning off the TVA since it was first proposed by the administration. It calls the TVA a model of self-sufficiency and "an engine for economic growth." It believes that "the nonprofit model that has been in place for more than 80 years serves the valley and its residents very well." TV PPA spokespeople also note that the TVA has not received any federal funding since 1959, and its customers have paid back all the federal funds borrowed before that time. As Jerry Collins Jr., chief executive officer of Memphis Light, Gas, and Water, one of the largest of the municipal authorities in the region, has said, "severing those ties would serve no useful purpose to TVA's customers throughout the Tennessee Valley" (Sigo 2014a).

The distributors also are concerned that uncertainty about the future of the TVA is sending a negative signal to not only financial markets but to potential economic developers in the valley. Moody's Investors Service, for example, has warned that weakening or eliminating the TVA's federal government connection would be credit-negative for local operators that act as public distribution utilities for the authority. Based simply on comments in the Obama administration's 2015 proposed budget, a reduced bond rating or outlook is possible (Sigo 2014a). According to Moody's, the TVA holds down its costs in part because it generates power from diverse sources, shielding it from supply constraints and cost spikes. It further notes that TVA distributors pay 14 percent less for power than the national average, which allows them to charge lower rates to their customers than the national average. Without that advantage, the utilities could lose some of their 9 million customers to large, publicly traded power companies (Sigo 2014b).

### **Labor opposition**

Labor unions representing TVA employees have similarly opposed the privatization proposal. Gay Henson, president of the Engineering Association/International Federation of Professional and Technical Engineers (IFTPE) Local 1937 in Chattanooga, has called privatization "a very bad idea," arguing that it "would diminish the critical role that TVA has played in the region, negatively impact the economy of many states, and bring a catastrophic blow to the more than 13,000 jobs—many union jobs—at TVA" (Sigo 2014a; Flessner 2013a).

Greg Juneman, president of the IFPTE, which represents 2,500 employees at the TVA, seconded that view, stating his worry that privatizing the utility could cause a loss of jobs. Similar concerns have been expressed by the International Brotherhood of Electrical Workers, which represents 3,000 workers at the TVA as well as another 2,000–4,000 people

working on the company's construction projects at any given time; the International Association of Machinists, representing more than 1,000 TVA workers; and the Building and Construction Trades Department, AFL-CIO (Bogardus 2014).

The AFL-CIO is also opposed. A resolution passed at its 2013 convention contends that the logic used to support the privatization proposal in Obama's budget is fundamentally flawed, and reiterates the fact that no taxpayer money goes toward any of the TVA's operational expenses, including employee compensation. Although the TVA is a self-financing government corporation, and its bonds are not a federal obligation, its debts are considered part of the federal deficit. In addition, the AFL says, privatization will diminish the TVA's critical role "not only as a provider of inexpensive electricity and economic development, but also as an environmental steward of the Tennessee River watershed" (AFL-CIO 2013).<sup>26</sup>

## Appendix E. Lazard's financial assessment

The Lazard Frères study, the latest and most authoritative statement of the TVA's business and financial condition, paints a favorable picture of the TVA today. Evaluating a range of potential options for the TVA's future, including divestiture, Lazard arrived at its conclusions based on criteria determined in consultation with the various parties involved. It noted, however, that evaluation of overall policy objectives of the federal government with regard to the TVA—i.e., whether it has achieved its original objectives or whether it no longer requires federal participation—was outside its scope. Some key findings:

- The TVA expects stagnant load growth over the next decade and is focused on its O&M profile through cost reduction and rate increases to support its capital expenditure program, while lowering its debt levels to stay below its statutory debt ceiling.
- The TVA is executing a plan to reduce O&M costs by \$500 million by 2015 through operational efficiencies, cost reductions, and cost avoidance. It had achieved \$150 million in savings through FY 2013.
- The TVA has rationalized and de-risked its capital investment program by switching from a nuclear-build strategy to natural gas construction with accelerated coal retirements. It expects to retire, idle, or convert approximately 4.6 GW of coal capacity over the next decade and replace it with nuclear and gas capacity.
- The increased reliance on gas-fired generation and decreases in coal and nuclear generation (e.g., the decision not to pursue Bellefonte) is consistent with industrywide trends toward natural gas as a result of changes in the natural gas market, environmental regulations, and the cost and complexity of nuclear power (TVA 2014c, 26).

Lazard also compared the TVA's current financial plan, which is the basis for its positive assessment, with the utility's prior financial plan, which seemed to be putting the TVA on a less sustainable path. In Lazard's view, based on discussions with TVA management and its experience in reviewing industry plants, the TVA's future financial plan, projected out to 2023, is likely to produce "fundamental changes in a way that materially improves the status quo" (TVA 2014c, 30).

## Endnotes

1. Of special note, the TVA's electric power capabilities helped enable the development of one of the largest aluminum production facilities in the world, in Alcoa, Tenn. And during and after World War II, the TVA provided crucial power for the atomic energy industry in and around Oak Ridge, Tenn.
2. In 2014, the TVA also purchased 18.740 billion kWh of electricity from neighboring electric systems, accounting for 12 percent of its total supply of electric power generated and purchased in 2014 (TVA 2014b, 53).
3. The TVA also obtains another \$138 million from other sources. The United States Enrichment Corporation, a subsidiary of USEC Inc., which was the TVA's largest directly served industrial customer, announced the cessation of its enrichment activities in May 2013, though it has an agreement to extend power sales to facilitate the cessation and support nonenrichment activities.
4. For example, the TVA installed SO<sub>2</sub> scrubbers on 17 coal-fired units and NO<sub>x</sub> selective catalyst reduction systems on 21 coal-fired units. The utility spent approximately \$5.9 billion on emissions controls from the 1970s to 2014.
5. The TVA reported energy efficiency gains of 553 GWh and 521 GWh in 2014 and 2013, respectively.
6. These include, for example, Green Power Switch, a voluntary program supporting renewable energy production, allowing consumers to purchase renewable energy; Generation Partners, a pilot program to test the interest and feasibility of renewable consumer-owned generation as a source of power for the TVA (it has grown from fewer than 80 installations in 2009 to more than 1,500 installations in 2013 and provides more than 192,000 MWh of solar, wind, low-impact hydro, and biomass generation); the Renewable Standard Offer program, a voluntary program that began in 2010 to increase the amount of renewable energy generated in the TVA's service area, including solar, wind, and specific biomass project; and the Solar Solution Initiative, a pilot program that provides incentive payments for mid-sized (>5 kW up to 1 MW) solar projects. During CY 2014, the SSI program was expanded to 16 MW (TVA 2014b, 20–21; TVA 2013, 20).
7. The TVA's field representatives throughout the Tennessee Valley region work with local officials to help companies grow in sustainable, energy-efficient ways. The TVA also partners with USDA Rural Development, the Economic Development Administration, ARC, and Delta Regional Authority supporting rural and economically distressed communities across the Tennessee Valley.
8. The 1998 Energy and Water Development Appropriations Act directed the TVA to fund essential stewardship activities related to management of the Tennessee River system and its nonpower or stewardship activities with power revenues in the event there were insufficient appropriations or other funds to pay for these activities in any fiscal year
9. See also the CBO *Budget Options* for 2005, 2009, and 2011.
10. Specifically, the document states, "While the strategic review of TVA has concluded, the Administration continues to believe that reducing or eliminating the Federal Government's role in programs such as TVA, which have achieved their original objectives, can help mitigate risks to taxpayers."
11. The methodology for such an analysis was suggested in part by Ben Schlesinger & Associates, Bethesda, Md.
12. The TVA expects the 2024 generation mix to consist of 40 percent nuclear, 20 percent coal, 20 percent gas, and 20 percent hydro/renewable/other by installed capacity (GW) (TVA 2014c, 17).
13. Based on options for certain coal-fired units under environmental agreements and the anticipated results of updates to its IRP in 2015; the amount and timing of these expenditures, however, could change.

14. For example, the TVA's board has been considering a power purchase agreement for a new-to-the-Valley solar resource, which will supply 80 MWs of power from a single-axis tracking solar installation in northern Alabama. It would be in commercial operation in 2016.
15. For example, both American Electric Power and First Energy have supported legislation in Ohio that would eliminate requirements for renewable energy and energy efficiency standards in the state, at least for three years.
16. Flood control also remains an important economic function. The TVA system prevents about \$240 million in an average year in flood damage in the region and along the Ohio and Mississippi rivers. To date, the TVA claims that it has prevented \$5.4 billion in flood losses (TVA 2015f).
17. This includes 800 commercial navigable miles with eight deep-water ports, a transportation network of 11 interstate highways, eight major railways, and 15 commercial airports.
18. Other questions include: What overhead functions and facilities are currently shared? What issues might arise (and at what cost) when trying to separate property, equipment, and employees by power and nonpower functions? What efficiencies could be gained by combining certain aspects of the TVA's nonpower activities with other public-sector entities?
19. The total amount of these payments is 5 percent of gross revenues from sales of power during the preceding year, excluding sales or deliveries to other federal agencies and off-system sales with other utilities, with a provision for minimum payments under certain circumstances. Fuel-cost-related tax-equivalent expense is recognized in the same accounting period in which the fuel-cost-related revenue is recognized.
20. Regulatory assets generally represent incurred costs that have been deferred because such costs will be recoverable in customer rates in the future. Regulatory assets include, for example, environmental cleanup costs, such as the Kingston ash spill, environmental agreements, deferred pension costs, and other post-retirement costs. The TVA's total assets equaled \$46.1 billion in 2014, an increase of about \$12 billion over its assets 10 years ago.
21. As of September 30, 2013, the TVA had only two types of bonds outstanding: power bonds and discount notes. Power bonds have maturities between one and 50 years, and discount notes have maturities of less than one year.
22. This adjustment currently recovers approximately \$415 million per year.
23. Specifically, the document states, "While the strategic review of TVA has concluded, the Administration continues to believe that reducing or eliminating the Federal Government's role in programs such as TVA, which have achieved their original objectives, can help mitigate risks to taxpayers."
24. Southeastern Power Administration (SEPA); Alaska Power Administration (APA; legislation authorizing sale for this agency and terminating it became law in late 1995); and Western Area Power Administration (WAPA).
25. He also doubts that the TVA's non-waterway assets can be sold for a profit. He is willing to consider such a sale, if the president can make the case "that doing so will lower the costs of electricity to TVA consumers and is in America's interests." However, he added, "Quite frankly, I am skeptical the president can make that case."
26. The resolution makes another important point, calling for an increase in the TVA debt ceiling that was set by Congress in 1979. Raising this congressionally imposed limit on TVA borrowing would be appropriate given the growth of the TVA and its power load since that time.

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