Tennessee Valley Authority
Form 10-K
November 15, 2016
Table of Contents

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

(MARK ONE)
x ANNUAL REPORT PURSUANT TO
SECTION 13, 15(d), OR 37 OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended September 30, 2016
OR
o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____
Commission file number 000-52313
TENNESSEE VALLEY AUTHORITY
(Exact name of registrant as specified in its charter)

A corporate agency of the United States created by an act of Congress (State or other jurisdiction of incorporation or organization)	62-0474417 (IRS Employer Identification No.)
400 W. Summit Hill Drive Knoxville, Tennessee (Address of principal executive offices)	37902 (Zip Code)

(865) 632-2101
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act: None
Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes o No x
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13, Section 15(d), or Section 37 of the Act. Yes o No x
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13, 15(d), or 37 of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.
Yes x No o
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).
Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein and will not be contained, to the best of registrant's knowledge, in definitive proxy or

information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o	Accelerated filer o
Non-accelerated filer x	Smaller reporting company o
(Do not check if a smaller reporting company)	

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes o No x

Table of Contents

Table of Contents

Table of Contents

GLOSSARY OF COMMON ACRONYMS

Following are definitions of some of the terms or acronyms that may be used in this Annual Report on Form 10-K for the fiscal year ended September 30, 2016 (the "Annual Report"):

Term or Acronym	Definition
AFUDC	Allowance for funds used during construction
AOCI	Accumulated other comprehensive income (loss)
ARO	Asset retirement obligation
ART	Asset Retirement Trust
ASLB	Atomic Safety and Licensing Board
BEST	Bellefonte Efficiency and Sustainability Team
BLEU	Blended low-enriched uranium
BREDL	Blue Ridge Environmental Defense League
BSER	Best system of emission reduction
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CCP	Coal combustion products
CCR	Coal combustion residuals
CCW	Coal combustion waste
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CME	Chicago Mercantile Exchange
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COL	Combined construction and operating license application
COLA	Cost-of-living adjustment
CSAPR	Cross State Air Pollution Rule
CTs	Combustion turbine unit(s)
CVA	Credit valuation adjustment
CY	Calendar year
DCP	Deferred Compensation Plan
DER	Distributed energy resources
DEU	Discounted energy units
DOE	Department of Energy
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPRI	The Electric Power Research Institute
ERS	EnergyRight® Solutions programs
ESPA	Early Site Permit Application
FASB	Financial Accounting Standards Board
FCM	Futures Commission Merchant
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
FTP	Financial Trading Program
GAAP	Accounting principles generally accepted in the United States of America
GAO	U.S. Government Accountability Office
GHG	Greenhouse gas
GP	Generation Partners
GPP	Green Power Providers
GPS	Green Power Switch®

GWh	Gigawatt hour(s)
IRP	Integrated Resource Plan
IRUs	Indefeasible rights of use
JSCCG	John Sevier Combined Cycle Generation LLC
kW	Kilowatts
kWh	Kilowatt hour(s)
LIBOR	London Interbank Offered Rate
LPC	Local power company customer of TVA
LTDCP	Long-Term Deferred Compensation Plan

Table of Contents

MATS	Mercury and Air Toxics Standards
MD&A	Management's Discussion and Analysis of Financial Condition and Results of Operations
MLGW	Memphis Light, Gas and Water Division
MLPs	Master Limited Partnerships
mmBtu	Million British thermal unit(s)
MOX	Mixed oxide
MtM	Mark-to-market
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NAV	Net asset value
NDT	Nuclear Decommissioning Trust
NEIL	Nuclear Electric Insurance Limited
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NES	Nashville Electric Service
NO_2	Nitrogen Dioxide
NO_x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRP	Natural Resource Plan
NSPS	New Source Performance Standards
NSR	New Source Review
NYSE	New York Stock Exchange
OCI	Other comprehensive income (loss)
OMB	Office of Management and Budget
PARRS	Putable Automatic Rate Reset Securities
PM	Particulate matter
PSD	Prevention of Significant Deterioration
QER	Quadrennial Energy Review
QTE	Qualified technological equipment and software
RECs	Renewable Energy Certificate(s)
REIT	Real Estate Investment Trust
RSO	Renewable Standard Offer
SACE	Southern Alliance for Clean Energy
SCCG	Southaven Combined Cycle Generation LLC
SCRs	Selective catalytic reduction systems
SEC	Securities and Exchange Commission
SERP	Supplemental Executive Retirement Plan
Seven States	Seven States Power Corporation
SHLLC	Southaven Holdco LLC
SMR	Small modular reactor(s)
SO_2	Sulfur dioxide
SOA	Society of Actuaries
SSSL	Seven States Southaven, LLC
TCWN	Tennessee Clean Water Network
TDEC	Tennessee Department of Environment & Conservation
TIPS	Treasury Inflation-Protected Securities
TOU	Time-of-use
TVARS	Tennessee Valley Authority Retirement System

U.S. Treasury	United States Department of the Treasury
VIE	Variable interest entity
XBRL	eXtensible Business Reporting Language
WCD	Waste Confidence Decision

Table of Contents

FORWARD-LOOKING INFORMATION

This Annual Report on Form 10-K ("Annual Report") contains forward-looking statements relating to future events and future performance. All statements other than those that are purely historical may be forward-looking statements. In certain cases, forward-looking statements can be identified by the use of words such as "may," "will," "should," "expect," "anticipate," "believe," "intend," "project," "plan," "predict," "assume," "forecast," "estimate," "objective," "possible," "probably," "likely," "potential," "speculate," the negative of such words, or other similar expressions.

Although the Tennessee Valley Authority ("TVA") believes that the assumptions underlying the forward-looking statements are reasonable, TVA does not guarantee the accuracy of these statements. Numerous factors could cause actual results to differ materially from those in the forward-looking statements. These factors include, among other things:

- New, amended, or existing laws, regulations, or administrative orders, including those related to environmental matters, and the costs of complying with these laws, regulations, and administrative orders;
- The cost of complying with known, anticipated, and new emissions reduction requirements, some of which could render continued operation of many of TVA's aging coal-fired generation units not cost-effective and result in their removal from service, perhaps permanently;
- Actions taken, or inaction, by the U.S. government relating to the national debt ceiling or automatic spending cuts in government programs;
- Costs and liabilities that are not anticipated in TVA’s financial statements for third-party claims, natural resource damages, or fines or penalties associated with unexpected events such as failures of a facility or infrastructure as well as for environmental clean-up activities;
- Addition or loss of customers by TVA or the local power company customers of TVA ("LPCs");
- Significant reductions in demand for electricity produced through non-renewable or centrally located generation sources which may result from, among other things, economic downturns, increased energy efficiency and conservation, increased utilization of distributed generation, and improvements in alternative generation and energy storage technologies;
- Changes in customer preferences for energy produced from cleaner generation sources;
- Significant delays, cost increases, or cost overruns associated with the construction and maintenance of generation or transmission assets;
- Changes in the timing or amount of pension and health care obligations and related funding;
- Increases in TVA's financial liabilities for decommissioning its nuclear facilities or retiring other assets;
- Physical or cyber attacks on TVA's assets;
- The outcome of legal or administrative proceedings;
- The failure of TVA's generation, transmission, flood control, and related assets, including coal combustion residual ("CCR") facilities, to operate as anticipated, resulting in lost revenues, damages, and other costs that are not reflected in TVA’s financial statements or projections;
- Differences between estimates of revenues and expenses and actual revenues earned and expenses incurred;
- Weather conditions;
- Catastrophic events such as fires, earthquakes, explosions, solar events, electromagnetic pulses, geomagnetic disturbances, droughts, floods, hurricanes, tornadoes, pandemics, wars, national emergencies, terrorist activities, and other similar events, especially if these events occur in or near TVA's service area;
- Events at a TVA facility, which, among other things, could result in loss of life, damage to the environment, damage to or loss of the facility, and damage to the property of others;
- Events or changes involving transmission lines, dams, and other facilities not operated by TVA, including those that affect the reliability of the interstate transmission grid of which TVA's transmission system is a part and those that

increase flows across TVA's transmission grid;

- Disruption of fuel supplies, which may result from, among other things, economic conditions, weather conditions, production or transportation difficulties, labor challenges, or environmental laws or regulations affecting TVA's fuel suppliers or transporters;
- Purchased power price volatility and disruption of purchased power supplies;
- Events which affect the supply of water for TVA's generation facilities;
- Changes in TVA's determinations of the appropriate mix of generation assets;
- Ineffectiveness of TVA's efforts at adapting its organization to an evolving marketplace and remaining cost competitive;
- Inability to obtain, or loss of, regulatory approval for the construction or operation of assets;
- The requirement or decision to make additional contributions to TVA's pension or other post-retirement benefit plans or to TVA's Nuclear Decommissioning Trust ("NDT") or Asset Retirement Trust ("ART");
- Limitations on TVA's ability to borrow money which may result from, among other things, TVA's approaching or substantially reaching the limit on bonds, notes, and other evidences of indebtedness specified in the Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee (the “TVA Act”);
- An increase in TVA's cost of capital which may result from, among other things, changes in the market for TVA's debt securities, changes in the credit rating of TVA or the U.S. government, or, potentially, an increased reliance by TVA on alternative financing should TVA approach its debt limit;
- Changes in the economy and volatility in financial markets;
- Changes in technology;

Table of Contents

- Reliability and creditworthiness of counterparties;
- Changes in the market price of commodities such as coal, uranium, natural gas, fuel oil, crude oil, construction materials, reagents, electricity, and emission allowances;
- Changes in the market price of equity securities, debt securities, and other investments;
- Changes in interest rates, currency exchange rates, and inflation rates;
- Ineffectiveness of TVA's disclosure controls and procedures or its internal control over financial reporting;
- Inability to eliminate identified deficiencies in TVA's systems, standards, controls, or corporate culture;
- Inability to attract or retain a skilled workforce;
- Events at a nuclear facility, whether or not operated by or licensed to TVA, which, among other things, could lead to increased regulation or restriction on the construction, ownership, operation, and decommissioning of nuclear facilities or on the storage of spent fuel, obligate TVA to pay retrospective insurance premiums, reduce the availability and affordability of insurance, increase the costs of operating TVA's existing nuclear units, and cause TVA to forego future construction at these or other facilities;
- Loss of quorum of the TVA Board of Directors; and
- Other unforeseeable events.

See also Item 1A, Risk Factors, and Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations. New factors emerge from time to time, and it is not possible for management to predict all such factors or to assess the extent to which any factor or combination of factors may impact TVA’s business or cause results to differ materially from those contained in any forward-looking statement. TVA undertakes no obligation to update any forward-looking statement to reflect developments that occur after the statement is made.

GENERAL INFORMATION

Fiscal Year

References to years (2016, 2015, etc.) in this Annual Report are to TVA’s fiscal years ending September 30 except for references to years in the biographical information about directors and executive officers in Item 10, Directors, Executive Officers and Corporate Governance, as well as to years that are preceded by “CY,” which references are to calendar years.

Notes

References to “Notes” are to the Notes to Consolidated Financial Statements contained in Item 8, Financial Statements and Supplementary Data in this Annual Report.

Property

TVA does not own real property. TVA acquires real property in the name of the United States, and such legal title in real property is entrusted to TVA as the agent of the United States to accomplish the purposes of the TVA Act. TVA acquires personal property in the name of TVA. Accordingly, unless the context indicates the reference is to TVA’s personal property, any statement in this Annual Report referring to TVA property shall be read as referring to the real property of the United States which has been entrusted to TVA as its agent.

Available Information

TVA files annual, quarterly, and current reports with the Securities and Exchange Commission ("SEC") under Section 37 of the Securities Exchange Act of 1934. TVA’s SEC filings are available to the public over the Internet on the SEC’s website at www.sec.gov or on TVA's website at www.tva.gov. Information contained on TVA's web site shall not be

deemed to be incorporated into, or to be a part of, this Annual Report.

Table of Contents

PART I

ITEM 1. BUSINESS

The Corporation

The Tennessee Valley Authority ("TVA") is a corporate agency and instrumentality of the United States ("U.S.") that was created in 1933 by legislation enacted by the U.S. Congress in response to a request by President Franklin D. Roosevelt. TVA was created to, among other things, improve navigation on the Tennessee River, reduce the damage from destructive flood waters within the Tennessee River system and downstream on the lower Ohio and Mississippi Rivers, further the economic development of TVA's service area in the southeastern United States, and sell the electricity generated at the facilities TVA operates. Today, TVA operates the nation's largest public power system and supplies power to a population of over nine million people.

TVA manages the Tennessee River, its tributaries, and certain shorelines to provide, among other things, year-round navigation, flood damage reduction, and affordable and reliable electricity. Consistent with these primary purposes, TVA also manages the river system to provide recreational opportunities, adequate water supply, improved water quality, natural resource protection, and economic development. TVA performs these management duties in cooperation with other federal and state agencies which have jurisdiction and authority over certain aspects of the river system. In addition, the TVA Board of Directors (the "TVA Board") established two councils — the Regional Resource Stewardship Council and the Regional Energy Resource Council — under the Federal Advisory Committee Act to advise TVA on its stewardship activities in the Tennessee Valley and its energy resource activities.

Initially, all TVA operations were funded by federal appropriations. Direct appropriations for the TVA power program ended in 1959, and appropriations for TVA's stewardship, economic development, and multipurpose activities ended in 1999. Since 1999, TVA has funded all of its operations almost entirely from the sale of electricity and power system financings. TVA's power system financings consist primarily of the sale of debt securities and secondarily of alternative forms of financing such as lease arrangements. As a wholly-owned government corporation, TVA is not authorized to issue equity securities.

Table of Contents

Service Area

TVA's service area, the area in which it sells power, is defined by the TVA Act. TVA supplies power in most of Tennessee, northern Alabama, northeastern Mississippi, and southwestern Kentucky and in portions of northern Georgia, western North Carolina, and southwestern Virginia. Under the TVA Act, subject to certain minor exceptions, TVA may not, without specific authorization from the U.S. Congress, enter into contracts that would have the effect of making it, or the local power company customers of TVA ("LPCs") which distribute TVA power, a source of power supply outside the area for which TVA or its LPCs were the primary source of power supply on July 1, 1957. This provision is referred to as the “fence” because it bounds TVA’s sales activities, essentially limiting TVA to power sales within a defined service area.

Note
See Power Supply and Load Management Resources — Coal-Fired for a discussion of coal-fired units.

In addition, the Federal Power Act ("FPA") includes a provision that helps protect TVA’s ability to sell power within its service area. This provision, called the "anti-cherrypicking" provision, prevents the Federal Energy Regulatory Commission ("FERC") from ordering TVA to provide access to its transmission lines to others to deliver power to customers within TVA’s defined service area. As a result, the anti-cherrypicking provision reduces TVA’s exposure to loss of customers.

Table of Contents

In 2016, the revenues generated from TVA's electricity sales were $10.5 billion and accounted for virtually all of TVA's revenues. TVA's revenues by state for each of the last three years are detailed in the table below.

Operating Revenues By State
For the years ended September 30
(in millions)

	2016	2015	2014
Alabama	$1,504	$1,582	$1,611
Georgia	255	267	268
Kentucky	640	660	680
Mississippi	999	1,023	1,056
North Carolina	58	58	58
Tennessee	6,968	7,189	7,246
Virginia	48	50	51
Subtotal	10,472	10,829	10,970
Off-system sales	7	18	29
Revenue capitalized during pre-commercial plant operations	(18)[1]	—	—
Revenue from sales of electricity	10,461	10,847	10,999
Other revenues	155	156	138
Total operating revenues	$10,616	$11,003	$11,137

Note
(1) Represents revenue capitalized during pre-commercial operations at Watts Bar Unit 2. See Note 1 — Pre-Commercial Plant Operations.

Customers

TVA is primarily a wholesaler of power, selling power to LPCs which then resell power to their customers at retail rates. TVA's LPCs consist of (1) municipalities and other local government entities ("municipalities") and (2) customer-owned entities ("cooperatives"). These municipalities and cooperatives operate public power electric systems whose primary purpose is not to make a profit but to supply electricity to the general public or the cooperative's members. TVA also sells power directly to certain end-use customers, primarily large commercial and industrial loads and federal agencies with loads larger than 5,000 kilowatts ("kW"). Whether TVA or a LPC serves a new power customer is determined by reference to the TVA-LPC wholesale power contract. The contract contains a formula that balances the size of the LPC and the amount of any TVA infrastructure investment to determine which party is entitled to serve the new customer. In addition, power in excess of the needs of the TVA system may, where consistent with the provisions of the TVA Act, be sold under exchange power arrangements with other specific electric systems. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations — Financial Results — Operating Revenues.

Operating Revenues by Customer Type
For the years ended September 30
(in millions)

	2016	2015	2014
Revenue from sales of electricity			
Local power companies	$9,696	$9,998	$10,062
Industries directly served	649	701	780
Federal agencies and other	134	148	157
Revenue capitalized during pre-commercial plant operations	(18)[1]	—	—
Revenue from sales of electricity	10,461	10,847	10,999
Other revenues	155	156	138

Total operating revenues	$10,616	$11,003	$11,137

Note
(1) Represents revenue capitalized during pre-commercial operations at Watts Bar Unit 2. See Note 1 — Pre-Commercial Plant Operations.

Local Power Companies

Revenues from LPCs accounted for approximately 91 percent of TVA's total operating revenues in 2016. At September 30, 2016, TVA had wholesale power contracts with 154 LPCs. Each of these contracts requires the LPC to purchase from TVA all of its electric power and energy consumed within the TVA service area. Nearly all LPCs purchase power under contracts that require five, ten, twelve, or fifteen years notice to terminate.

Table of Contents

The number of LPCs with the contract arrangements described above, the revenues derived from such arrangements in 2016, and the percentage of TVA's 2016 total operating revenues represented by these revenues are summarized in the table below.

TVA Local Power Company Customer Contracts
At September 30, 2016

Contract Arrangements[1]	Number of LPCs	Sales to LPCs in 2016 (in millions)	Percentage of Total Operating Revenues in 2016	
20-year termination notice	1	$ 2	—	%
15-year termination notice	9	316	3.0	%
12-year termination notice	1	24	0.2	%
10-year termination notice	52	3,465	32.6	%
6-year termination notice	1	46	0.4	%
5-year termination notice	90	5,843	55.0	%
Total	154	$ 9,696	91.2	%

Note
(1) Ordinarily, the LPCs and TVA have the same termination notice period; however, in contracts with five of the LPCs with five-year termination notices, TVA has a 10-year termination notice (which becomes a five-year termination notice if TVA loses its discretionary wholesale rate-setting authority). Two of the LPCs have five-year termination notices or a shorter period if any act of Congress, court decision, or regulatory change requires or permits that election. Also, under TVA's contract with Bristol Virginia Utilities, a five-year termination notice may not be given by the LPC until January 2018.

TVA's two largest LPCs — Memphis Light, Gas and Water Division ("MLGW") and Nashville Electric Service ("NES") — have contracts with five-year and 10-year termination notice periods, respectively. Although no single customer accounted for 10 percent or more of TVA's total operating revenues in 2016, sales to MLGW and NES accounted for nine percent and eight percent, respectively.

The power contracts between TVA and LPCs provide for the purchase of power by LPCs at the wholesale rates established by the TVA Board. Under Section 10 of the TVA Act, the TVA Board is authorized to regulate LPCs to carry out the purposes of the TVA Act through contract terms and conditions as well as through rules and regulations. TVA regulates LPCs primarily through the provisions of TVA's wholesale power contracts. All of the power contracts between TVA and the LPCs require that power purchased from TVA be sold and distributed to the ultimate consumer without discrimination among consumers of the same class and prohibit direct or indirect discriminatory rates, rebates, or other special concessions. In addition, there are a number of wholesale power contract provisions through which TVA seeks to ensure that the electric system revenues of the LPCs are used only for electric system purposes. Furthermore, almost all of these contracts specify the specific resale rates and charges at which the LPC must resell TVA power to its customers. These rates are revised from time to time, subject to TVA approval, to reflect changes in costs, including changes in the wholesale cost of power. The regulatory provisions in TVA's wholesale power contracts are designed to carry out the objectives of the TVA Act, including the objective of providing for adequate supply of power at the lowest feasible rates. See Rates — Rate Methodology below.

TVA also regulates LPC policies for customer deposits, termination, information to consumers, and billing through a service practice policy framework. The framework provides for consistent regulatory policy for ratepayers across the

Tennessee Valley, while recognizing local considerations.

Other Customers

Revenues from directly served industrial customers accounted for approximately six percent of TVA's total operating revenues in 2016. Contracts with these customers are subject to termination by the customer or TVA upon a minimum notice period that varies according to the customer's contract demand and the period of time service has been provided. TVA also serves eight federal customers, including U.S. Department of Energy ("DOE") facilities and military installations, which accounted for approximately one percent of TVA's total operating revenues in 2016.

Rates

Rate Authority

The TVA Act gives the TVA Board sole responsibility for establishing the rates TVA charges for power. These rates are not subject to judicial review or to review or approval by any state or federal regulatory body. Under the TVA Act, TVA is required to charge rates for power that will produce gross revenues sufficient to provide funds for:

- Operation, maintenance, and administration of its power system;
- Payments to states and counties in lieu of taxes ("tax equivalents");
- Debt service on outstanding indebtedness;

Table of Contents

- Payments to the U.S. Treasury in repayment of and as a return on the government's appropriation investment in TVA's power facilities (the "Power Program Appropriation Investment"); and
- Such additional margin as the TVA Board may consider desirable for investment in power system assets, retirement of outstanding bonds, notes, or other evidences of indebtedness ("Bonds") in advance of maturity, additional reduction of the Power Program Appropriation Investment, and other purposes connected with TVA’s power business.

In setting TVA’s rates, the TVA Board is charged by the TVA Act to have due regard for the primary objectives of the TVA Act, including the objective that power shall be sold at rates as low as are feasible.

Rate Methodology

In view of demand for electricity, the level of competition, and other relevant factors, it is reasonable to assume that rates, set at levels that will recover TVA's costs, can be charged and collected from customers. Further, the TVA Board has the discretion to determine when costs will be recovered in rates. As a result of these factors, TVA records certain assets and liabilities that result from the self-regulated ratemaking process that could not otherwise be so recorded under accounting principles generally accepted in the United States. See Note 1 — Cost-Based Regulation and Note 7.

In setting rates to cover the costs set out in the TVA Act, TVA uses a wholesale rate structure that is comprised of a base rate and a fuel rate that is automatically determined each month by the operation of the fuel cost adjustment formula. In setting the base rates, TVA uses a debt-service coverage ("DSC") methodology to derive annual revenue requirements in a manner similar to that used by other public power entities that also use the DSC rate methodology. Under the DSC methodology, rates are calculated so that an entity will be able to cover its operating costs and to satisfy its obligations to pay principal and interest on debt. This ratemaking approach is particularly suitable for use by entities financed primarily, if not entirely, by debt capital, such as TVA.

TVA's revenue requirements for costs or projected costs (other than the fuel, purchased power, and related costs covered by the fuel rate) are calculated under the DSC methodology in order to produce gross revenues sufficient to fund requirements specified in the TVA Act listed under Rate Authority above.

The DSC methodology reflects the cause-and-effect relationship between TVA's costs and the corresponding rates it charges for its regulated products and services. Once the revenue requirements (or projected costs) are determined, they are compared to the projected revenues for the year in question, at existing rates, to arrive at the shortfall or surplus of revenues as compared to the projected costs. Power rates are adjusted by the TVA Board to a level deemed to be sufficient to produce revenues approximately equal to projected costs (exclusive of the costs collected through the fuel rate).

A comprehensive rate restructuring was approved by the TVA Board on August 21, 2015, and implemented on October 1, 2015. With the exception of the annual rate adjustment, changes to rates were designed to be revenue neutral to TVA with varying off-setting impacts to individual customers.

The rate restructuring resulted in structural changes to base rates to improve cost alignment with capacity-related on-peak demand charges and seasonal time-of-use ("TOU") energy rates that differ by on-peak and off-peak periods to better reflect generation costs. Minor changes in revenue allocation were made to improve alignment with cost-of-service, to keep industrial rates competitive, and to keep residential rates affordable. The 2015 TOU rate was unanimously adopted by TVA’s LPCs and by the vast majority of TVA’s directly served customers.

TVA recovers fuel costs and tax equivalents associated with fuel cost adjustments through a monthly rate adjustment reflective of the costs paid by TVA for fuel. Prior to fiscal year 2016, all customers paid the same monthly base fuel rate. On August 21, 2015, the TVA Board approved a new methodology to more accurately allocate fuel costs to two groups of customers: Standard Service (residential and small commercial customers) and Non-Standard Service (large commercial and industrial customers), each with a different monthly fuel rate more reflective of their group’s contribution to total fuel costs. Fuel costs are now allocated to these customer groups in relation to their average hourly loads and TVA's hourly incremental dispatch costs. Total monthly fuel costs include costs for natural gas, fuel oil, coal, purchased power, emission allowances, nuclear fuel, and other fuel-related commodities as well as realized gains and losses on derivatives purchased to hedge the costs of such commodities.

In 2013, the Board approved continuing the collection of the Environmental Adjustment ("EA") charges through the Adjustment Addendum to fund investment in environmental projects. TVA’s existing EA was modified in 2015 to conform to the new wholesale and large-customer base rate designs. While revised slightly, the EA was designed to collect approximately the same revenue as before the rate structuring, approximately $421 million and $439 million in 2016 and 2015, respectively.

On August 25, 2016, the TVA Board approved the annual base rate adjustment with the goal of increasing fiscal year 2017 revenues by approximately $200 million. This increase equates to an approximate 2.4 percent wholesale rate adjustment.

Table of Contents

The Board also took action to approve a revision of the Real Time Energy ("RTE") rate to enhance competitiveness in the north Georgia market segment.

TVA is currently discussing with its customers the need for a rate change to continue the improvements to wholesale pricing begun in 2015, including improved pricing signals; improved rate alignment between wholesale and retail rates; simplification of rates where possible; and improvements to cost recovery and competitive pricing structures. These steps are important to support the TVA Act objective of providing power at the lowest feasible rates.

Power Supply and Load Management Resources

General

Power generating facilities operated by TVA at September 30, 2016, included 29 conventional hydroelectric sites, one pumped-storage hydroelectric site, eight coal-fired sites, three nuclear sites, 15 natural gas and/or oil-fired sites, one diesel generator site, 14 solar energy sites, digester gas cofiring capacity at one coal-fired site, biomass cofiring potential (located at coal-fired sites), and one wind energy site, although certain of these facilities were out of service as of September 30, 2016. See Item 2, Properties — Generating Properties — Net Capability for a discussion of these facilities. TVA also acquires power under power purchase agreements of varying durations including short-term contracts of less than 24-hours in duration. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations — Financial Results — Operating Expenses.

TVA intends to balance production capabilities with power supply requirements by promoting the conservation and efficient use of electricity and, when necessary, buying, building, or leasing assets or entering into power purchase agreements. TVA also intends to employ a diverse mix of energy generating sources and is working toward obtaining greater amounts of its power supply from clean (low or zero carbon emitting) resources.

The following charts show TVA's generation and purchased power by generating source as a percentage of all electric power generated and purchased (based on kWh) for the periods indicated:
Note
Renewable resources (non-hydro) from TVA facilities are less than one percent for all periods shown, and therefore are not represented on the charts above. Purchased power contains the majority of non-hydro renewable energy supply.

Coal-Fired

TVA began its coal-fired plant construction program in the 1940s, and its coal-fired units were placed in service between 1951 and 1973. Coal-fired units are either active or retired. TVA considers units to be in an active state when the unit is generating, available for service, or temporarily unavailable due to equipment failures, inspections, or repairs. All other coal-fired units are considered retired. As of September 30, 2016, TVA had eight coal-fired plants consisting of 35 active units, accounting for 10,285 MW of summer net capability, and 24 retired units: Colbert Fossil Plant ("Colbert") Units 1-5, John Sevier Fossil Plant ("John Sevier") Units 1-4, Johnsonville Fossil Plant ("Johnsonville") Units 5-10, Shawnee Fossil Plant ("Shawnee") Unit 10, and Widows Creek Fossil Plant ("Widows Creek") Units 1-8.

Coal-fired plants have been subject to increasingly stringent regulatory requirements over the last few decades, including those under the Clean Air Act ("CAA") and the regulations promulgated thereunder. Increasing regulatory costs have caused TVA to consider whether or not to make the required capital investments to continue operating these coal-fired facilities. In April 2011, TVA entered into two agreements (collectively, the "Environmental Agreements") to address a dispute under the CAA. The first agreement is a Federal Facilities Compliance Agreement

with the Environmental Protection Agency ("EPA"). The second agreement is with Alabama, Kentucky, North Carolina, Tennessee, and three environmental advocacy groups: the Sierra Club, National Parks Conservation Association, and Our Children's Earth Foundation. Under the Environmental Agreements, TVA agreed to retire 18 of its 59 coal-fired units by the end of 2017 and was generally absolved from any liability, subject to certain limitations and exceptions, under the New Source Review ("NSR") requirements of the CAA for maintenance, repair, and

Table of Contents

component replacement projects that were commenced at TVA's coal-fired units prior to the execution of the agreements. TVA also agreed to retire, repower, or install air pollution controls on 16 of the remaining coal-fired units. Failure to comply with the terms of the Environmental Agreements would subject TVA to penalties stipulated in the agreements. TVA is taking the actions necessary to comply with the Environmental Agreements. TVA is confident that it has adequate capacity to meet the needs of its customers after units are retired under the Environmental Agreements. See Natural Gas and/or Oil-Fired below and Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Generation Resources — Coal-Fired Units.

ANTICIPATED STATUS OF TVA COAL-FIRED PLANTS

Table of Contents

The following table summarizes the actions TVA is required to take under the Environmental Agreements and other coal-fired generation actions taken or to be taken by TVA.

Fossil Plant	Units	Existing Scrubbers and SCRs [1]	Requirements Under Environmental Agreements	Actions Taken by TVA	Actions Planned to be Taken by TVA
Allen	3	SCRs on all three units	- Install scrubbers or retire no later than December 31, 2018	- The Board approved the construction of a gas-fired plant at the current location of the Allen coal-fired site	- Retire Units 1-3 after completion of the gas-fired plant, before September 30, 2018
Bull Run	1	Scrubber and SCRs on unit	- Continuously operate existing emission control equipment	- Continuously operate existing emission control equipment	- Continuously operate existing emission control equipment
Colbert	5	SCR on Unit 5	- Remove from service, control[2], convert[3], or retire Units 1-4 no later than June 30, 2016 - Remove from service, control[2], or retire Unit 5 no later than December 31, 2015 - Control or retire removed from service units within three years	- Retired Units 1-5 on April 16, 2016	
Cumberland	2	Scrubbers and SCRs on both units	- Continuously operate existing emission control equipment	- Continuously operate existing emission control equipment	- Continuously operate existing emission control equipment
Gallatin	4	None	- Control[2], convert[3], or retire all four units no later than December 31, 2017	- The Board approved adding scrubbers and SCRs on all four units	- Add scrubbers and SCRs on all four units by December 31, 2017
John Sevier	4	None	- Retire two units no later than December 31, 2012 - Remove from service two units no later than December 31, 2012 and control[2], convert[3], or retire those units no later than December 31, 2015	- Retired Units 1 and 2 on December 31, 2012 - Retired Units 3 and 4 on June 25, 2014	
Johnsonville	10	None	- Retire six units no later than December 31, 2015 - Retire four units no later than December 31, 2017	- Retired Units 5-10 on December 31, 2015	- Retire Units 1-4 by December 31, 2017
Kingston	9	Scrubbers and SCRs on all nine units	- Continuously operate existing emission control equipment	- Continuously operate existing emission control equipment	- Continuously operate existing emission control equipment
Paradise	3	Scrubbers and SCRs on all three units	- Upgrade scrubbers on Units 1 and 2 no later than December 31, 2012 - Continuously operate emission control equipment on Units 1-3	- The Board approved the construction of a gas-fired plant at the current location of the Paradise coal-fired plant - Upgraded scrubbers on	- Retire Units 1 and 2 after completion of the gas-fired plant by September 30, 2017 - Continuously operate existing emission

				Units 1 and 2	control equipment on Unit 3
Shawnee	10	None	- Control[2], convert[3], or retire Units 1 and 4 no later than December 31, 2017	- Retired Unit 10 on June 30, 2014	- Add scrubbers and SCRs on Units 1 and 4 by December 31, 2017
Widows Creek	8	Scrubbers and SCRs on Units 7 and 8	- Retire two of Units 1-6 no later than July 31, 2013 - Retire two of Units 1-6 no later than July 31, 2014 - Retire two of Units 1-6 no later than July 31, 2015 - Continuously operate existing emissions control equipment on Units 7 and 8	- Retired Units 3 and 5 on July 31, 2013 - Retired Units 1, 2, 4, and 6 on July 31, 2014 - Retired Units 7 and 8 on September 30, 2015	

Notes
(1) Selective catalytic reduction systems ("SCRs")
(2) If TVA decides to add emission controls to these units, TVA must continuously operate the emission controls once they are installed.
(3) Convert to renewable biomass

After TVA completes the actions described in the above table, TVA anticipates that it will have 7,891 MW of summer net capability of coal-fired generation, a reduction of 6,682 MW from TVA's coal-fired capacity as of September 30, 2010. TVA is moving towards a more balanced generation plan with greater reliance on lower-cost and cleaner energy generation technologies. TVA’s long-range plans will continue to consider the costs and benefits of significant environmental investments at its remaining coal-fired plants.

Table of Contents

Nuclear

At September 30, 2016, TVA had three nuclear sites consisting of six units in operation and one unit in pre-commercial operations. The units at Browns Ferry Nuclear Plant ("Browns Ferry") are boiling water reactor units, and the units at Sequoyah Nuclear Plant ("Sequoyah") and Watts Bar Nuclear Plant ("Watts Bar") are pressurized water reactor units. Statistics for each of these units are included in the table below.

TVA Nuclear Power
At September 30, 2016

Nuclear Unit	Status	Nameplate Capacity (MW)	Net Capacity Factor for 2016 (%)	Date of Expiration of Operating License
Sequoyah Unit 1	Operating	1,221	80.4	2040
Sequoyah Unit 2	Operating	1,221	83.9	2041
Browns Ferry Unit 1	Operating	1,264	92.0	2033
Browns Ferry Unit 2	Operating	1,190	94.9	2034
Browns Ferry Unit 3	Operating	1,190	82.5	2036
Watts Bar Unit 1	Operating	1,270	83.4	2035
Watts Bar Unit 2	Pre-Commercial[(1)]	1,220	—	2055

Notes
(1) Watts Bar Unit 2 began commercial operations on October 19, 2016.

Watts Bar Unit 2. On October 22, 2015, the NRC approved the operating license for Watts Bar Unit 2. The license will expire in 2055. Load of fuel was completed in December 2015, and Unit 2 achieved initial criticality on May 23, 2016. The Unit 2 generator was initially synchronized to the TVA power system on June 3, 2016. Power ascension testing on Unit 2 was successfully completed, and commercial operations commenced on October 19, 2016 following the completion of a pre-commercial operations period. Project costs were within the $4.7 billion limit approved by the TVA Board in January 2016. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Generation Resources — Watts Bar Unit 2 and Note 20 — Legal Proceedings — Case Involving Watts Bar Unit 2 Operating License, which discussions are incorporated herein by reference.

Extended Power Uprate. TVA is undertaking an extended power uprate ("EPU") project at Browns Ferry that is expected to increase the amount of electrical generation capacity of its reactors. The license for each reactor must be modified to allow reactor operation at the higher power level.

Because the license amendment requests ("LARs") submitted by TVA to the NRC at the beginning of this project have been under review for an extended time due to uprate-related technical issues, the original amendment request was withdrawn and resubmitted in September 2015. If approved, the license amendment would allow all three units at Browns Ferry to increase capacity by 20 percent over original power levels, inclusive of projects previously completed on Units 1, 2, and 3 which resulted in a five percent increase in capacity.

TVA expects to begin implementing the EPU project starting in the spring of 2018 for Unit 3, the fall of 2018 for Unit 1, and the spring of 2019 for Unit 2, and TVA expects to complete the project in 2024. The project involves engineering analyses and modification and replacement of certain existing plant components to enable the units to produce the additional power requested by the license amendments. These improvements will be ongoing in parallel with the NRC’s license amendment review process. The project is estimated to cost approximately $475 million and expected to add 465 MW of generating capacity. See Note 20 — Administrative Proceeding Regarding Browns Ferry Nuclear Plant Extended Power Uprate.

Bellefonte Nuclear Plant. See Item 2 — Properties — Disposal of Properties and Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Generation Resources — Bellefonte Nuclear Plant.

Other Nuclear Initiatives. TVA has submitted an early site permit license application to the NRC to license small modular reactors ("SMRs") at TVA’s Clinch River Site in Oak Ridge, Tennessee. See Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Generation Resources — Small Modular Reactors.

Other Nuclear Matters. See Fuel Supply — Nuclear Fuel below for a discussion of spent nuclear fuel and low-level radioactive waste, Note 20 — Contingencies for a discussion of TVA's nuclear decommissioning liabilities and the related trust and nuclear insurance, and Note 20 — Legal Proceedings for a discussion of legal and administrative proceedings related to TVA's nuclear program, which discussions are incorporated herein by reference.

Table of Contents

Hydroelectric and Other Renewable Energy Resources

Conventional Hydroelectric Dams. TVA maintains 29 conventional hydroelectric dams with 109 generating units throughout the Tennessee River system for the production of electricity. At September 30, 2016, these units accounted for 3,771 MW of summer net capability. The amount of electricity that TVA is able to generate from its hydroelectric plants depends on a number of factors, including the amount of precipitation and runoff, initial water levels, and the need for water for competing water management objectives. The amount of electricity generated from these facilities also depends on the availability of TVA's hydroelectric generation plants. When these factors are unfavorable, TVA must increase its reliance on higher cost generation plants and purchased power. In addition, a portion of energy generated by nine U.S. Army Corps of Engineers ("USACE") dams on the Cumberland River system contribute to the TVA power system. See Weather and Seasonality below and Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Dam Safety and Remediation Initiatives.

Hiwassee Hydro Unit 2 has a unique reversible turbine/generator that acts as a pump and a turbine. During 2011, the unit’s breakers experienced a major failure and a decision was made not to restore its pumping capabilities at the time. The conventional generation capability continued to operate. However, because the pump enhances TVA's ability to balance baseload generation, it was restored during 2016. Hiwassee Hydro Unit 2 has a summer net capability of 86 MW.

Raccoon Mountain Pumped-Storage Plant. The four units at Raccoon Mountain Pumped-Storage Plant ("Raccoon Mountain") were placed in service during 1978 and 1979. The units, with a total net summer capability of 1,616 MW, are utilized to balance the transmission system as well as generate power. TVA uses electricity generated by its coal-fired and nuclear plants at night to operate pumps that fill the reservoir at Raccoon Mountain. Then, during the day, when power prices are higher, the water is released and the pumps reverse to work as power generating turbines. The cost of generation at Raccoon Mountain, therefore, is linked to the cost of the generating plants that are used to power the pumps.

Hydro Modernization Program. In 1992, TVA began a Hydro Modernization Program to address reliability issues related to its hydroelectric units. At September 30, 2016, modernization had been completed on 57 conventional hydroelectric units and Raccoon Mountain. The modernization projects resulted in 433 MW of increased capacity from the conventional hydroelectric units, with an average efficiency gain of approximately five percent. Hydroelectric generation will continue to be an important part of TVA's energy mix so TVA continues to assess its remaining conventional hydroelectric units for opportunities to improve reliability through major maintenance projects.

Other Renewable Energy Resources. TVA's renewable energy portfolio includes both TVA-owned assets and renewable energy purchases. TVA owns 14 solar sites and capability for digester gas and biomass cofiring. The digester gas cofiring capability is accounted for as coal-fired generation summer net capability. The TVA-owned solar sites provide less than one MW of summer net capability.

TVA tracks its renewable energy claims through the management of renewable energy certificates ("RECs"). These are principally associated with non-hydro renewable energy. In 2016, TVA retired 3,448,945 RECs, which were principally from purchased power. Additionally, TVA retires RECs on behalf of customers in the Green Power Switch® ("GPS") program and other customer-based programs that enable customers to claim RECs.

Natural Gas and/or Oil-Fired

On September 30, 2016, TVA’s natural gas- and oil-fired fleet consisted of 99 combustion turbine power blocks (87 simple-cycle units and 12 combined-cycle power blocks). The 87 simple-cycle units provide a maximum of 5,738 MW of summer net capability. The 12 combined-cycle power blocks provide a maximum of 4,572 MW of summer net capability. Eighty of the simple-cycle units and one combined-cycle power block are fueled by either natural gas or fuel oil. The remaining seven simple-cycle units and the remaining 11 combined-cycle power blocks are fueled by natural gas only. Sixty of the simple-cycle units are currently capable of quick-start response allowing full generation capability in approximately 10 minutes. The economic dispatch of natural gas-fired plants depends on both the day-to-day price of natural gas and the price of other available intermediate resources like coal-fired plants. TVA uses simple-cycle units to meet peaking or backup power needs.

TVA’s strategy of portfolio diversification and air emissions reductions includes the addition of natural gas-fired plants to its generation fleet. At September 30, 2016, TVA had two natural gas-fired generation facilities under construction. One facility, with an expected generation capacity of approximately 1,000 MW, is being constructed at TVA’s Paradise Fossil Plant ("Paradise") site. This facility is expected to be completed in the spring of 2017. A second facility, with an expected generation capacity of approximately 1,000 MW, is being constructed at the Allen Fossil Plant ("Allen") site and is expected to be completed in 2018. Upon completion of each facility, existing coal-fired units at each site will be retired with the exception of Paradise Unit 3, which will continue to be operated. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Generation Resources — Natural Gas-Fired Units.

Table of Contents

See Item 2, Properties — Generating Properties and Note 12 for a discussion of lease arrangements into which TVA has entered in connection with certain combustion turbine units. Because of TVA's strategy of portfolio diversification and reduction of air emissions, TVA may decide to make further strategic investments in natural gas-fired facilities in the future by purchase, construction, or lease.

Diesel Generators

At September 30, 2016, TVA had one diesel generator plant consisting of five units, and this facility accounted for 9 MW of summer net capability.

Energy Efficiency, Demand Response, and Renewable Energy Programs

During 2015, the TVA Board approved the 2015 Integrated Resource Plan ("IRP") as a guide in making decisions about the energy resources TVA may use to meet future demand for electricity in the Tennessee Valley. The purpose of integrated resource planning is to meet future power demand by identifying the need for generating capacity and determining the best mix of resources to meet the need on a least-cost, system-wide basis. The 2015 IRP affirms the merits of a diverse portfolio including energy efficiency/demand response and renewable energy. Changes to TVA load forecasts and the recognition of the increasing penetration of generation and energy management technologies require an awareness of the evolving role of energy efficiency, demand response, and renewable generation. These resources, together with other options that are typically connected to the distribution systems of the LPCs, represent a new component in the utility marketplace called distributed energy resources ("DER"). Because of its unique business model, TVA will engage LPCs as it considers new and innovative ways to ensure that evolving resource portfolios remain reliable and provide the most value to all customers.

Energy Efficiency/Demand Response. The IRP considered a broad range of feasible supply-side and demand-side options and assessed them with respect to financial, economic, and environmental impacts. Energy efficiency was modeled as a selectable, supply-side equivalent resource. Implementing energy efficiency programs will require close cooperation among TVA, local stakeholders, LPCs, and electric customers, particularly around deployment of additional energy efficiency resources. The success of energy efficiency depends on end-use customer participation. Generation or purchased power avoided by efficiency standards, TVA’s EE programs, and individual customer actions accounted for six percent of TVA’s 2016 and five percent of TVA’s 2015 resource mix.

TVA is primarily a wholesale power provider. Because the LPCs are the service provider for most end-use customers, TVA will need to work with LPCs and others in the region to design additional delivery mechanisms to achieve the levels of penetration required to optimize the implementation of DER.

TVA, in cooperation with its customers, continues to implement a broad portfolio of energy efficiency, demand response, and system load enhancement programs and projects designed to help reduce long-term energy supply costs in the TVA service area through EnergyRight® Solutions ("ERS") programs. Through these programs, TVA realized 381 gigawatt hours ("GWh") and 412 GWh of energy efficiency savings in 2016 and 2015, respectively.

ERS programs continue to be modified with the implementation of the eScore program, which includes a wireless data collection system to more effectively document and process residential evaluation data. TVA launched the eScore design throughout the Tennessee Valley in December 2014 with greater focus on establishing a long-term efficiency improvement relationship with participating homeowners and has completed nearly 35,000 homes through September 30, 2016. The ERS programs also include demand reduction efforts such as dispatchable voltage regulation which contribute to TVA's management of peak loads.

Renewable Energy Programs. TVA's Green Power Switch® ("GPS") program is a voluntary program that supports the production of renewable energy by allowing consumers to purchase such energy either through the LPCs or from TVA for directly served customers. Supply for the retail portion of the program is sourced from within the TVA service area and sold in 150 kWh blocks. In addition to the standard retail program, TVA continues to test a lower-priced bulk option under GPS that allows for larger commercial and industrial customers located within certain portions of TVA's service area to purchase REC products. A REC is an environmental commodity that represents the environmental attributes of one MWh of renewable energy. Supply for the bulk option is sourced from TVA-contracted renewable energy within the greater Southeastern region. TVA also tested a 100-percent solar option for retail customers, which ended in July 2015. In total, consumers participating in GPS purchased the equivalent of 202,158 MWh of renewable energy in CY 2015. Renewable capacities are stated in terms of direct current (“DC”) nameplate ratings.

In 2013, TVA replaced its Generation Partners ("GP") program with the Green Power Providers ("GPP") program for the purpose of encouraging the development of small-scale solar, wind, biomass, and hydroelectric generation systems across the Tennessee Valley that are 50 kW or less. The GPP program was not fully subscribed for CY 2015. As of September 30, 2016, the combined participation for the GP and GPP programs comprised more than 100 MW of operating generation with 4.16 MW of additional approved capacity in the GPP program that has yet to become operational.

Table of Contents

The Renewable Standard Offer ("RSO") program is a voluntary program that began in 2011 to increase the amount of renewable energy generated in TVA's service territory. This program offers pre-set prices, terms, and conditions for power generated by selected, commercially available renewable energy technologies. Solar, wind, and specific biomass projects are included in the program. Projects must be greater than 50 kW, but no greater than 20 MW, in nameplate capacity. TVA demonstrated its continued commitment to renewable energy by offering to purchase an additional 100 MW under the RSO program in CY 2015. As of September 30, 2016, TVA had over 79 MW of operating generation and an additional 120.5 MW under application or contract not yet operating. The RSO offering was sunset in 2015, but the program remains open to projects that have existing capacity allocations and are in the process of being completed. The utility-scale renewable energy sector has matured in recent years and is becoming more competitive with traditional energy resources. Accordingly, starting in 2016, utility-scale renewable energy projects are no longer limited by programmatic caps but are competitively evaluated alongside other generation sources.

In an effort to continue to evaluate the value of small to medium scale renewable projects, TVA extended the Solar Solution Initiative ("SSI"). SSI was a targeted incentive program that aimed to support the existing local solar industry while also serving as a recruitment tool for new industry in the Tennessee Valley region by retaining and adding investment and jobs. The program provided incentive payments for mid-sized (greater than 50 kW up to 1 MW) solar projects in TVA's RSO program if the projects used local certified installers in the Tennessee Valley region. At the beginning of 2016, SSI transitioned to the Distributed Solar Solutions ("DSS") pilot. DSS is designed to encourage renewable energy projects that are directed by TVA’s LPCs. Projects can range in size from greater than 50 kW up to 5 MW of solar electric energy. For the CY 2016 program year, TVA awarded 16.7 MW of renewable solar capacity to seven different projects in four LPC territories.

New energy management systems and energy storage technologies present opportunities for more sophisticated and integrated operation of the entire grid. The advent of electric vehicles and small-scale renewable generation has hastened the development of battery technologies that have the potential to mitigate the intermittent supply issues associated with many renewable generation options. Implementation of the technologies in conjunction with two-way communication to the site creates the potential for better management of other distributed energy resources on the grid.

Onsite energy management technologies and the proliferation of companies interested in providing services to support and aggregate the impacts of such systems provide another DER avenue. Such systems can afford the consumer benefits through reduced consumption, increased comfort, detailed energy use data, and savings from time-sensitive rate structures. TVA and LPCs must consider the integration of the impacts from changes in usage patterns generated by the application of such systems.

Demand response systems that take advantage of the increasing communications sophistication to homes, businesses, and distribution system assets also afford the opportunity for more granular control of system demand. Technologies can manage individual customer systems to shift usage from peak to off-peak periods and create significant reductions in the need for peak generation output. More sophisticated distribution control systems can also lower peak demand through control of excess voltage on the system on either a dispatchable or continuous basis.

TVA is leading an initiative with the goal of determining the value of distributed resources for its system. Initial efforts are focused on small-scale distributed (rooftop) solar, but the method is general enough to allow for value determination for other distributed options. Work is ongoing, led by a team that includes technical support from the Electric Power Research Institute ("EPRI"), to develop a methodology to identify site preferences on the distribution systems of the LPCs. This work, along with locational analysis already completed by TVA, will help in placing utility-scale solar in furtherance of the IRP recommendations as well as distributed solar to meet the needs of LPCs. See Research and Development.

Purchased Power and Other Agreements

TVA acquires power from a variety of power producers through long-term and short-term power purchase agreements as well as through power spot market purchases. During 2016, TVA acquired approximately eight percent of the power that it purchased on the power spot market, approximately one percent through short-term power purchase agreements, and approximately 91 percent through the long-term power purchase agreements, including the long-term renewable generation resources, described below.

Table of Contents

A portion of TVA’s capability provided by power purchase agreements is provided under contracts that expire between 2023 and 2038, and the most significant of these contracts are described in the table below. TVA has executed contracts with two solar facilities that are under development. One, located in northwest Alabama, is expected to begin commercial operation during the first quarter of 2017, and the other, located in western Tennessee, is expected to begin commercial operation during the fourth quarter of 2018. TVA, along with others, contract with the Southeastern Power Administration ("SEPA") to obtain power and energy from nine USACE hydroelectric facilities on the Cumberland River system. The agreement with SEPA can be terminated upon three years’ notice, but this termination may not become effective prior to June 30, 2017. The contract requires SEPA to provide TVA an annual minimum number of hours of energy for each megawatt of TVA’s capacity allocation, and all surplus energy from the hydroelectric facilities on the Cumberland River system. These contracts have been included in the table below.

Power Purchase Contracts (Excluding Wind Contracts)
At September 30, 2016

Type of Facility	Location	Summer Net Capability (MW)		Contract Termination Date
Lignite	Mississippi	440		2032
Natural gas	Alabama	720		2023
Natural gas	Alabama	615		2026
Solar	Alabama	75	(1)	2037
Solar	Tennessee	53	(2)	2038
Hydro	Tennessee and Kentucky	347	(3)	Upon three years' notice

Notes
(1) Power delivery is expected to commence in November 2016.
(2) Power delivery is expected to commence in July 2018.
(3) TVA’s contract with SEPA is for 405 MW of capacity; however, at September 30, 2016 TVA’s capacity under the contract was 347 MW because of repairs being completed at certain of the U.S. Army Corps of Engineer facilities marketed by SEPA. TVA expects this period of reduced capacity to be in effect until 2019.

Under federal law, TVA is required to purchase energy from qualifying cogenerators and small power producers at TVA's avoided cost of self-generating or purchasing this energy from another source. TVA fulfills this requirement through the Dispersed Power Production Program. As of September 30, 2016, there were 25 generation sources, with a combined qualifying capacity of 259 MW, whose power TVA purchases under this law.

As of September 30, 2016, TVA was a party to contracts with eight wind farms for the purchase of energy. TVA's most significant wind contracts are described in the table below.

Wind Contracts
At September 30, 2016

Location of Wind Farm	Contracted Nameplate Capacity (in MW)	Date Delivery Began	Contract Termination Date
Iowa	198	2010	2031
Iowa	101	2012	2030
Kansas	201	2012	2032
Kansas	165	2013	2033
Illinois	150	2012	2032
Illinois	200	2012	2032
Illinois	200	2013	2033

In addition, TVA has contracted for 27 MW of nameplate renewable energy capacity from 15 wind turbine generators located on Buffalo Mountain near Oak Ridge, Tennessee, 4.8 MW of nameplate capacity from a landfill gas facility near Knoxville, Tennessee, and 4.5 MW of nameplate capacity from a solar farm in Haywood County, Tennessee.

Fuel Supply

General

TVA’s consumption of various types of fuel depends largely on the demand for electricity by TVA’s customers, the availability of various generating units, and the availability and cost of fuel. See Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations — Financial Results — Operating Expenses.

Table of Contents

Coal

Coal consumption at TVA's coal-fired generating facilities during 2016 and 2015 was approximately 24 million tons and 28 million tons, respectively. At September 30, 2016, and September 30, 2015, TVA had 31 days and 32 days of system-wide coal supply at full burn rate, respectively, with net book values of $252 million and $316 million, respectively.

TVA utilizes both short-term and long-term (longer than one year) coal contracts. During 2016, long-term contracts made up 97 percent of coal purchases and short-term contracts accounted for the remaining three percent. TVA plans to continue using contracts of various lengths, terms, and coal quality to meet its expected consumption and inventory requirements. During 2016 and 2015, TVA purchased coal by basin as follows:
The following charts present the proportion of each delivery method TVA utilizes for its coal supply for the periods indicated:
Generally, total system coal inventories were at or above target levels for the first half of 2016 due to lower than planned coal-fired generation requirements. However, due to higher temperatures, lower rainfall, and less hydroelectric generation, inventories at some facilities fell below target levels during 2016 as TVA increased the amount of coal used to meet generation needs.

Table of Contents

Natural Gas and Fuel Oil

During 2016, TVA purchased a significant amount of its natural gas requirements from a variety of suppliers under contracts with terms of up to three years and purchased substantially all of its fuel oil requirements on the spot market. See Note 14 — Derivatives Not Receiving Hedge Accounting Treatment — Derivatives Under FTP. The net book value of TVA's natural gas inventory was $7 million and $8 million at September 30, 2016, and 2015, respectively. The net book value of TVA's fuel oil inventory was $86 million and $90 million at September 30, 2016, and 2015, respectively. At September 30, 2016, 80 of the combustion turbines that TVA operates were dual-fuel capable, and TVA has fuel oil stored on each of these sites for its dual-fuel combustion turbines as a backup to natural gas.

TVA purchases natural gas from multiple suppliers on a daily, monthly, seasonal, and annual basis. During 2016, daily, monthly, seasonal, and annual contracts accounted for 54 percent, eight percent, 25 percent and 13 percent of purchases, respectively. TVA plans to continue using contracts of various lengths and terms to meet the projected natural gas needs of its natural gas fleet. During 2016, TVA transported natural gas on eight separate pipelines, with approximately 40 percent being transported on a single pipeline. During 2016, TVA maintained a total of approximately 988,500 MMBtu/Day of firm transportation capacity on seven major pipelines, with approximately 42 percent of total firm transportation capacity being maintained on a single pipeline.

TVA utilizes natural gas storage services at four facilities with a total capacity of 4.58 Bcf of firm service and 0.30 Bcf of interruptible service to manage the daily balancing requirements of the eight pipelines used by TVA, with approximately 41 percent of the total storage capacity being maintained at a single facility. During 2016, storage levels were generally maintained at between 40 and 80 percent of the maximum contracted capacity at each facility. As TVA's natural gas requirements grow, it is anticipated that additional storage capacity will be acquired to meet the needs of the generating assets as well as their operating requirements. In 2017, TVA expects to add a minimum of 1.50 Bcf of firm capacity to its storage portfolio.

Nuclear Fuel

Current Fuel Supply. Converting uranium to nuclear fuel generally involves four stages: the mining and milling of uranium ore to produce uranium concentrates; the conversion of uranium concentrates to uranium hexafluoride gas; the enrichment of uranium hexafluoride; and the fabrication of the enriched uranium hexafluoride into fuel assemblies. For its forward four-year (2017-2020) requirements, TVA currently has 100 percent of its uranium mining and milling, conversion services, enrichment services, and fabrication services requirements either in inventory or under contract. TVA anticipates being able to fill its needs beyond this period by normal contracting processes as market forecasts indicate that the fuel cycle components will be readily available. In 2016, TVA obtained the fuel assemblies loaded into its nuclear power plants from two fabricators.

TVA, DOE, and certain nuclear fuel contractors have entered into agreements providing for surplus DOE highly enriched uranium (uranium that is too highly enriched for use in a nuclear power plant) to be blended with other uranium. The enriched uranium that results from this blending process, which is called blended low-enriched uranium ("BLEU"), is fabricated into fuel that can be used in a nuclear power plant. This blended nuclear fuel was first loaded in a Browns Ferry reactor in 2005 and is expected to continue to be used to reload the Browns Ferry reactors through at least 2017. BLEU fuel was loaded into Sequoyah Unit 2 three times but is not expected to be used in the Sequoyah reactors in the future.

Under the terms of an interagency agreement between the DOE and TVA, in exchange for supplying highly enriched uranium materials for processing into usable BLEU fuel for TVA, the DOE participates in the savings generated by TVA's use of this blended nuclear fuel. See Note 1 — Blended Low-Enriched Uranium Program for a more detailed discussion of the BLEU project.

Mixed Oxide Nuclear Fuel. Under the DOE Surplus Plutonium Disposition ("SPD") Program, mixed oxide ("MOX") fuel would be fabricated with surplus plutonium and depleted uranium as a replacement for commercial uranium fuel. In February 2010, the DOE and TVA entered into an interagency agreement to evaluate the potential use of MOX fuel in reactors at Browns Ferry and Sequoyah. As part of the evaluation of MOX fuel, TVA participated as a cooperating agency in the DOE's development of the April 2015 final supplemental environmental impact statement ("EIS") that addresses the potential use of MOX fuel in the TVA reactors. A decision to use MOX fuel is not required or expected for several years. At the earliest, based on the expected production rate of MOX fuel, TVA could start using a small number of MOX fuel assemblies in TVA reactors after 2020. TVA's three criteria for implementing MOX fuel are that it must be environmentally and operationally safe; it must be economical compared to other nuclear fuel used by TVA; and it must be licensed by the NRC for use. If TVA decides to use MOX fuel and the NRC approves its use, some changes in the operation of the reactors are expected and additional equipment may be required. As TVA continues to evaluate fuel options, current fuel supply plans do not include MOX fuel.

Low-Level Radioactive Waste. Low-level radioactive waste ("radwaste") results from certain materials and supplies used in the normal operation of nuclear electrical generation units. TVA sends shipments of radwaste to burial facilities in Clive, Utah and Andrews, Texas. TVA is capable of storing some radwaste at its own facilities for an extended period of time, if necessary.

Table of Contents

Spent Nuclear Fuel. The Sequoyah dry cask storage facilities have been in use since 2004 and are expected to provide storage capacity through 2026. The Browns Ferry dry cask storage facilities have been in use since 2005. Completed and planned expansion to Browns Ferry independent spent fuel storage installation facilities, including implementation of larger storage casks, is expected to extend storage capacity from 2016 to 2030. TVA began loading used fuel into the new larger casks at Browns Ferry and Sequoyah in 2015. Watts Bar has sufficient storage capacity in its spent fuel pool through CY 2016. During 2016, TVA completed the construction of an independent spent fuel installation pad for spent fuel storage at Watts Bar, and cask loading began in September 2016. To recover the cost of providing long-term, on-site storage for spent nuclear fuel, TVA filed a breach of contract suit against the United States in the Court of Federal Claims in 2001. As a result of this lawsuit and related agreements, TVA has collected approximately $172 million through 2016.

Tritium-Related Services. TVA and the DOE are engaged in a long-term interagency agreement under which TVA will, at the DOE’s request, irradiate tritium producing burnable absorber rods to assist the DOE in producing tritium for the Department of Defense ("DOD"). This agreement, which ends in 2035, requires the DOE to reimburse TVA for the costs that TVA incurs in connection with providing irradiation services and to pay TVA an irradiation services fee at a specified rate per tritium-producing rod over the period when irradiation occurs.

In general, tritium-producing rods are irradiated for one operating cycle, which lasts about 18 months. At the end of the cycle, TVA removes the irradiated rods and loads them into a shipping cask. The DOE then ships them to its tritium-extraction facility. TVA loads a fresh set of tritium-producing rods into the reactor during each refueling outage. Irradiating the tritium-producing rods does not affect TVA’s ability to safely operate the reactors to produce electricity.

TVA has provided irradiation services using only Watts Bar Unit 1 since 2003. Although the interagency agreement provides for irradiation services to be performed at Watts Bar and Sequoyah, TVA expects the Watts Bar site to provide sufficient capacity to fulfill this agreement. In December 2015, the DOE notified TVA of future increased needs for tritium requiring the use of a second reactor. TVA was a cooperating agency in the February 2016 DOE Final Supplemental Environmental Impact Statement for the Production of Tritium in a Commercial Light Water Reactor, in which DOE’s preferred alternative included use of an additional reactor. TVA is assessing the potential for tritium production in Watts Bar Unit 2 to meet the DOE’s future tritium needs.

Transmission

The TVA transmission system is one of the largest in North America. TVA’s transmission system has 71 interconnections with 12 neighboring electric systems, and delivered nearly 159 billion kWh of electricity to TVA customers in 2016. In carrying out its responsibility for transmission grid reliability in the TVA service area, TVA has operated with 99.999 percent reliability over the last 17 years in delivering electricity to customers. See Item 2, Properties — Transmission Properties.

To the extent that federal law requires access to the TVA transmission system, TVA offers transmission services to others to transmit wholesale power in a manner that is comparable to TVA's own use of the transmission system. TVA has also adopted and operates in accordance with its published transmission Standards of Conduct and separates its transmission functions from its marketing functions.

TVA is subject to federal reliability standards that are set forth by the North American Electric Reliability Corporation ("NERC") and approved by FERC. These standards are designed to maintain the reliability of the bulk electric system, including TVA’s generation and transmission system, and include areas such as maintenance, training, operations, planning, modeling, critical infrastructure, physical and cyber security, vegetation management, and facility ratings. TVA recognizes that reliability standards and expectations continue to become more complex and stringent for

transmission systems. At present there are approximately 100 mandatory standards subject to enforcement containing approximately 1,200 requirements and sub-requirements that must be met. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Regulatory Compliance — Transmission Issues.

Transmission upgrades may be required to maintain reliability when some coal-fired generating units are retired. TVA invested $362 million in such upgrades between 2011 and 2016, and estimates future expenditures for transmission upgrades required as a result of retired coal-fired units to be approximately $70 million for 2017 to 2020. Upgrades may include enhancements to existing lines and substations or new installations as necessary to provide adequate power transmission capacity, maintain voltage support, and ensure generating plant and transmission system stability.

Weather and Seasonality

Weather affects both the demand for and the market prices of electricity. TVA’s power system is generally a dual-peaking system in which the demand for electricity peaks during the summer and winter months to meet cooling and heating needs. TVA uses degree days to measure the impact of weather on its power operations. Degree days measure the extent to which average temperatures in the five largest cities in TVA's service area vary from 65 degrees Fahrenheit. See Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations — Sales of Electricity.

Table of Contents

Rainfall in the Upper Basin of the Tennessee Valley was 103 percent of normal for 2016 and 106 percent of normal in 2015. Also, runoff was 104 percent of normal in 2016 and 93 percent of normal in 2015. Runoff is the amount of rainfall that is not absorbed by vegetation or the ground and actually reaches the rivers and reservoirs that TVA manages. TVA's conventional hydroelectric generation decreased eight percent in 2016 as compared to 2015, and increased six percent in 2015 as compared to 2014. Conventional hydroelectric generation was approximately 93 percent of normal in 2016 and 101 percent of normal in 2015.

Competition

TVA provides electricity in a service area that is largely free of competition from other electric power providers. This service area is defined primarily by two provisions of law: the fence and the anti-cherry-picking provision. The fence limits the region in which TVA or LPCs which distribute TVA power may provide power. The anti-cherry-picking provision limits the ability of others to use the TVA transmission system for the purpose of serving customers within TVA's service area. However, other utilities may use their own transmission lines to serve customers within TVA's service area, underscoring the need for TVA to strategically price its products and services and design rates to be competitive. There have also been some efforts in the past to erode the protection of the anti-cherry-picking provision, and the protection of the anti-cherry-picking provision could be limited and perhaps eliminated by congressional legislation at some time in the future.

TVA also faces competition in the form of emerging technologies. Improvements in energy efficiency technologies, growing smart technologies, and energy storage technologies may reduce the demand for centrally provided power. The growing interest by customers to generate their own power through distributed generation (including solar power) has the potential to lead to a reduction in the load served by TVA as well as cause TVA to re-evaluate how it operates the overall grid system to continue to provide highly reliable power at affordable rates. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Distributed Energy Resources.

Finally, TVA and other utility companies are facing an evolving marketplace of increased competition driven by customer choice and behavior. As technology develops, consumers' demands for the ability to access multiple products and customize services may increase, creating opportunities for growth with new products and services resulting from emerging technologies.

Research and Development

TVA makes annual investments in science and technological innovation to help meet future business and operational challenges. Each year, TVA's annual research portfolio is updated based on a broad range of operational and industry drivers that help assess key technology gaps, performance issues, or other significant issues that should be addressed through research and development. Core research activities directly support optimization of TVA's generation and transmission assets, air and water quality, energy utilization, and distributed/clean energy integration.

In the area of energy utilization, TVA evaluates emerging energy efficiency and load management technologies for market and program readiness. TVA's efforts are directed towards demonstrating and validating the performance, reliability, and consumer acceptance of new efficiency technology as well as the value of energy efficiency and load management technologies for the consumer, the LPCs, and TVA. Current initiatives include:

- Smart Houses — test houses built to evaluate residential building techniques, energy efficiency, demand response technologies, and consumer smart grid concepts in a controlled, simulated occupancy research environment;
-

Hyperefficient HVAC — nationwide utility collaboration evaluating six technologies for residential and commercial applications, including ductless heat pumps and air conditioners, variable capacity air conditioning, LED street and area lighting, and efficient data centers for the commercial sector;

- Grid-Empowered Consumers — comparative field test to evaluate the energy and demand savings potential of grid-enabled residential appliances in 20 test homes; and

- Electric Vehicle Readiness — coordination of activities with EPRI and industry stakeholders related to transportation electrification to support operational fleet requirements and the needs of LPCs to provide guidance on matters of plug-in electric vehicle grid integration and readiness for transportation electrification technologies.

Another area of focus for TVA is electric transportation and the continuing advancement of battery technology, infrastructure, and charging stations. Research in this area includes compatibility of charging stations to work efficiently with various types of electric vehicles, impact of charging stations on the power grid, refinement of power-system control processes to maximize energy efficiency, and development of smart charging strategies to maximize the potential of electricity to replace petroleum as the fuel of choice.

TVA and its LPCs are developing research technologies with the potential to advance an intelligent transmission system. Smart meter technology has the potential to shift usage patterns away from peak demand times which could change

Table of Contents

costs significantly. Additionally, an intelligent transmission system would give TVA the ability to nearly instantaneously diagnose problems, make corrections, and engage transmission and generation resources quickly so that power would keep flowing. This could promote reduced emissions, lower energy costs, and add greater flexibility to accommodate the new consumer-generated sources under TVA's renewable energy programs. See Power Supply and Load Management Resources — Energy Efficiency, Demand Response, and Renewable Energy Programs.

Finally, TVA is evaluating smaller, clean power sources that can be aggregated to provide power necessary to meet regular demand. Research efforts into these clean DER seek to understand the scope and impact of DER on operations and business economics and to develop strategies for adapting to the evolving electricity landscape in the Tennessee Valley. Of particular interest is modeling existing and expected solar power deployments in the Tennessee Valley to evaluate the full extent of system impacts of those renewable resources. Initial economic analyses have been conducted to identify the value of DER (particularly photovoltaic solar generation) to both TVA and the LPC system. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Distributed Energy Resources.

Investments in TVA's research portfolio are supported through partnership and collaboration with LPCs, EPRI and other research consortiums, the DOE and other federal agencies, national labs, peer utilities, universities, and industry vendors and participation in professional societies.

Flood Control Activities

The Tennessee River watershed has one of the highest annual rainfall totals of any watershed in the United States, averaging 51 inches per year. During 2016, approximately 55 inches of rain fell in the Tennessee Valley. TVA manages the Tennessee River system in an integrated manner, balancing hydroelectric generation with navigation, flood damage reduction, water quality and supply, and recreation. TVA spills or releases excess water through the tributary and main stem dams in order to reduce flood damage to the Tennessee Valley. TVA typically spills only when all available hydroelectric generating turbines are operating at full capacity and additional water still needs to be moved downstream.

Environmental Stewardship Activities

TVA's mission includes managing the Tennessee River, its tributaries, and federal lands along the shoreline to provide, among other things, year-round navigation, flood damage reduction, affordable and reliable electricity, and, consistent with these primary purposes, recreational opportunities, adequate water supply, improved water quality, and natural resource protection. There are 49 dams that comprise TVA's integrated reservoir system. Each dam may also have ancillary structures used to support or assist the main dam's function. The reservoir system provides approximately 800 miles of commercially navigable waterways and also provides significant flood reduction benefits both within the Tennessee River system and downstream on the lower Ohio and Mississippi Rivers. The reservoir system also provides a water supply for residential and industrial customers, as well as cooling water for TVA's coal-fired plants, combined cycle plants, and nuclear power plants. TVA's Environmental Policy, which was adopted by the TVA Board in 2008, provides objectives for an integrated approach related to providing cleaner, reliable, and affordable energy, supporting sustainable economic growth, and engaging in proactive environmental stewardship. The Environmental Policy provides additional direction in several environmental stewardship areas, including water resource protection and improvements, sustainable land use, and natural resource management.
TVA serves the people of the TVA region through the integrated management of the Tennessee River system and public lands, which includes approximately 11,000 miles of shoreline, 650,000 surface acres of reservoir water, and 293,000 acres of reservoir lands. TVA accomplishes this mission and supports the objectives of the TVA Environmental Policy through implementation of its Natural Resources Stewardship strategy. Within this strategy, TVA confirms a desire to remain agile, balance competing demands, and be a catalyst for collaboration in order to

protect and enhance biological, cultural, and water resources as well as create and sustain destinations for recreation and opportunities for learning and research. As part of the strategy, TVA will also assist water-based community development with technical support, land agreements, and permitting using planning, clear regulations, meaningful guidelines, and consistent enforcement. Additional guidance for carrying out many of TVA's essential stewardship responsibilities is provided in TVA's Natural Resource Plan. The Natural Resource Plan will be reviewed and updated as needed.

Economic Development Activities

Since its creation in 1933, TVA has promoted the development of the Tennessee Valley. Economic development, along with energy production and environmental stewardship, is one of the purposes of TVA. TVA works with its LPCs, regional, state, and local agencies, and communities to showcase the advantages available to businesses locating or expanding in TVA's service area. TVA's primary economic development goals are to recruit companies to locate in the Tennessee Valley, encourage expansion of existing business and industry that provide quality jobs, and assist communities in the Tennessee Valley with economic growth opportunities. TVA seeks to meet these goals through a combination of initiatives and partnerships designed to provide financial assistance, technical services, industry expertise, and site-selection assistance to new and existing businesses.

Table of Contents

Economic development programs developed by TVA include those which focus on supporting all communities including rural and economically distressed communities across the Tennessee Valley by working in close partnership with other federal and state organizations. TVA also jointly offers incentive programs with participating LPCs. These programs offer competitive incentives to existing and potential power customers in certain business sectors that make multi-year commitments to invest in the Tennessee Valley. In addition to financial support for these programs, TVA offers resources to communities and economic developers in the areas of recruitment, leadership development, industrial product preparedness (sites and buildings), planning, and project assistance.

TVA's economic development efforts helped recruit or expand over 244 companies into the TVA service area during 2016. These companies announced capital investments of over $8.3 billion and the expected creation and/or retention of over 72,100 jobs.

Regulation

Congress

TVA exists pursuant to legislation enacted by Congress and carries on its operations in accordance with this legislation. Congress can enact legislation expanding or reducing TVA's activities, change TVA's structure, and even eliminate TVA. Congress can also enact legislation requiring the sale of some or all of the assets TVA operates or reduce the United States's ownership in TVA. To allow TVA to operate more flexibly than a traditional government agency, Congress exempted TVA from all or parts of certain general federal laws that govern other agencies, such as federal labor relations laws and the laws related to the hiring of federal employees, the procurement of supplies and services, and the acquisition of land. Other federal laws enacted since the creation of TVA that are applicable to other agencies have been made applicable to TVA, including those related to paying employees overtime and protecting the environment, cultural resources, and civil rights.

Securities and Exchange Commission

Section 37 of the Securities Exchange Act of 1934 (the "Exchange Act") requires TVA to file with the SEC such periodic, current, and supplementary information, documents, and reports as would be required pursuant to Section 13 of the Exchange Act if TVA were an issuer of a security registered pursuant to Section 12 of the Exchange Act. Section 37 of the Exchange Act exempts TVA from complying with Section 10A(m)(3) of the Exchange Act, which requires each member of a listed issuer's audit committee to be an independent member of the board of directors of the issuer. Since TVA is an agency and instrumentality of the United States, securities issued or guaranteed by TVA are "exempted securities" under the Securities Act of 1933, as amended (the "Securities Act"), and may be offered and sold without registration under the Securities Act. In addition, securities issued or guaranteed by TVA are "exempted securities" and "government securities" under the Exchange Act. TVA is also exempt from Sections 14(a)-(d) and 14(f)-(h) of the Exchange Act (which address proxy solicitations) insofar as those sections relate to securities issued by TVA, and transactions in TVA securities are exempt from rules governing tender offers under Regulation 14E of the Exchange Act. Also, since TVA securities are exempted securities under the Securities Act, TVA is exempt from the Trust Indenture Act of 1939 insofar as it relates to securities issued by TVA, and no independent trustee is required for these securities.

Federal Energy Regulatory Commission

Under the FPA, TVA is not a "public utility," a term which primarily refers to investor-owned utilities. Therefore, TVA is not subject to the full jurisdiction that FERC exercises over public utilities under the FPA. TVA is, however, an "electric utility" and a "transmitting utility" as defined in the FPA and, thus, is directly subject to certain aspects of FERC's jurisdiction.

Under Section 215 of the FPA, TVA must comply with certain standards designed to maintain transmission system reliability. These standards are approved by FERC and enforced by NERC.

Under Section 210 of the FPA, TVA can be ordered to interconnect its transmission facilities with the electrical facilities of qualified generators and other electric utilities that meet certain requirements. It must be found that the requested interconnection is in the public interest and would encourage conservation of energy or capital, optimize efficiency of facilities or resources, or improve reliability. The requirements of Section 212 of the FPA concerning the terms and conditions of interconnection, including reimbursement of costs, must also be met.

Under Section 211 of the FPA, TVA can be ordered to transmit wholesale power provided that the order (1) does not impair the reliability of the TVA or surrounding systems and (2) meets the applicable requirements of Section 212 concerning terms, conditions, and rates for service. Under Section 211A of the FPA, TVA is subject to FERC review of the transmission rates and the terms and conditions of service that TVA provides others to ensure comparability of treatment of such service with TVA's own use of its transmission system and that the terms and conditions of service are not unduly discriminatory or preferential. The anti-cherrypicking provision of Section 212 of the FPA precludes TVA from being ordered to wheel another supplier's power to a customer if the power would be consumed within TVA's defined service territory.

Table of Contents

Sections 221 and 222 of the FPA, applicable to all market participants, including TVA, prohibit (1) reporting false information on the price of electricity sold at wholesale or the availability of transmission capacity to a federal agency with intent to fraudulently affect the data being compiled by the agency and (2) using manipulative or deceptive devices or contrivances in connection with the purchase or sale of power or transmission services subject to FERC's jurisdiction.

Section 206(e) of the FPA provides FERC with authority to order refunds of excessive prices on short-term sales (transactions lasting 31 days or less) by all market participants, including TVA, in price gouging situations if such sales are through an independent system operator or regional transmission organization under a FERC-approved tariff.

Section 220 of the FPA provides FERC with authority to issue regulations requiring the reporting, on a timely basis, of information about the availability and prices of wholesale power and transmission service by all market participants, including TVA.

Under Sections 306 and 307 of the FPA, FERC may investigate electric industry practices, including TVA's operations previously mentioned that are subject to FERC's jurisdiction.

Under Sections 316 and 316A of the FPA, FERC has authority to impose civil penalties of up to $1 million per day for each violation on entities subject to the provisions of Part II of the FPA, which includes the above provisions applicable to TVA. Criminal penalties may also result from such violations.

Finally, while not required to do so, TVA has elected to implement various FERC orders and regulations pertaining to public utilities on a voluntary basis to the extent that they are consistent with TVA's obligations under the TVA Act.

Nuclear Regulatory Commission

TVA operates its nuclear facilities in a highly regulated environment and is subject to the oversight of the NRC, an independent federal agency which sets the rules that users of radioactive materials must follow. The NRC has broad authority to impose requirements relating to the licensing, operation, and decommissioning of nuclear generating facilities. In addition, if TVA fails to comply with requirements promulgated by the NRC, the NRC has the authority to impose fines, shut down units, or modify, suspend, or revoke TVA's operating licenses.

Environmental Protection Agency

TVA is subject to regulation by the EPA in a variety of areas, including air quality control, water quality control, and management and disposal of solid and hazardous wastes. See Environmental Matters below.

States

The Supremacy Clause of the U.S. Constitution prohibits states, without congressional consent, from regulating the manner in which the federal government conducts its activities. As a federal agency, TVA is exempt from regulation, control, and taxation by states except in certain areas where Congress has clearly made TVA subject to state regulation. See Environmental Matters below.

Other Federal Entities

TVA's activities and records are also subject to review to varying degrees by other federal entities, including the Government Accountability Office and the Office of Management and Budget ("OMB"). There is also an Office of the Inspector General which reviews TVA's activities and records.

Taxation and Tax Equivalents

TVA is not subject to federal income taxation. In addition, neither TVA nor its property, franchises, or income is subject to taxation by states or their subdivisions. Section 13 of the TVA Act does, however, require TVA to make tax equivalent payments to states and counties in which TVA conducts power operations or in which TVA has acquired properties previously subject to state and local taxation. The total amount of these payments is five percent of gross revenues from the sale 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. Except for certain direct payments TVA is required to make to counties, distribution of tax equivalent payments within a state is determined by individual state legislation.

Environmental Matters

TVA's activities, particularly its power generation activities, are subject to comprehensive regulation under environmental laws and regulations relating to air pollution, water pollution, and management and disposal of solid and hazardous wastes, among other issues. Climate change and clean energy continue to be areas of focus relative to

Table of Contents

environmental regulation. TVA has been proactive in reducing its greenhouse gas emissions through a decreased reliance on coal-fired plants and an increased reliance on clean and renewable energy.

Clean Air Act

The CAA establishes a comprehensive program to protect and improve the nation’s air quality and control sources of air pollution. The major CAA programs that affect TVA’s power generation activities are described below.

National Ambient Air Quality Standards. The CAA requires the EPA to set National Ambient Air Quality Standards ("NAAQS") for certain air pollutants. The EPA has done this for ozone, particulate matter ("PM"), sulfur dioxide ("SO_2"), nitrogen dioxide ("NO_2"), carbon monoxide, and lead. Over the years, the EPA has made the NAAQS more stringent. Each state must develop a plan to be approved by the EPA for achieving and maintaining NAAQS within its borders. These plans impose limits on emissions from pollution sources, including TVA fossil fuel-fired plants. Areas meeting a NAAQS are designated as attainment areas. Areas not meeting a NAAQS are designated as non-attainment areas, and more stringent requirements apply in those areas, including stricter controls on industrial facilities and more complicated permitting processes. TVA fossil fuel-fired plants can be impacted by these requirements. All TVA generating units either are located in areas designated as in attainment with the NAAQS, or are in areas where air quality meets the NAAQS and designation to attainment is expected soon. As of September 30, 2016, Knoxville was the only area in the Tennessee Valley region that was designated as non-attainment for fine PM NAAQS. TVA expects the EPA to designate the Knoxville area as attainment for fine PM NAAQS in the near future. However, as NAAQS become more stringent, utilities are expected to come under increasing pressure to further reduce emissions from their existing fossil fuel generating plants.

Currently, all areas of the Tennessee Valley meet the 2008 ozone NAAQS. On October 1, 2015, the EPA issued a final rule to revise the ozone NAAQS to 70 parts per billion ("ppb") from the 2008 standard of 75 ppb. The EPA is expected to make final designations in 2017. The Tennessee Valley has been showing improvements in regional air quality; however, the impacts of the 2015 ozone NAAQS on TVA and states in TVA's service territory are not possible to determine until the EPA makes designations in 2017 with respect to the 2015 ozone standard.

On March 2, 2015, the United States District Court for the Northern District of California approved a consent decree between the EPA and certain environmental petitioners in Sierra Club v. McCarthy. The consent decree set a schedule for the EPA to complete nationwide area designations with respect to the 2010 1-Hour SO_2 NAAQS based on monitored air quality levels and SO_2 source emission rates and amounts. Air quality modeling was required in 2016 to determine designation of areas around five TVA coal-fired plants. No areas around any TVA generating units are expected to be designated non-attainment. Lower SO_2 permit limits well within the capability of existing control equipment are expected for TVA's Gallatin Fossil Plant ("Gallatin") and Paradise coal-fired units.

Cross State Air Pollution Rule. The EPA issued the Cross-State Air Pollution Rule ("CSAPR") in July 2011, requiring several states in the eastern United States to improve air quality relative to the 1997 ozone NAAQS and the 1997 and 2006 fine particle NAAQS by reducing power plant emissions that contribute to pollution in other states. CSAPR replaced the Clean Air Interstate Rule ("CAIR"), a similar but less stringent rule. The U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") vacated the rule before implementation began, but the D.C. Circuit’s vacatur was reversed by the U.S. Supreme Court in April 2014. Upon further proceedings on remand, the D.C. Circuit granted the EPA’s motion to restore CSAPR but delayed the compliance deadlines by three years. Under the revised compliance deadlines, Phase I emission reductions in SO_2 and NO_X became effective on January 1, 2015, and will be followed by Phase II reductions that become effective on May 1, 2017. TVA’s significant prior reductions in SO_2 and NO_X emissions and planned future reductions will aid in compliance with CSAPR.

On September 7, 2016, the EPA issued an update to CSAPR to address cross-state pollution relative to the 2008 ozone NAAQS, and also to respond to a July 2015 remand of the CSAPR emission budgets for certain states by the D.C. Circuit. In this update, the EPA implemented more stringent the Phase II reductions for NO_X that become effective on May 1, 2017. However, TVA does not currently anticipate significant changes to its operations based on the CSAPR update rule.

Mercury and Air Toxics Standards for Electric Utility Units. In April 2012, the EPA promulgated a final rule establishing standards for hazardous air pollutants emitted from steam electric utilities. The Mercury and Air Toxics Standards ("MATS") rule requires additional controls for hazardous air pollutants, including mercury, non-mercury metals, and acid gases, for some of TVA’s coal-fired units by April 15, 2015, while the compliance date for units granted a one-year extension under the CAA was April 15, 2016. TVA has chosen to idle or retire some units in lieu of investing in additional controls.

The D.C. Circuit upheld the MATS rule on April 15, 2014. In June 2015, however, the United States Supreme Court remanded the rule, finding that the EPA was required to consider cost before deciding whether the regulation of hazardous air pollutants emitted from steam electric utilities was appropriate and necessary.

In April 2016, in response to the Supreme Court's remand, the EPA published the final Supplemental Finding That It is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units. Several groups have filed petitions with the D.C. Circuit challenging the EPA’s determination. The MATS rule will remain in effect while these challenges are pending, and TVA’s MATS compliance strategy will thus not be affected by these challenges.

Table of Contents

In April 2016, in response to a request from TVA, the EPA issued an administrative order under the Clean Air Act to allow operation of Paradise Units 1 and 2 for a year beyond the MATS compliance date of April 15, 2016. The additional year will allow these units to continue to operate while the new combined cycle facility being built at the site becomes operational. TVA expects to retire Paradise Units 1 and 2 once this replacement capacity is available.

The Environmental Agreements. See Note 20 — Legal Proceedings — Environmental Agreements for a discussion of the Environmental Agreements, which discussion is incorporated herein by reference.

Acid Rain Program. Congress established the Acid Rain Program to achieve reductions in emissions of SO_2 and NO_x, the primary pollutants implicated in the formation of acid rain. The program includes a cap-and-trade emission reduction program for SO_2 emissions from power plants. TVA continues to reduce SO_2 and NO_X emissions from its coal-fired plants, and the SO_2 allowances allocated to TVA under the Acid Rain Program are sufficient to cover the operation of its coal-fired plants. In the TVA service area, the limitations imposed on NO_x emissions by either the CAIR or CSAPR program are more stringent than the Acid Rain Program. Therefore, TVA forecasts that the Acid Rain Program will have no impact on TVA other than administrative reporting.

Regional Haze Program. In June 2005, the EPA issued the Clean Air Visibility Rule, amending its CY 1999 regional haze rule, which had established time lines for states to improve visibility in national parks and wilderness areas throughout the United States with a target of reaching no anthropogenic impacts on visibility in these areas by 2064. One requirement under the amended rule is that certain types of older existing sources are required to install best available retrofit technology. No additional controls or lower operating limits are required for any TVA units to meet best available retrofit technology requirements. On May 4, 2016, the EPA published the proposed rule "Protection of Visibility: Amendments to Requirements for State Plans." The proposed rule would change some of the requirements for Regional Haze State Implementation Plans ("Regional Haze SIPs"). TVA does not expect significant impacts to its operations from these changes, but specific impacts are not possible to predict until the rule is final and future Regional Haze SIPs are submitted to the EPA and approved.

Opacity. Opacity, or visible emissions, measures the denseness (or color) of power plant plumes and has traditionally been used by states as a means of monitoring good maintenance and operation of particulate control equipment. Under some conditions, retrofitting a unit with additional equipment to better control SO_2 and NO_x emissions can adversely affect opacity performance, and TVA and other utilities are addressing this issue. The evaluation of utilities' compliance with opacity requirements is coming under increased scrutiny, especially during periods of startup, shutdown, and malfunction. State implementation plans developed under the CAA typically exclude periods of startup, shutdowns, and malfunctions, but on June 12, 2015, the EPA finalized a rule to eliminate such exclusions. The EPA rule required states to modify their implementation plans by November 12, 2016. These new requirements could reduce flexibility and increase operational costs for TVA’s coal-fired plants.

Petition to Expand the Ozone Transport Region. On December 9, 2013, eight of the twelve states that make up the Ozone Transport Region ("OTR") submitted a petition to the EPA requesting that nine states, including Kentucky and Tennessee, be added to the OTR. The EPA has 180 days under the CAA to act on such a petition. On October 6, 2016, six of the eight states filing the petition sued the EPA in the U.S. District Court for the Southern District of New York, asking the court to require the EPA to act on the petition by a date certain. TVA is unable to predict the outcome of the litigation at this time. Should the petition ultimately be granted, additional NO_x reductions may be required from electric generating units and other sources in the states added to the OTR. New and modified sources in states added to the OTR would be required to have state of the art controls and meet other requirements as well.

Climate Change

Regulation. On August 3, 2015, the EPA issued the Clean Power Plan, a rule under section 111(d) of the Clean Air Act, to reduce carbon emissions from existing power plants burning fossil fuels. The Clean Power Plan, which is part of President Obama's Climate Action Plan strategy, establishes state-specific emission goals to lower CO_2 emissions from power plants, targeting a 32 percent nationwide reduction in CO_2 emissions from 2005 levels by 2030. The EPA established an "interim goal" that states must meet on average over the eight-year period from 2022-2029 and a "final goal" that states must meet in 2030 and thereafter based on a two-year average. States were required to submit to the EPA final plans, or "initial plans" with a request for an extension, by September 6, 2016. States that received an extension are required to submit final plans by September 6, 2018.

On February 9, 2016, the aforementioned requirements were suspended when the U.S. Supreme Court granted a stay of the Clean Power Plan. The stay will remain in place while the D.C. Circuit reviews the rule and during any subsequent appeals to the U.S. Supreme Court that may occur after the D.C. Circuit issues its opinion. The stay means that the Clean Power Plan has no legal effect while courts are reviewing the rule to determine whether it is lawful. The D.C. Circuit, sitting en banc, heard oral arguments on the Clean Power Plan on September 27, 2016.

On August 3, 2015, the EPA also finalized New Source Performance Standards for carbon emissions from new, modified, and reconstructed power plants. These standards apply to two types of fossil fuel-fired sources: (1) stationary

Table of Contents

combustion turbines, generally firing natural gas, and (2) electric utility steam generating units, generally firing coal. These standards reflect the degree of emission limitation achievable through the application of the best system of emission reduction ("BSER") that the EPA has determined to be adequately demonstrated for each type of source. These standards will apply to the new combined-cycle plants that TVA is constructing at its Allen and Paradise facilities, and TVA believes that its current plans for those plants will enable it to comply with the new standards.

Executive Actions. To strengthen the Administration's efforts to increase government-wide energy efficiency and sustainability and implement goals in the President’s June 2013 Climate Action Plan, President Obama issued a memorandum on December 5, 2013, requiring that at least 20 percent of the total amount of energy consumed by each federal agency in any fiscal year, starting in 2020, be renewable energy. TVA is on track to achieve the aforementioned 2020 goal of the Presidential Memorandum. In addition, on March 25, 2015, President Obama issued Executive Order 13693, which directed each federal agency to ensure that, starting in 2025 and continuing each year thereafter, no less than 30 percent of the total amount of building electric energy is renewable electric energy. TVA has submitted a climate adaptation plan as required by Executive Order 13693, and TVA is aligning the federal climate adaption plan with climate resiliency planning. The Executive Order also established a clean energy target for federal agencies to achieve 25 percent of total building energy from renewable plus thermal energy by 2025.

On April 21, 2015, the Administration released the initial installment of its Quadrennial Energy Review ("QER"). In the QER, the Administration announced that the DOE is creating a partnership with 17 energy companies, including TVA, to improve infrastructure resilience against extreme weather and climate change.

On August 1, 2016, the White House Council on Environmental Quality released final guidance to federal agencies on the consideration of the effects of greenhouse gas emissions and climate change in reviews of their proposed actions conducted under the National Environmental Policy Act ("NEPA"). This final guidance replaces two previous drafts and extends their scopes to include land and resource management actions. TVA does not anticipate significant changes to its NEPA procedures as a result of the final guidance.

International Accords. On September 3, 2016, the United States formally ratified the Paris agreement. The agreement met the threshold of at least 55 countries that account for at least 55 percent of global greenhouse gas emission and formally entered into force on November 4, 2016. The durability of the Paris agreement commitments is uncertain.

Litigation. In addition to legislative activity, climate change issues have been the subject of a number of lawsuits, including lawsuits against TVA.

Indirect Consequences of Regulation or Business Trends. Legal, technological, political, and scientific developments regarding climate change may create new opportunities and risks. The potential indirect consequences could include an increase or decrease in electricity demand, increased demand for generation from alternative energy sources, and subsequent impacts to business reputation and public opinion. See Power Supply and Load Management Resources above.

Physical Impacts of Climate Change. TVA manages the potential effects of climate change on its mission, programs, and operations within its environmental management processes. In June 2014, TVA issued an updated Statement on Climate Change Adaptation and annually updates its Climate Change Adaptation Plan. TVA's Climate Change Adaptation Plan was last updated in June 2016.

Actions Taken by TVA to Reduce GHG Emissions. TVA has reduced greenhouse gas ("GHG") emissions from both its generation stations and its operations. As discussed earlier in this Item 1, Business, recent TVA Board actions have focused on TVA’s plan to balance its coal-fired generation by increasing its nuclear capacity, modernizing its hydroelectric generation system, increasing natural gas-fired generation, installing emission control equipment on

certain of its coal-fired units, increasing its purchases of renewable energy, and investing in energy efficiency initiatives to reduce energy use in the Tennessee Valley. Additionally, TVA has invested to reduce energy use in its operations. The combination of more stringent environmental regulations, lower natural gas prices, and lower demand for energy across the Tennessee Valley has reduced the utilization of coal-fired generation. These factors have resulted in lower CO_2 emissions from the TVA system.

Renewable/Clean Energy Standards

Twenty-nine states and the District of Columbia have established enforceable or mandatory requirements for electric utilities to generate a certain amount of electricity from renewable sources. One state within the TVA service area, North Carolina, has a mandatory renewable standard that, while not applying directly to TVA, does apply to TVA's LPCs serving retail customers in that state. TVA's policy is to provide compliance assistance to any distributor of TVA power, and TVA is providing assistance to the four LPCs that sell TVA power in North Carolina. Likewise, the Mississippi Public Service Commission adopted an energy efficiency rule applying to electric and natural gas providers in the state, and TVA is supplying information on participation in ERS efforts to support the covered Mississippi LPCs.

Table of Contents

Water Quality Control Developments

Cooling Water Intake Structures. On May 19, 2014, the EPA released a final rule under Section 316(b) of the Clean Water Act, relating to cooling water intake structures ("CWIS") for existing power generating facilities. The rule requires changes in cooling water intake structures used to cool the vast majority of coal, gas, and nuclear steam-electric generating plants and a wide range of manufacturing and industrial facilities in the U.S. The final rule requires cooling water intake structures to reflect the best technology available for minimizing adverse environmental impacts, primarily by reducing the amount of fish and shellfish that are impinged or entrained at a cooling water intake structure. These new requirements will potentially affect a number of TVA's fossil- and nuclear-fueled facilities and will likely require capital upgrades to ensure compliance. Most TVA facilities are projected to require retrofit of CWIS with "fish-friendly" screens and fish return systems to achieve compliance with the new rule. The rule will be implemented through permits issued under the National Pollutant Discharge Elimination System ("NPDES") in Section 402 of the Clean Water Act. State agencies administer the NPDES permit program in most states including those in which TVA's facilities are located. In addition, the responsible state agencies must provide all permit applications to the U.S. Fish & Wildlife Service for a 60-day review prior to public notice and an opportunity to comment during the public notice. As a result, the permit may include requirements for additional studies of threatened and endangered species arising from U.S. Fish & Wildlife Service comments and may require additional measures be taken to protect threatened and endangered species and critical habitats directly or indirectly related to the plant cooling water intake. TVA's review of the final rule indicates that the rule offers adequate flexibility for cost-effective compliance. The required compliance timeframe is linked to plant specific NPDES permit renewal cycles (i.e., technology retrofits), and compliance is expected to be in the 2020-2022 timeframe.

Hydrothermal Discharges. The EPA and many states continue to focus regulatory attention on potential effects of hydrothermal discharges. Many TVA plants have variances from thermal standards under Section 316(a) of the Clean Water Act that are subject to review as NPDES permits are renewed. Specific data requirements in the future will be determined based on negotiations between TVA and regulators. If plant thermal limits are made more stringent, TVA may have to install cooling towers at some of its plants and operate installed cooling towers more often. This could result in a substantial cost to TVA.

Steam-Electric Effluent Guidelines. On November 3, 2015, the EPA published a final rule to revise the existing steam electric effluent limitation guidelines ("ELGs") that updates the existing technology-based water discharge limitations for power plants nationwide. The new ELGs establish more stringent performance standards for existing and new sources that will require power plants that generate more than 50 MW to regulate discharges of toxic pollutants from seven primary wastewater streams. The primary impact for TVA is on the operation of existing and any potential new coal-fired generation facilities. The rule has the potential to impact long-term investment decisions being made relative to the long-term compliance and operability of TVA coal-fired units. Compliance with new requirements is required in the 2018-2023 timeframe and will necessitate major upgrades to wastewater treatment systems at all coal-fired plants. Dry fly ash handling is mandated by the rule. The rule also requires either dry bottom ash handling systems or "no discharge" recycle of bottom ash transport waters. In addition, new technology-based limits on flue gas desulfurization wastewater require primary physical/chemical treatment and secondary biological treatment to meet extremely low limits for arsenic, mercury, and selenium.

With regard to its Cumberland Fossil Plant ("Cumberland"), TVA contends the ELG rulemaking did not appropriately consider available data that could affect these national limits as they applied at Cumberland given its unique "once-through" scrubber design. TVA is working with the State of Tennessee and the EPA in an effort to address this issue. Compliance with the rule at Cumberland without modification to address the unique design could cause TVA to incur disproportionately high costs at Cumberland or experience other operational outcomes which TVA cannot predict at this time.

Other Clean Water Act Requirements. As is the case in other industrial sectors, TVA and other utilities are also facing more stringent requirements related to the protection of wetlands, reductions in storm water impacts from construction activities, new water quality criteria for nutrients and other pollutants, new wastewater analytical methods, and regulation of pesticide discharges. In addition, other new environmental regulations related to mining of coal in the Appalachian region under the Clean Water Act may increase the cost of coal that TVA purchases for its plants.

Cleanup of Solid and Hazardous Wastes

Liability for releases and cleanup of hazardous substances is imposed under the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), and other federal and parallel state statutes. In a manner similar to many other industries and power systems, TVA has generated or used hazardous substances over the years.

TVA Sites. TVA operations at some of its facilities have resulted in contamination that TVA is addressing including at TVA's Environmental Research Center ("ERC") at Muscle Shoals, Alabama. At September 30, 2016, TVA’s estimated liability for cleanup and similar environmental work for those sites for which sufficient information is available to develop a cost estimate is approximately $23 million and is included in Accounts payable and accrued liabilities and Other long-term liabilities on the consolidated balance sheet. In addition, the ERC has an active groundwater monitoring program as part of a Resource Conservation and Recovery Act ("RCRA") Corrective Action Permit.

Table of Contents

Non-TVA Sites. TVA is aware of alleged hazardous-substance releases at certain non-TVA areas for which it may have some liability. See Note 20 — Contingencies — Environmental Matters.

Coal Combustion Residuals. The EPA published its final rule governing CCRs on April 17, 2015, and the rule became effective October 19, 2015. The rule regulates CCRs as nonhazardous waste under Subtitle D of the Resource Conservation and Recovery Act. While states may adopt the rule's requirements into their regulatory programs, the rule does not require states to adopt the requirements. Although the rule became effective October 19, 2015, certain provisions have later effective dates. TVA's review of the final rule indicates that the rule offers adequate flexibility for compliance. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Generation Resources — Coal Combustion Residual Facilities for a discussion of the impact on TVA's operations, including the cost and timing estimates of related projects.

In August 2015, the Tennessee Department of Environment and Conservation ("TDEC") issued an order that (1) allowed TDEC to oversee TVA's implementation of the EPA's CCR rule and (2) required TVA to assess CCR contamination risks at seven of TVA's eight coal-fired plants in Tennessee and to remediate any unacceptable risks. The TDEC order does not allege that TVA is violating any CCR regulatory requirements nor does it assess TVA penalties. The TDEC order sets out an iterative process through which TVA and TDEC will identify and evaluate any CCR contamination risks and, if necessary, respond to such risks.

Groundwater Contamination. Environmental groups and state regulatory agencies are increasing their attention on groundwater contamination associated with coal combustion residuals ("CCRs") management activities. Seven of TVA's 10 coal-fired plants are in some level of state regulatory groundwater assessment. Four of those plants (Colbert, Gallatin, Cumberland, and Shawnee) have investigations beyond monitoring and reporting. Five of the seven TVA coal-fired plants (Gallatin, Shawnee, Paradise, Johnsonville, and Widows Creek) have groundwater remediation monitoring with state regulatory involvement. As a result of these assessments and increased attention, TVA may have to change how it manages CCRs at some of its plants, potentially resulting in higher costs. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Generation Resources — Coal Combustion Residual Facilities.

Environmental Investments

From the 1970's to 2016, TVA spent approximately $6.5 billion on controls to reduce emissions from its coal-fired power plants. In addition, TVA has reduced emissions by idling or retiring coal-fired units and relying more on cleaner energy resources including natural gas and nuclear generation.

SO_2 Emissions and NO_x Emissions. To reduce SO_2 emissions, TVA operates scrubbers on 19 of its coal-fired units with scrubbers currently under construction on two additional units, and switched to lower-sulfur coal at 20 coal-fired units. To reduce NO_x emissions, TVA operates SCRs on 18 coal-fired units with SCRs currently under construction on six additional units, operates selective non-catalytic reduction systems on four units, operates low-NO_X burners or low-NO_X combustion systems on 19 units, operates over-fire air on six cyclone units, optimized combustion on six units, and operates NO_X control equipment year round when units are operating (except during start-up, shutdown, and maintenance periods). TVA has also retired or announced plans to retire 33 of 59 coal-fired units. Except for seven units at Shawnee, the remaining coal-fired units will either have scrubbers and SCRs or be retired. See Power Supply and Load Management Resources — Coal-Fired above.

Particulate Emissions. To reduce particulate emissions of air pollutants, TVA has equipped all of its coal-fired units with scrubbers, mechanical collectors, electrostatic precipitators, and/or bag houses.

Primarily due to the actions described above, emissions of NO_x have been reduced by 92 percent below peak 1995 levels and emissions of SO_2 have been reduced by 94 percent below 1977 levels through CY 2015. For CY 2015, TVA's emission of CO_2 from its sources was approximately 70.1 million tons, a 34 percent reduction from 2005

levels. To remain consistent and provide clear information and to align with the EPA’s reporting requirements, TVA will continue to report CO_2 emissions on a CY basis.

There could be additional material costs if further reductions of GHGs, including CO_2, are mandated by legislative, regulatory, or judicial actions and if more stringent emission reduction requirements for conventional pollutants are established. These costs cannot reasonably be predicted at this time because of the uncertainty of these actions. A number of emerging EPA regulations establishing more stringent air, water, and waste requirements could result in significant changes in the structure of the U.S. power industry, especially in the eastern half of the country.

TVA currently anticipates spending significant amounts on environmental projects through 2025, including investments in new clean energy generation including natural gas, nuclear, and renewables to reduce TVA's overall environmental footprint. TVA environmental project expenditures also result from coal-fired plant decommissioning and from effective ash management modernization. Based on TVA's decisions regarding certain coal-fired units under the Environmental Agreements, the amount and timing of expenditures could change. See Power Supply and Load Management Resources — Coal-Fired above and Estimated Required Environmental Expenditures below.

Table of Contents

Estimated Required Environmental Expenditures

The following table contains information about TVA's current estimates on projects related to environmental laws and regulations.

Air, Water, and Waste Quality Estimated Potential Environmental Expenditures[1]
At September 30, 2016
(in millions)

	Estimated Timetable	Total Estimated Expenditures
Coal combustion residual conversion program[2]	2017-2022	$ 1,200
Proposed clean air control projects[3]	2017-2021	375
Clean Water Act requirements[4]	2017-2023	400

Notes
(1) These estimates are subject to change as additional information becomes available and as laws or regulations change.
(2) Includes costs associated with pond closures, conversion of wet to dry handling, and landfill activities. In April 2015, the EPA finalized rules related to CCRs. TVA is continuing to evaluate the rules and their impact on its operations, including the cost and timing estimates of related projects. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Coal Combustion Residual Facilities.
(3) Includes air quality projects that TVA is currently planning to undertake to comply with existing and proposed air quality regulations, but does not include any
projects that may be required to comply with potential GHG regulations or transmission upgrades.
(4) Includes projects that TVA is currently planning to comply with revised rules under the Clean Water Act (i.e., Section 316(b) and effluent limitation guidelines for
steam electric power plants).

Employees

On September 30, 2016, TVA had 10,691 employees, of whom 3,821 were trades and labor employees. Neither the federal labor relations laws covering most private sector employers nor those covering most federal agencies apply to TVA. However, the TVA Board has a long-standing policy of acknowledging and dealing with recognized representatives of its employees, and that policy is reflected in long-term agreements to recognize the unions (or their successors) that represent TVA employees. Federal law prohibits TVA employees from engaging in strikes against TVA.

ITEM 1A. RISK FACTORS

The risk factors described below, as well as the other information included in this Annual Report, should be carefully considered. Risks and uncertainties described in these risk factors could cause future results to differ materially from historical results as well as from the results anticipated in forward-looking statements. Although the risk factors described below are the ones that TVA considers significant, additional risk factors that are not presently known to TVA or that TVA presently does not consider significant may also impact TVA's business operations. Although the TVA Board has the authority to set TVA's own rates and may mitigate some risks by increasing rates, there may be instances in which TVA would be unable to partially or completely eliminate one or more of these risks through rate increases over a reasonable period of time or at all. Accordingly, the occurrence of any of the following could have a material adverse effect on TVA's cash flows, results of operations, and financial condition.

For ease of reference, the risk factors are presented in four categories: (1) regulatory, legislative, and legal risks, (2) operational risks, (3) financial, economic, and market risks, and (4) general business risks.

REGULATORY, LEGISLATIVE, AND LEGAL RISKS

New laws, regulations, or administrative orders, or congressional action or inaction, may negatively affect TVA's cash flows, results of operations, and financial condition, as well as the way TVA conducts its business.

Because TVA is a corporate agency and instrumentality established by federal law, it may be affected by a variety of laws, regulations, and administrative orders that do not affect other electric utilities. For example, Congress may enact legislation that expands or reduces TVA's activities, changes its governance structure, requires TVA to sell some or all of the assets that it operates, reduces or eliminates the United States's ownership of TVA, or even liquidates TVA. Additionally, Congress could act, or fail to take action, on various issues that may result in impacts to TVA, including but not limited to action or inaction related to the national debt ceiling or automatic spending cuts in government programs. Although it is difficult to predict exactly how new laws, regulations, or administrative orders or congressional action or inaction may impact TVA, some of the possible effects are described below.

TVA may become subject to additional environmental regulation.

New environmental laws, regulations, and orders may become applicable to TVA or the facilities it operates, and existing environmental laws or regulations may be revised or reinterpreted in a way that adversely affects TVA. Possible areas of future laws or regulations include, but are not limited to, the following:

Table of Contents

Greenhouse gases. The EPA has issued regulations concerning CO_2 emissions from existing power plants burning fossil fuels. Costs to comply with these regulations, as well as future regulations regarding CO_2 and other GHGs, may negatively impact TVA's cash flows, financial position, and results of operations. The cost impact of legislation or regulation cannot be determined at this time.

Coal combustion residuals. The EPA has issued regulations concerning CCRs and has given the public the right to sue to enforce these regulations. In addition, state governments have either ordered additional actions concerning CCRs or may do so in the future. These regulations or orders may expose TVA to additional litigation, require TVA to make additional capital expenditures, increase operating and maintenance costs, or even cause it to shut down certain facilities.

Renewable energy portfolio standards. TVA is not currently obligated to provide a percentage of the power it sells from renewable sources but may be required to do so in the future. Such developments could require TVA to make significant capital expenditures, increase its purchased power costs, or make changes in how it operates its facilities.

Endangered species. Additional listing of threatened or endangered species could require TVA to change how or where it conducts its operations, with potentially adverse financial impacts on TVA.

TVA's ability to control or allocate funds could be restricted.

Other federal entities may attempt to restrict TVA's ability to access or control its funds that are on deposit in the TVA account in the U.S. Treasury. For example, should the U.S. Treasury approach its debt ceiling, the U.S. Treasury might, as part of an effort to control federal spending, attempt to require TVA to receive approval before disbursement of funds from TVA’s U.S. Treasury account. Additionally, the Office of Management and Budget ("OMB") might, in the event that automatic spending cuts go into effect, attempt to require TVA to reduce its budget by a specified percentage (although the legal applicability of such a situation to TVA would depend upon the wording of the legislation making the automatic spending cuts). Such attempts to restrict TVA's ability to control or allocate funds in those specific types of situations could adversely affect its cash flows, results of operations, and financial condition, its relationships with creditors, vendors, and counterparties, the way it conducts its business, and its reputation.

TVA may lose its protected service territory.

TVA's service area is defined by the fence and protected by the anti-cherrypicking provision. From time to time there have been efforts to erode the protection of the anti-cherrypicking provision, and the protection of the anti-cherrypicking provision could be limited and perhaps eliminated by congressional legislation at some time in the future. If Congress were to eliminate or reduce the coverage of the anti-cherrypicking provision but retain the fence, TVA could more easily lose customers that it could not replace within its specified service area. The loss of these customers could adversely affect TVA's cash flows, results of operations, and financial condition.

The TVA Board may lose its sole authority to set rates for electricity.

Under the TVA Act, the TVA Board has the sole authority to set the rates that TVA charges for electricity, and these rates are not subject to further review. If the TVA Board loses this authority or if the rates become subject to outside review, there could be material adverse effects on TVA including, but not limited to, the following:

- The TVA Board might be unable to set rates at a level sufficient to generate adequate revenues to service TVA's financial obligations, properly operate and maintain its power assets, and provide for reinvestment in its power program; and

- TVA might become subject to additional regulatory oversight that could impede its ability to manage its business.

TVA may lose responsibility for managing the Tennessee River system.

TVA's management of the Tennessee River system is important to effectively operate the power system. TVA's ability to integrate management of the Tennessee River system with power system operations increases power system reliability and reduces costs. Restrictions on how TVA manages the Tennessee River system could negatively affect its operations.

Table of Contents

TVA may lose responsibility for managing real property currently under its control.

TVA's management of real property containing power generation and transmission structures as well as certain reservoir shorelines is important for navigation, flood control, and the effective operation of the power system. Restrictions on or the loss of the authority to manage these properties could negatively affect TVA's operations, change the way it conducts such operations, or increase costs.

Existing laws, regulations, and orders may negatively affect TVA's cash flows, results of operations, and financial condition, as well as the way TVA conducts its business.

TVA is required to comply with comprehensive and complex laws, regulations, and orders. The costs of complying with these laws, regulations, and orders are expected to be substantial, and costs could be significantly more than TVA anticipates, especially in the environmental, nuclear, and transmission reliability areas. To settle the EPA and other claims involving alleged NSR violations, TVA agreed to retire 18 coal-fired units and pay a civil penalty. The cost to install the necessary equipment to comply with existing environmental laws, regulations, settlement agreements, and orders at some other facilities has caused TVA to retire additional units and may render some other facilities uneconomical, which may cause TVA to retire or idle additional facilities. In addition, TVA is required to obtain numerous permits and approvals from governmental agencies that regulate its business, and TVA may be unable to obtain or maintain all required regulatory approvals. If there is a delay in obtaining required regulatory approvals or if TVA fails to obtain or maintain any approvals or to comply with any law, regulation, or order, TVA may have to change how it operates certain assets, may be unable to operate certain assets, or may have to pay fines or penalties if it continues to operate the assets.

Additional NRC requirements may negatively affect TVA's cash flows, results of operations, and financial condition or impact TVA's ability to operate its nuclear facilities.

Supplementary NRC rulemaking is under development to mitigate beyond design basis flooding events and seismic events. Complying with these or other requirements adopted by the NRC may require significant capital expenditures and may negatively affect TVA's cash flows, results of operations, financial condition, and reputation. Should TVA be unable to comply with the requirements, TVA may not be able to operate its nuclear facilities as currently contemplated by TVA's generation plans.

TVA is involved in various legal and administrative proceedings whose outcomes may affect TVA's finances and operations.

TVA is involved in various legal and administrative proceedings and is likely to become involved in other legal proceedings in the future in the ordinary course of business, as a result of catastrophic events or otherwise. Although TVA cannot predict the outcome of the individual matters in which TVA is involved or will become involved, the resolution of these matters could require TVA to make expenditures in excess of established reserves and in amounts that could have a material adverse effect on TVA's cash flows, results of operations, and financial condition. Similarly, resolution of any such proceedings may require TVA to change its business practices or procedures and may require TVA to reduce emissions from its coal-fired units, including emissions of GHGs, to a greater extent than TVA had planned, or even cease operating those units.

TVA may be responsible for environmental clean-up activities.

TVA may be responsible for on-site liabilities associated with the environmental condition of facilities or property that TVA has acquired or that TVA operates regardless of when the liabilities arose, whether they are known or unknown, and whether they were caused by TVA, prior owners or operators, or a third party. TVA may also be

responsible for off-site liabilities associated with the off-site disposal of waste materials containing hazardous substances or hazardous wastes.

TVA is largely restricted to a defined service area.

If demand for power in TVA's service area decreases, TVA's ability to expand its customer base would be constrained by its inability to pursue new customers outside its service area. Accordingly, the reduction in demand would have to be offset by such actions as reducing TVA's internal costs or increasing rates. Any failure of such measures to fully offset the reduced demand for power may negatively affect TVA's cash flows, results of operations, and financial condition.

Table of Contents

OPERATIONAL RISKS

TVA may incur delays and additional costs in power plant construction and may be unable to obtain necessary regulatory approval.

Among other projects, TVA is constructing two natural gas-fired plants, scheduling major upgrades to and modernization of current generating plants, including the extended power uprate project at Browns Ferry, and evaluating construction of more generating facilities in the future. These activities involve risks of overruns in the cost of labor and materials as well as risks of schedule delays, which may result from, among other things, changes in laws or regulations, lack of productivity, human error, and the failure to schedule activities properly. In addition, if TVA does not obtain the necessary regulatory approvals or licenses, is otherwise unable to complete the development or construction of a facility, decides to cancel construction of a facility, or incurs delays or cost overruns in connection with constructing a facility, TVA's cash flows, financial condition, and results of operations could be negatively affected. Further, if construction projects are not completed according to specifications, TVA may suffer, among other things, delays in receiving licenses, reduced plant efficiency, reduced transmission system integrity and reliability, and higher operating costs.

TVA may not be able to operate one or more of its nuclear power units.

Should issues develop with TVA’s nuclear power units that TVA is unable to correct, TVA might voluntarily shut down one or more units or be ordered to do so by the NRC. Returning the unit(s) into operation could be a lengthy and expensive process, or might not be possible depending on circumstances. In either case, TVA's cash flows, results of operations, financial condition, and reputation may be negatively affected.

Operating nuclear units subjects TVA to nuclear risks and may result in significant costs that adversely affect its cash flows, results of operations, and financial condition.

TVA has seven operating nuclear units. Risks associated with these units include the following:

Nuclear Risks. A nuclear incident at one of TVA's facilities could have significant consequences including loss of life, damage to the environment, damage to or loss of the facility, and damage to non-TVA property. Although TVA carries certain types of nuclear insurance, the amount that TVA is required to pay in connection with a nuclear incident could significantly exceed the amount of coverage provided by insurance. Any nuclear incident in the United States, even at a facility that is not operated by or licensed to TVA, has the potential to impact TVA adversely by obligating TVA to pay up to $133 million per year and a total of $891 million per nuclear incident under the Price-Anderson Act. Any such nuclear incident could also negatively affect TVA by, among other things, obligating TVA to pay retrospective insurance premiums, reducing the availability and affordability of insurance, increasing the costs of operating nuclear units, or leading to increased regulation or restriction on the construction, operation, and decommissioning of nuclear facilities. Moreover, Congress could impose revenue-raising measures on the nuclear industry to pay claims exceeding the limit for a single incident under the Price-Anderson Act. Further, the availability or price of insurance may be impacted by TVA's acts or omissions, such as a failure to properly maintain a facility, or events outside of TVA's control, such as an equipment manufacturer's inability to meet a guideline, specification, or requirement.

Decommissioning Costs. TVA maintains a Nuclear Decommissioning Trust ("NDT") for the purpose of providing funds to decommission its nuclear facilities. The NDT is invested in securities generally designed to achieve a return in line with overall equity market performance. TVA might have to make unplanned contributions to the NDT if, among other things:

- The value of the investments in the NDT declines significantly, as it did during the 2008-2009 recession, or the investments fail to achieve the assumed real rate of return;
- The decommissioning funding requirements are changed by law or regulation;
- The assumed real rate-of-return on plan assets, which is currently five percent, is lowered by the TVA Board or is overly optimistic;
- The actual costs of decommissioning are more than planned;
- Changes in technology and experience related to decommissioning cause decommissioning cost estimates to increase significantly;
- TVA is required to decommission a nuclear plant sooner than it anticipates; or

Table of Contents

- The NRC guidelines for calculating the minimum amount of funds necessary for decommissioning activities are significantly changed.

If TVA makes additional contributions to the NDT, the contributions may negatively affect TVA's cash flows, results of operations, and financial condition.

Increased Regulation. The NRC has broad authority to adopt requirements related to the licensing, operating, and decommissioning of nuclear generation facilities that can result in significant restrictions or requirements on TVA. If the NRC modifies existing requirements or adopts new requirements, TVA may be required to make substantial capital expenditures at its nuclear plants or make substantial contributions to the NDT. In addition, if TVA fails to comply with requirements promulgated by the NRC, the NRC has the authority to impose fines, shut down units, or modify, suspend, or revoke TVA's operating licenses.

TVA’s facilities and information infrastructure may not operate as planned due to physical or cyber threats to TVA’s security.

TVA has an extensive generation and transmission system and supporting infrastructure that includes both physical and cyber assets. Potential targets include, among other things, TVA’s generation facilities, transmission infrastructure such as substations and towers, information technology systems, and network infrastructure. Because of TVA’s status as a governmental corporation and TVA’s role as predominately the sole power provider for its service territory, TVA may be targeted by individuals, groups, or nation states for physical or cyber attacks.

Physical Attacks. TVA’s operations are located over wide areas and are protected by automated monitoring systems, TVA Police and local law enforcement, TVA employees, or a combination thereof. However, it may not be possible to effectively deter or prevent attacks, including vandalism and more significant acts, at all TVA facilities. Such attacks could pose health and safety risks, significantly disable or destroy TVA assets, interfere with TVA’s operations, result in additional regulatory or security requirements, and negatively affect TVA’s cash flows, results of operations, and financial condition.

Cyber Attacks. TVA's operations are extensively computerized. A failure or breach of its information technology assets, whether caused by a cyber attack or otherwise, could:

- Significantly disrupt operations, including the generation and transmission of electricity;
- Negatively affect TVA's cash flows, results of operations, and financial condition;
- Pose health and safety risks; and
- Result in the compromise of sensitive data.

The theft, damage, or improper disclosure of sensitive data may also subject TVA to penalties and claims from third parties.

TVA's generation and transmission assets or their supporting infrastructure may not operate as planned.

Many of TVA's generating units have been operating for several decades and have been in nearly constant service since they were completed. Additionally, certain of TVA's newer assets have experienced operating issues and manufacturing defects in essential equipment. If TVA's generation and transmission assets or their supporting infrastructure fails to operate as planned, if necessary repairs or upgrades are delayed or cannot be completed as

quickly as anticipated, or if necessary spare parts are unavailable, TVA, among other things:

- May have to invest a significant amount of resources to repair or replace the assets or the supporting infrastructure;
- May have to remediate collateral damage caused by a failure of the assets or the supporting infrastructure;
- May not be able to maintain the integrity or reliability of the transmission system at normal levels;
- May have to operate less economical sources of power;
- May have to purchase replacement power on the open market at prices greater than its generation costs;
- May be required to invest substantially to meet more stringent reliability standards;
- May be unable to maintain insurance on affected facilities, or be required to pay higher premiums for coverage, unless necessary repairs or upgrades are made;

Table of Contents

- May be unable to operate the assets for a significant period of time; and
- May not be able to meet its contractual obligations to deliver power.

In addition, the failure of TVA's generation and transmission assets or their supporting infrastructure to perform as planned may cause health, safety, or environmental problems and may even result in events such as the failure of a dam, the failure of a containment pond, or an incident at a coal-fired, gas-fired, or nuclear facility. Any of these potential outcomes may negatively affect TVA's cash flows, results of operations, financial condition, and reputation.

TVA’s safety program may not prevent accidents that could, among other things, impact TVA’s operations or financial condition.

TVA’s safety program, no matter how well designed and operated, may not completely prevent accidents. In addition to the potential human cost of accidents, which could include injury to employees or members of the public, significant accidents could impact TVA’s ability to carry out operations, cause it to shut down facilities, subject it to additional regulatory scrutiny, damage its reputation, interfere with its ability to attract or retain a skilled workforce, and harm its financial condition.

Weather conditions may influence TVA's ability to supply power and its customers' demands for power.

Extreme temperatures may increase the demand for power and require TVA to purchase power at high prices to meet the demand from customers, while unusually mild weather may result in decreased demand for power and lead to reduced electricity sales. Also, in periods of below normal rainfall or drought, TVA's low-cost hydroelectric generation may be reduced, requiring TVA to purchase power or use more costly means of producing power. Additionally, periods of either high or low levels of rainfall may reduce river levels and impede river traffic, impacting barge deliveries of critical items such as coal and equipment for power facilities. Furthermore, high river water temperatures in the summer may limit TVA's ability to use water from the Tennessee or Cumberland River systems for cooling at certain of TVA's generating facilities, thereby limiting its ability to operate these generating facilities.

Catastrophic events may negatively affect TVA's cash flows, results of operations, and financial condition.

TVA's cash flows, results of operations, and financial condition may be adversely affected, either directly or indirectly, by catastrophic events such as fires, earthquakes, explosions, solar events, electromagnetic pulses, droughts, floods, tornadoes, wars, national emergencies, terrorist activities, pandemics, and other similar destructive or disruptive events. These events, the frequency and severity of which are unpredictable, may, among other things, lead to legislative or regulatory changes that affect the construction, operation, and decommissioning of nuclear units and the storage of spent fuel; limit or disrupt TVA's ability to generate and transmit power; limit or disrupt TVA's ability to provide flood control and river management; reduce the demand for power; disrupt fuel or other supplies; require TVA to produce additional tritium; lead to an economic downturn; require TVA to make substantial capital investments for repairs, improvements, or modifications; and create instability in the financial markets. If public opposition to nuclear power makes operating nuclear plants less feasible as a result of any of these events, TVA may be forced to shut down its nuclear plants. This would make it substantially more difficult for TVA to obtain greater amounts of its power supply from low or zero carbon emitting resources and to replace its generation capacity when faced with retiring or idling certain coal-fired units. Additionally, some studies have predicted that climate change may cause catastrophic events, such as droughts and floods, to occur more frequently in the Tennessee Valley region, which could adversely impact TVA.

TVA's service reliability could be affected by problems at other utilities or at TVA facilities, or by the increase in intermittent sources of power.

TVA's transmission facilities are directly interconnected with the transmission facilities of neighboring utilities and are thus part of the larger interstate power transmission grid. Certain of TVA's generation and transmission assets are critical to maintaining reliability of the transmission system. Additionally, TVA uses certain assets that belong to third parties to transmit power and maintain reliability. Accordingly, problems at other utilities as well as at TVA's facilities may cause interruptions in TVA's service to TVA's customers, increase congestion on the transmission grid, or reduce service reliability. In addition, the increasing contribution of intermittent sources of power, such as wind and solar, may place additional strain on TVA's system as well as on surrounding systems. If TVA suffers a service interruption, increased congestion, or reduced service reliability, TVA's cash flows, results of operations, financial condition, and reputation may be negatively affected.

TVA's supplies of fuel, purchased power, or other critical items may be disrupted.

TVA purchases coal, uranium, natural gas, fuel oil, and electricity from a number of suppliers. Additionally, TVA purchases other items, such as anhydrous ammonia, liquid oxygen, or replacement parts that are critical to the

Table of Contents

operation of certain generation assets. Disruption in the acquisition or delivery of fuel, purchased power, or other critical supplies may result from a variety of physical and commercial events, political developments, legal actions, or environmental regulations affecting TVA's suppliers as well as from transportation or transmission constraints. If one of TVA's suppliers fails to perform under the terms of its contract with TVA, TVA might have to purchase replacement fuel, power, or other critical supplies, perhaps at a significantly higher price than TVA is entitled to pay under the contract. In some circumstances, TVA may not be able to recover this difference from the supplier. In addition, any disruption of TVA's supplies could require TVA to operate higher cost generation assets, thereby adversely affecting TVA's cash flows, results of operations, and financial condition. Moreover, if TVA is unable to acquire enough replacement fuel, power, or supplies, or does not have sufficient reserves to offset the loss, TVA may not be able to operate certain assets or provide enough power to meet demand, resulting in power curtailments, brownouts, or even blackouts.

Events which affect the supply of water in the Tennessee River system and Cumberland River system may interfere with TVA's ability to generate power.

An inadequate supply of water in the Tennessee River system and Cumberland River system could negatively impact TVA's cash flows, results of operations, and financial condition by reducing generation not only at TVA's hydroelectric plants but also at its coal-fired and nuclear plants, which depend on water from the river systems near which they are located for cooling and for use in boilers where water is converted into steam to drive turbines. An inadequate supply of water could result, among other things, from periods of low rainfall or drought, the withdrawal of water from the river systems by governmental entities or others, and incidents affecting bodies of water not managed by TVA. While TVA manages the Tennessee River and a large portion of its tributary system to provide much of the water necessary for the operation of its power plants, the USACE operates and manages other bodies of water upon which some of TVA's facilities rely. Events at these bodies of water or their associated hydroelectric facilities may interfere with the flow of water and may result in TVA's having insufficient water to meet the needs of its plants. If TVA has insufficient water to meet the needs of its plants, TVA may be required to reduce generation at its affected facilities to levels compatible with the available supply of water.

TVA's determination of the appropriate mix of generation assets may change.

TVA has determined that its power generation assets should consist of a mixture of nuclear, coal-fired, natural gas-fired, and renewable power sources, including hydroelectric. In making this determination, TVA took various factors into consideration, including the anticipated availability of its nuclear units, the availability of non-nuclear facilities, the forecasted cost of natural gas and coal, the forecasted demand for electricity, and environmental compliance including the expense of adding air pollution controls to its coal-fired units. If any of these assumptions materially change or are overtaken by subsequent events, then TVA's generation mix may not adequately address its operational needs. Resolving such a situation may require capital expenditures or additional power purchases, and TVA's cash flows, results of operations, financial condition, and reputation may be negatively affected. Additionally, TVA is taking measures to maintain flexibility by keeping certain facilities and sites available as generation options. There are costs associated with maintaining these options that could impact TVA's cash flows, results of operation, financial condition, and reputation.

FINANCIAL, ECONOMIC, AND MARKET RISKS

TVA’s cost reduction efforts may not be successful.

TVA has been working to reduce operating expenses to offset reductions in power demand. The failure to achieve or maintain cost reductions could adversely affect TVA's rates, reputation, cash flows, results of operations, and financial condition.

TVA may have to make significant contributions in the future to fund its qualified pension plan.

At September 30, 2016, TVA's qualified pension plan had assets of approximately $7.1 billion compared to liabilities of approximately $13.1 billion. The plan is mature with approximately 24,000 retirees and beneficiaries receiving benefits of over $700 million per year. The costs of providing benefits depend upon a number of factors, including, but not limited to, provisions of the plan; changing experience and assumptions related to terminations, retirements, and mortality; rates of increase in compensation levels; rates of return on plan assets; discount rates used in determining future benefit obligations and required funding levels; optional forms of benefit payments selected; future government regulation; and levels of contributions made to the plan.

Any of these factors or any number of these factors could keep at high levels, or even increase, the costs of providing benefits and require TVA to make contributions to the plan in amounts that significantly exceed TVA's planned contributions. Unfavorable financial market conditions may result in lower expected rates of return on plan assets, loss in value of the investments, and lower discount rates used in determining future benefit obligations. These changes would negatively impact the funded status of the plan. Additional contributions to the plan and absorption of additional costs would negatively affect TVA's cash flows, results of operations, and financial condition.

Table of Contents

Approaching or reaching TVA's debt ceiling could limit TVA's ability to carry out its business. Additionally, TVA's debt ceiling could be made more restrictive.

The TVA Act provides that TVA can issue Bonds in an amount not to exceed $30.0 billion outstanding at any time. At September 30, 2016, TVA had $24.1 billion of Bonds outstanding (not including noncash items of foreign currency exchange gain of $150 million, unamortized debt issue costs of $62 million, and net discount on sale of Bonds of $100 million).

Approaching or reaching the debt ceiling may adversely affect TVA's business by limiting TVA's ability to access capital markets and increasing the amount of debt TVA must service. Also, Congress may lower TVA's debt ceiling or broaden the types of financial instruments that are covered by the ceiling. Either of these scenarios may also restrict TVA's ability to raise capital to maintain power program assets, to construct additional generation facilities, to purchase power under long-term power purchase agreements, or to meet regulatory requirements. In addition, approaching or reaching the debt ceiling may lead to increased legislative or regulatory oversight of TVA's activities and could lead to negative rating actions by credit rating agencies.

TVA may be unable to meet its current cash requirements if TVA's access to the debt markets is limited.

TVA uses cash provided by operations together with proceeds from power program financings and other financing arrangements to fund its current cash requirements. It is critical that TVA continues to have access to the debt markets in order to meet its cash requirements. The importance of having access to the debt markets is underscored by the fact that TVA, unlike many utilities, relies almost entirely on debt capital since, as a governmental instrumentality, TVA cannot issue equity securities.

TVA's credit ratings may be impacted by congressional actions or by a downgrade of the United States's sovereign credit ratings.

TVA's current credit ratings are not based solely on its underlying business or financial condition but are based to a large extent on the legislation that defines TVA's business structure. Key characteristics of TVA's business defined by legislation include (1) the TVA Board's ratemaking authority, (2) the current competitive environment, which is defined by the fence and the anti-cherrypicking provision, and (3) TVA's status as a corporate agency and instrumentality of the United States. If Congress takes any action that effectively alters any of these characteristics, TVA's credit ratings could be downgraded.

Although TVA Bonds are not obligations of the United States, TVA, as a corporate agency and instrumentality of the United States, may be impacted if the sovereign credit ratings of the United States are downgraded. Such a downgrade of the United States's sovereign credit ratings could, among other things, result in a downgrade of TVA's credit rating. Additionally, the economy could be negatively impacted resulting in reduced demand for electricity, an increase in borrowing costs, and an increase in the cost of fuels, supplies, and other materials required for TVA's operations.

TVA, together with owners of TVA securities, may be impacted by downgrades of TVA's credit ratings.

Downgrades of TVA's credit ratings may have material adverse effects on TVA's cash flows, results of operations, and financial condition as well as on investors in TVA securities. Among other things, a downgrade may have the following effects:

A downgrade could increase TVA's interest expense by increasing the interest rates that TVA pays on new securities that it issues. An increase in TVA's interest expense may reduce the amount of cash available for other purposes,

which may result in the need to increase borrowings, to reduce other expenses or capital investments, or to increase power rates.

A downgrade may result in TVA's having to post collateral under certain physical and financial contracts that contain ratings triggers.

A downgrade below a contractual threshold may prevent TVA from borrowing under three credit facilities totaling $2.5 billion or posting letters of credit as collateral under these facilities. At September 30, 2016, there were $1.4 billion of letters of credit outstanding under these facilities. If TVA were no longer able to post letters of credit as collateral, TVA's liquidity would be negatively affected, for TVA would likely have to post cash as collateral instead of letters of credit.

A downgrade may lower the price of TVA securities in the secondary market, thereby hurting investors who sell TVA securities after the downgrade and diminishing the attractiveness and marketability of TVA securities.

Table of Contents

TVA's assumptions about the future may be inaccurate.

TVA uses certain assumptions in order to develop its plans for the future. Such assumptions include economic forecasts, anticipated energy and commodity prices, cost estimates, construction schedules, power demand forecasts, the appropriate generation mix to meet demand, and potential regulatory environments. Should these assumptions be inaccurate, or be superseded by subsequent events, TVA's plans may not be effective in achieving the intended results, which could negatively affect cash flows, results of operations, and financial condition, as well as TVA's ability to meet electricity demand and the way TVA conducts its business.

Demand for electricity may significantly decline or change, negatively affecting TVA's cash flows, results of operations, and financial condition.

Some of the factors that could reduce or change the demand for electricity include, but are not limited to, the following:

Economic downturns. Renewed economic downturns in TVA's service area or other parts of the United States could reduce overall demand for power and thus reduce TVA's power sales and cash flows, especially if TVA's industrial customers reduce their operations and thus their consumption of power.

Loss of customers. TVA could lose customers if those customers' operations leave TVA’s service territory, choose another utility where available, or pursue self-generation to meet some or all of their power needs. The loss of customers could have a material adverse effect on TVA's cash flows, results of operations, or financial condition, and could result in higher rates, especially because of the difficulty in replacing customers on account of the fence.

Change in technology. Research and development activities are ongoing to improve existing and alternative technologies to produce electricity, including gas turbines, wind turbines, fuel cells, microturbines, solar cells, and distributed generation devices. It is possible that advances in these or other alternative technologies could reduce the costs of electricity production from alternative technologies to a level that will enable these technologies to compete effectively with traditional power plants like TVA's. To the extent these technologies become a more cost-effective option for certain customers, TVA's sales to these customers could be reduced, negatively affecting TVA's cash flows, results of operations, and financial condition.

Change in demands for electricity generated from renewable sources. TVA has been adapting its generation mix to account for the growing preference for electricity generated by renewable sources, such as solar or wind, rather than fossil-fuel sources. If demand by customers for power that is largely or exclusively generated from renewable sources exceeds TVA’s ability to produce such power, TVA might have to change how it operates and may incur additional expense in meeting this demand.

Increased Energy Efficiency and Conservation. Increasingly efficient use of energy as well as conservation efforts may reduce the demand for power. Such a reduction could have a significant impact on TVA, especially if it occurs during an economic downturn or a period of slow economic growth, could negatively affect TVA's cash flows, results of operations, and financial condition, and could result in higher rates and changes to how TVA operates.

TVA is subject to a variety of market risks that may negatively affect TVA's cash flows, results of operations, and financial condition.

TVA is subject to a variety of market risks, including, but not limited to, commodity price risk, investment price risk, interest rate risk, counterparty credit and performance risk, and currency exchange rate risk.

Commodity Price Risk. If prices of commodities critical to operations, including coal, uranium, natural gas, fuel oil, crude oil, construction materials, or emission allowances, increase, TVA's rates may increase.

Investment Price Risk. TVA is exposed to investment price risk in the NDT, its Asset Retirement Trust ("ART"), its Supplemental Executive Retirement Plan ("SERP"), its Long-Term Deferred Compensation Plan ("LTDCP"), and its pension plan. If the value of the investments held in the NDT or the pension fund either decreases or fails to increase in accordance with assumed rates of return, TVA may be required to make substantial contributions to these funds. In addition, although TVA is not required to make contributions to the ART, it may choose to do so, particularly if TVA's estimates of its non-nuclear asset retirement obligation liabilities increase. TVA may also choose to make contributions to the SERP and LTDCP from time to time.

Interest Rate Risk. Changes in interest rates may increase the amount of interest that TVA pays on new Bonds that it issues, decrease the return that TVA receives on short-term investments, decrease the value of the investments in the NDT, the ART, TVA's pension fund, the SERP and the LTDCP, increase the amount of collateral that TVA is required to post in connection with certain of its derivative transactions, and increase the losses on the mark-to-market valuation of certain derivative transactions into which TVA has entered.

Table of Contents

Counterparty Credit and Performance Risk. TVA is exposed to the risk that its counterparties will not be able to perform their contractual obligations. If TVA's counterparties fail to perform their obligations, TVA's cash flows, results of operations, and financial condition may be adversely affected. In addition, the failure of a counterparty to perform may make it difficult for TVA to perform its obligations, particularly if the counterparty is a supplier of electricity or fuel.

Currency Exchange Rate Risk. Over the next several years, TVA plans to spend a significant amount of capital on clean air projects, capacity expansion, and other projects. A portion of this amount may be spent on contracts that are denominated in one or more foreign currencies. Additionally, TVA’s three issues of Bonds denominated in British pounds sterling are hedged by currency swap agreements. The value of the U.S. dollar compared with other currencies has fluctuated widely in recent years, including recent fluctuations in the U.S. dollar to British pound sterling exchange rate primarily driven by the “BREXIT” vote for the United Kingdom to leave the European Union. If not effectively managed, foreign currency exposure could negatively impact TVA's counterparty risk, cash flows, results of operations, and financial condition.

TVA's ability to use derivatives to hedge certain risks may be limited.

Under the Dodd-Frank Wall Street Reform and Consumer Protection Act and its implementing regulations, TVA is subject to recordkeeping, reporting, and reconciliation requirements related to its derivative transactions. In addition, depending on how regulatory agencies interpret and implement the provisions of this act, TVA's hedging costs may increase, and TVA may have to post additional collateral and margin in connection with its derivative transactions. These occurrences may, among other things, negatively affect TVA's cash flows and cause TVA to reduce or modify its hedging activities, which could increase the risks to which TVA is exposed.

The market for TVA securities might be limited.

Although many TVA Bonds are listed on stock exchanges, there can be no assurances that any market will develop or continue to exist for any Bonds. Additionally, no assurances can be made as to the ability of the holders to sell their Bonds or as to the price at which holders will be able to sell their Bonds. Future trading prices of Bonds will depend on many factors, including prevailing interest rates, the then-current ratings assigned to the Bonds, the amount of Bonds outstanding, the time remaining until the maturity of the Bonds, the redemption features of the Bonds, the market for similar securities, and the level, direction, and volatility of interest rates generally, as well as the liquidity of the markets for those securities.

If a particular series of Bonds is offered through underwriters, those underwriters may attempt to make a market in the Bonds. Dealers other than underwriters may also make a market in TVA securities. However, the underwriters and dealers are not obligated to make a market in any TVA securities and may terminate any market-making activities at any time without notice.

In addition, legal limitations may affect the ability of banks and others to invest in Bonds. For example, national banks may purchase TVA Bonds for their own accounts in an amount not to exceed 10 percent of unimpaired capital and surplus. Also, TVA Bonds are “obligations of a corporation which is an instrumentality of the United States” within the meaning of Section 7701(a)(19)(C)(ii) of the Internal Revenue Code for purposes of the 60 percent of assets limitation applicable to U.S. building and loan associations.

TVA may be unable to use regulatory accounting for some or all costs.

TVA uses regulatory accounting to defer certain costs. To qualify for regulatory accounting, costs must meet certain accounting criteria and be approved for regulatory accounting treatment by the Board in its capacity as TVA’s

regulator. If costs do not meet, or cease to meet, these criteria, or if the Board disallows the treatment or ceases to be TVA’s sole regulator in such areas, TVA may not be able to defer those costs. Such an inability to defer costs would likely have a substantial impact on TVA’s financial condition and results of operations and could impact the timing and amounts of TVA's rate recovery. For a discussion of regulatory accounting, see Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates.

TVA's financial control system cannot guarantee that all control issues and instances of fraud or errors will be detected.

No financial control system, no matter how well designed and operated, can provide absolute assurance that the objectives of the control system are met, and no evaluation of financial controls can provide absolute assurance that all control issues and instances of fraud or errors can be detected. The design of any system of financial controls is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions, regardless of how remote.

Table of Contents

Payment of principal and interest on TVA securities is not guaranteed by the United States.

Although TVA is a corporate agency and instrumentality of the United States government, TVA securities are not backed by the full faith and credit of the United States. If TVA were to experience extreme financial difficulty and were unable to make payments of principal or interest on its Bonds, the federal government would not be legally obligated to prevent TVA from defaulting on its obligations. Principal and interest on TVA securities are payable solely from TVA's net power proceeds. Net power proceeds are the remainder of TVA's gross power revenues after deducting the costs of operating, maintaining, and administering its power properties and payments to states and counties in lieu of taxes, but before deducting depreciation accruals or other charges representing the amortization of capital expenditures, plus the net proceeds from the sale or other disposition of any power facility or interest therein.

GENERAL BUSINESS RISKS

TVA's organizational structure may not adequately support TVA's anticipated business needs.

TVA has been modifying its organizational structure to better adapt to the forecasted economic environment. If TVA’s assumptions about either its forecasts or the proper internal structure of the company to meet the expected environment are inaccurate or if this structure does not adequately support TVA’s needs, then TVA could face operational or financial challenges that could adversely affect TVA's cash flows, results of operations, and financial condition as well as TVA’s ability to attract or retain a skilled workforce.

TVA's reputation may be negatively impacted.

As with any company, TVA's reputation is a vital element of its ability to effectively conduct its business. TVA's reputation could be harmed by a variety of factors, including the failure of a generating asset or supporting infrastructure, significant delays in construction projects, acts or omissions of TVA management, the perception of such acts or omissions, measures taken to offset reductions in demand, or a significant dispute with one of TVA's customers. Any deterioration in TVA's reputation may harm TVA's relationships with its customers and stakeholders, may increase TVA's cost of doing business, may interfere with its ability to attract and retain a skilled workforce, and may potentially lead to the imposition of additional laws and regulations that negatively affect the way TVA conducts its business.

Failure to attract and retain an appropriately qualified workforce may negatively affect TVA's results of operations.

TVA's business depends on its ability to recruit and retain key executive officers as well as skilled professional and technical employees. The inability to attract and retain an appropriately qualified workforce could adversely affect TVA's ability to, among other things, operate and maintain generation and transmission facilities, complete large construction projects, and successfully implement its organizational transformation efforts.

Loss of a quorum of the TVA Board could limit TVA's ability to adapt to meet changing business conditions.

Under the TVA Act, a quorum of the TVA Board is five members. Becoming a member of the TVA Board requires confirmation by the U.S. Senate following appointment by the President. Further, TVA Board members may not continue in office indefinitely until a successor is appointed. The TVA Board is responsible for, among other things, establishing the rates TVA charges for power as well as TVA's long-term objectives, policies, and plans. Accordingly, loss of a quorum for an extended period of time would impair TVA's ability to change rates and to modify these objectives, policies, and plans. Such an impairment would likely have a negative impact on TVA's ability to respond to significant changes in technology, the regulatory environment, or the industry overall and, in turn, negatively affect TVA's cash flows, results of operations, and financial condition.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

TVA holds personal property in its own name but holds real property as agent for the United States of America. TVA may acquire real property as an agent of the United States by negotiated purchase or by eminent domain.

Generating Properties

At September 30, 2016, TVA-operated generating assets consisted of 35 active coal-fired units, 6 nuclear units, 109 conventional hydroelectric units, 4 pumped-storage units, 12 combined-cycle power blocks, 87 simple-cycle units, 5 diesel generator units, one wind energy site (out of service), and 14 solar sites. See Note 12 — Lease/Leasebacks. In addition, TVA has biomass co-firing potential at its coal-fired sites. As of September 30, 2016, 24 of the simple-cycle combustion turbine units

Table of Contents

and four of the combined-cycle power blocks were leased to private entities and leased back to TVA under long-term leases. In addition, TVA is leasing the three Caledonia combined-cycle power blocks under a long-term lease. TVA is in the process of constructing additional generating assets. For a discussion of these assets, see Item 1, Business — Power Supply and Load Management Resources.

Table of Contents

Net Capability

The following table summarizes TVA's summer net capability in megawatts ("MW") at September 30, 2016:

SUMMER NET CAPABILITY[1]
At September 30, 2016

Source of Capability	Location	Number of Units	Summer Net Capability (MW)	Date First Unit Placed in Service	Date Last Unit Placed in Service
TVA-Operated Generating Facilities					
Coal-Fired					
Allen[2]	Tennessee	3	741	1959	1959
Bull Run	Tennessee	1	865	1967	1967
Cumberland	Tennessee	2	2,470	1973	1973
Gallatin	Tennessee	4	976	1956	1959
Johnsonville	Tennessee	4	428	1951	1959
Kingston	Tennessee	9	1,398	1954	1955
Paradise	Kentucky	3	2,201	1963	1970
Shawnee	Kentucky	9	1,206	1953	1955
Total Coal-Fired		35	10,285		
Nuclear					
Browns Ferry	Alabama	3	3,309	1974	1977
Sequoyah	Tennessee	2	2,292	1981	1982
Watts Bar[3]	Tennessee	1	1,135	1996	1996
Total Nuclear		6	6,736		
Hydroelectric					
Conventional Plants	Alabama	36	1,176	1925	1962
	Georgia	2	35	1931	1956
	Kentucky	5	223	1944	1948
	North Carolina	6	492	1940	1956
	Tennessee	60	1,845	1912	1972
Pumped-Storage[4]	Tennessee	4	1,616	1978	1979
Total Hydroelectric		113	5,387		
Natural Gas and/or Oil-Fired[5][6]					
Simple-Cycle Combustion Turbine					
Allen	Tennessee	20	456	1971	1972
Brownsville	Tennessee	4	468	1999	1999
Colbert	Alabama	8	392	1972	1972
Gallatin	Tennessee	8	642	1975	2000
Gleason	Tennessee	3	500	2000	2000
Johnsonville	Tennessee	20	1,276	1975	2000
Kemper	Mississippi	4	348	2002	2002
Lagoon Creek	Tennessee	12	1,048	2001	2002
Marshall County	Kentucky	8	608	2002	2002
Subtotal Simple-Cycle Combustion Turbine		87	5,738		
Combined-Cycle Combustion Turbine					

Ackerman[7]	Mississippi	1	713	2007	2007
Caledonia[8]	Mississippi	3	765	2003	2003
John Sevier[9]	Tennessee	1	871	2012	2012
Lagoon Creek[10]	Tennessee	1	525	2010	2010
Magnolia	Mississippi	3	918	2003	2003
Southaven	Mississippi	3	780	2003	2003
Subtotal Combined-Cycle Combustion Turbine		12	4,572		
Total Natural Gas and/or Oil-Fired		99	10,310		
Diesel Generator					
Meridian	Mississippi	5	9	1998	1998
Total Diesel Generators		5	9		
TVA Renewable Resources (non-hydro)[11]			< 1		
Total TVA-Operated Generating Facilities			32,727		
Contract Renewable Resources[12][13]			204		
Power Purchase and Other Agreements[14]			3,531		
Total Summer Net Capability			36,462		

Table of Contents

Notes
(1) Net capability is defined as the ability of an electric system, generating unit, or other system component to carry or generate power for a specified time period
and does not include operational limitations such as derates.
(2) Eight MW of cofired methane at Allen are presented as coal generation as opposed to TVA Renewable Resources.
(3) Watts Bar Unit 2 with a nameplate capacity of 1,220 MW commenced commercial operations on October 19, 2016.
(4) See Item 1, Business — Power Supply and Load Management Resources — Hydroelectric and Other Renewable Energy Resources — Conventional Hydroelectric Dams for a discussion of Hiwassee Hydro Unit 2.
(5) See Generating Properties above for a discussion of TVA-operated natural gas and/or oil-fired facilities subject to leaseback and long-term lease arrangements.
(6) Peak firing of simple-cycle combustion turbine units accounts for 333 MW of short-term capability.
(7) Ackerman Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).
(8) Caledonia Combined Cycle Plant is currently a leased facility operated by TVA.
(9) John Sevier Combined Cycle Facility is a single steam cycle unit driven by three gas turbines (3x1 configuration).
(10) Lagoon Creek Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).
(11) TVA owns 0.4 MW of solar installations at 14 sites.
(12) Contract Renewable Resources include Generation Partners, Renewable Standard Offer, and 15 wind turbine generators located on Buffalo Mountain.
(13) Solar and wind resources are listed at nameplate capacity.
(14) Power Purchase and Other Agreements includes renewable resources. See Item 1, Business — Power Supply and Load Management Resources — Purchased Power and Other Agreements for information on renewable energy power purchase contracts.

Transmission Properties

TVA's transmission system interconnects with systems of surrounding utilities and consists primarily of the following assets:

- Approximately 2,500 circuit miles of 500 kilovolt, 11,500 circuit miles of 161 kilovolt, and 2,200 circuit miles of other voltage transmission lines;
- 510 transmission substations, power switchyards, and switching stations; and
- 1,314 customer connection points (customer, generation, and interconnection).

At September 30, 2016, certain qualified technological equipment and other software related to TVA's transmission system were leased to private entities and leased back to TVA under long-term leases.

Natural Resource Stewardship Properties

TVA operates and maintains 49 dams and manages the following natural resource stewardship properties:

- Approximately 11,000 miles of reservoir shoreline;
- Approximately 293,000 acres of reservoir land;
- Approximately 650,000 surface acres of reservoir water; and
- Approximately 80 public recreation areas throughout the Tennessee Valley, including campgrounds, day-use areas, and boat launching ramps.

Additionally, TVA manages over 170 agreements for commercial recreation (such as campgrounds and marinas).

As part of its stewardship responsibilities, TVA approval is required to be obtained before any obstruction affecting navigation, flood control, or public lands can be constructed in or along the Tennessee River and its tributaries.

Buildings

TVA has a variety of buildings and structures located throughout its service area including generation and transmission facilities, corporate offices, customer service centers, power service centers, warehouses, visitor centers, and crew quarters. The most significant of these buildings are its Knoxville Office Complex ("KOC") and the Chattanooga Office Complex in Tennessee as well as a significant number of buildings in Muscle Shoals, Alabama. In 2013, TVA initiated a study of its real estate portfolio for the purpose of reducing cost, right-sizing the portfolio, and aligning its real estate with TVA’s strategic direction over the next 10 to 20 years. As part of this effort, TVA also plans to draft and implement a strategy to further reduce its Muscle Shoals property, including the disposition of 970 acres approved by the TVA Board in 2012. In 2016, TVA also completed a comprehensive assessment of its real estate holdings in the Knoxville region including the KOC and adjacent Summer Place Complex ("SPC"). As a result of this study, TVA is considering selling both the KOC and SPC and replacing them with a new, build-to-suit building in downtown Knoxville. On September 29, 2016, TVA released a draft environmental assessment related to the sale of the KOC and SPC. Evaluation of the real estate portfolio is continuing.

TVA’s efforts are in alignment with the President’s 2013 “Freeze the Footprint" policy, which requires federal agencies to freeze their real property footprint and the 2015 “National Strategy for Real Property" policy requiring agencies to reduce, rather than freeze, real estate footprints beginning in 2016.

Table of Contents

Disposal of Property

Under the TVA Act, TVA has broad authority to dispose of personal property but only limited authority to dispose of real property. The primary, but not exclusive, sources of TVA's authority to dispose of real property are briefly described below:

- Under Section 31 of the TVA Act, TVA has authority to dispose of surplus real property at a public auction.
- Under Section 4(k) of the TVA Act, TVA can dispose of real property for certain specified purposes, including providing replacement lands for certain entities whose lands were flooded or destroyed by dam or reservoir construction and to grant easements and rights-of-way upon which are located transmission or distribution lines.
- Under Section 15d(g) of the TVA Act, TVA can dispose of real property in connection with the construction of generating plants or other facilities under certain circumstances.

Additionally, under 40 U.S.C. § 1314, TVA has authority to grant easements for rights-of-way and other purposes.

The Basic Tennessee Valley Authority Power Bond Resolution adopted by the TVA Board on October 6, 1960, as amended on September 28, 1976, October 17, 1989, and March 25, 1992 (the "Basic Resolution"), prohibits TVA from mortgaging any part of its power properties and from disposing of all or any substantial portion of these properties unless TVA provides for a continuance of the interest, principal, and sinking fund payments due and to become due on all outstanding Bonds, or for the retirement of such Bonds.

During 2016, the TVA Board declared the Bellefonte site surplus and directed the sale of some or all of the site at public auction.

ITEM 3. LEGAL PROCEEDINGS

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting TVA’s activities, as a result of catastrophic events or otherwise. While the outcome of the Legal Proceedings to which TVA is a party cannot be predicted with certainty, any adverse outcome to a Legal Proceeding involving TVA may have a material adverse effect on TVA’s cash flows, results of operations, and financial condition.

For a discussion of Legal Proceedings involving TVA, see Note 20 — Legal Proceedings, which discussion is incorporated by reference into this Item 3.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

Table of Contents

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Not applicable.

Table of Contents

ITEM 6. SELECTED FINANCIAL DATA

The following selected financial data for the years 2012 through 2016 should be read in conjunction with the audited financial statements and notes thereto (collectively, the "Consolidated Financial Statements") presented in Item 8, Financial Statements and Supplementary Data. Certain reclassifications have been made to the 2012, 2013, 2014, and 2015 financial statement presentations to conform to the 2016 presentation.

Selected Financial Data[1][2]
For the years ended, or at, September 30
(dollars in millions)

	2016	2015	2014	2013	2012
Sales (millions of kWh)	155,855	158,163	158,057	161,925	165,255
Peak load (MW)[3]	29,824	32,751	33,352	28,726	31,098
Operating revenues	$10,616	$11,003	$11,137	$10,956	$11,220
Fuel expense	$2,126	$2,444	$2,730	$2,820	$2,680
Purchased power expense	$964	$950	$1,094	$1,027	$1,189
Operating and maintenance expense	$2,842	$2,838	$3,341	$3,428	$3,510
Net interest expense	$1,136	$1,133	$1,169	$1,226	$1,273
Net income	$1,233	$1,111	$469	$271	$60
Construction expenditures	$2,710	$2,850	$2,384	$2,051	$2,119
Total assets	$50,494	$48,745	$45,514	$46,015	$47,257
Financial obligations					
Long-term debt, net[4]					
Long-term power bonds, net	$20,901	$22,617	$21,880	$22,239	$20,200
Long-term debt of variable interest entities, net	$1,199	$1,233	$1,265	$1,296	$973
Long-term notes payable	$48	$—	$—	$—	$—
Total long-term debt, net	$22,148	$23,850	$23,145	$23,535	$21,173
Current debt, net[4]					
Short-term debt, net	$1,407	$1,034	$596	$2,432	$1,507
Current maturities of power bonds	$1,555	$32	$1,032	$32	$2,308
Current maturities of long-term debt of variable interest entities	$35	$33	$32	$30	$13
Current maturities of notes payable	$27	$—	$—	$—	$—
Total current debt, net	$3,024	$1,099	$1,660	$2,494	$3,828
Total debt[4]	$25,172	$24,949	$24,805	$26,029	$25,001
Capital leases[5]	$181	$105	$109	$43	$35

Membership interests of variable interest entity subject to mandatory redemption[4][5]	$35	$37	$39	$40	$—
Leaseback obligations	$467	$616	$691	$761	$1,203
Energy prepayment obligations	$210	$310	$410	$510	$612

Notes

(1) See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations for a description of certain items in 2016, 2015, and 2014 affecting results in those years.

(2) See Item 1A, Risk Factors and Note 20 for a discussion of risks and contingencies that could affect TVA's future financial results.

(3) TVA met an all-time summer peak demand of 33,482 MW on August 16, 2007, at 102 degrees Fahrenheit and an all-time winter peak demand of 33,352 MW on January 24, 2014, at 7.3 degrees Fahrenheit.

(4) See Note 9 and Note 12 — Debt Outstanding.

(5) Included in Accounts payable and accrued liabilities and Other long-term liabilities on the consolidated balance sheets.

Table of Contents

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS
(Dollars in millions except where noted)

The following Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is intended to help the reader understand the Tennessee Valley Authority ("TVA"), its operations, and its present business environment. The MD&A is provided as a supplement to — and should be read in conjunction with — TVA's consolidated financial statements and the accompanying notes thereto contained in Item 8, Financial Statements and Supplementary Data of this Annual Report on Form 10-K for the fiscal year ended September 30, 2016 (the "Annual Report"). The MD&A includes the following sections:

- Business and Mission - a general description of TVA's business, objectives, strategic priorities, and core capabilities;
- Executive Overview - a general overview of TVA's activities and results of operations for 2016;
- Results of Operations - an analysis of TVA's consolidated results of operations for the three years presented in its consolidated financial statements;
- Liquidity and Capital Resources - an analysis of cash flows, a description of aggregate contractual obligations, and an overview of financial position;
- Key Initiatives and Challenges - an overview of current and future initiatives and challenges facing TVA;
- Critical Accounting Policies and Estimates - a summary of accounting policies that require critical judgments and estimates;
- Fair Value Measurements - a description of TVA's investments and derivative instruments and valuation considerations;
- Legislative and Regulatory Matters - a summary of laws and regulations that may impact TVA; and
- Risk Management Activities - a description of TVA's risk governance and exposure to various market risks.

Business and Mission

Business

TVA operates the nation's largest public power system. At September 30, 2016, TVA provided electricity to approximately 51 large industrial customers, seven federal agency customers, and 154 local power company customers of TVA ("LPCs") that serve over nine million people in parts of seven southeastern states. TVA generates virtually all of its revenues from the sale of electricity, and in 2016 revenues from the sale of electricity totaled $10.5 billion. As a wholly-owned agency and instrumentality of the United States, however, TVA differs from other electric utilities in a number of ways:

- TVA is a government corporation.
- The area in which TVA sells power is limited by the Tennessee Valley Authority Act of 1933, as amended (the "TVA Act"), under a provision known as the "fence"; however, another provision of federal law known as the "anti-cherrypicking" provision generally protects TVA from being forced to provide access to its transmission lines to

others for the purpose of delivering power to customers within substantially all of TVA's defined service area.

The rates TVA charges for power are set solely by the TVA Board of Directors (the "TVA Board") and are not set or reviewed by another entity, such as a public utility commission. In setting rates, however, the TVA Board is charged by the TVA Act to have due regard for the primary objectives of the TVA Act, including the objective that power be sold at rates as low as feasible.

TVA is not authorized to raise capital by issuing equity securities. TVA relies primarily on cash from operations and proceeds from power program borrowings to fund its operations and is authorized by the TVA Act to issue bonds, notes, or other evidences of indebtedness ("Bonds") in an amount not to exceed $30.0 billion outstanding at any given time. Although TVA's operations were originally funded primarily with appropriations from Congress, TVA has not received any appropriations from Congress for any activities since 1999 and, as directed by Congress, has funded essential stewardship activities primarily with power revenues.

Table of Contents

TVA's Mission of Service

TVA was built for the people, created by Congress, and charged with a unique mission - to improve the quality of life in a seven-state region through the integrated management of the region’s resources.

TVA's mission focuses on three key areas:

- Energy - Provide reliable, affordable electric power throughout the Tennessee Valley;
- Environment - Act as steward of the region’s natural resources; and
- Economic Development - Serve as a catalyst for sustainable economic development.

While TVA's mission has not changed since it was established in 1933, the climate in which TVA operates continues to evolve. The business and economic environment has become more challenging due to economic conditions, tougher environmental standards, and the need to diversify its power supply and adapt to changing customer usage behaviors, new technologies, and emerging, non-traditional competition. To adapt to these challenges, TVA has developed the following strategic imperatives to position itself to carry out its mission of serving the people of the Tennessee Valley:

- Rates - Maintain low rates;
- Stewardship - Be responsible stewards;
- Debt - Live within its means; and
- Asset Portfolio - Meet reliability expectations and provide a balanced portfolio.

TVA’s mission sets the stage for its strategic planning process that includes strategic objectives, initiatives, and scorecards for performance designed to provide clear direction for improving TVA's core business.

Linking the Mission to Performance

TVA has formulated key performance measures to support its strategic imperatives. The intent of these measures is to align employees to TVA’s mission by focusing its collective efforts on operational excellence, fiscal responsibility, and economic development and environmental stewardship. The measures are designed to promote teamwork, encourage high performance behaviors, and motivate TVA employees to achieve goals aligned with TVA’s mission and values.

The 2016 corporate results compared with targets for these key measures are reflected in the chart below. In addition to these corporate measures, TVA organizations also develop and track performance measures. See Item 11, Executive Compensation — Compensation Discussion and Analysis for additional information regarding the TVA 2016 organization scorecards.

Corporate Measure	Weight	Actual	Threshold	Target	Stretch
Nuclear unit capability factor (%)	20%	89.2%	90.6%	91.6%	92.0%
Coal seasonal equivalent forced outage rate (%)	10%	5.3%	5.9%	5.4%	4.9%
Combined cycle seasonal equivalent forced outage rate (%)	10%	0.3%	2.1%	1.3%	0.9%
Load not served (system minutes)	10%	4.8%	5.0%	4.0%	3.5%
Reportable environmental events	10%	9	15	12	9
Corporate total spending ($ millions)	40%	$782	$849	$830	$810

Executive Overview

TVA's net income for the years ended September 30, 2016 and 2015, was $1.2 billion and $1.1 billion, respectively. Sales of electricity decreased slightly for the year ended September 30, 2016, as compared to the prior year, as TVA experienced the second mildest winter in the last 55 years, which was mostly offset by the warmest summer of that same period. Revenue from the sales of electricity also had a decrease of $386 million for the year ended September 30, 2016, as compared to the year ended September 30, 2015, due mostly to lower fuel cost recoveries partially offset by an increase in non-fuel base rates. TVA continued to benefit from recent cost reduction initiatives that led to more than $600 million in reductions in operating costs from 2013 budget levels through 2015, with operating and maintenance costs remaining essentially flat for the year ended

Table of Contents

September 30, 2016, as compared to the prior year. Additionally, depreciation expense decreased $195 million related to the timing of idling or retiring certain coal-fired units and license extensions for the Sequoyah Nuclear Plant (“Sequoyah”). For a more detailed discussion of revenues and expenses, see Results of Operations.

TVA continues to focus on balancing its asset portfolio to be able to provide clean, reliable, and affordable energy under a variety of future conditions. Watts Bar Nuclear Plant ("Watts Bar") Unit 2 began generating electricity in June 2016 and was declared commercially operational on October 19, 2016, becoming the first new U.S. nuclear generating unit brought online in the 21st century. With the addition of Watts Bar Unit 2, and other projects currently under construction, TVA does not foresee needing additional large, baseload generation units for at least the next decade. TVA has two natural gas-fired generation facilities under construction which will add approximately 2,000 MW of cleaner energy to the TVA fleet. The facility at the Paradise Fossil Plant ("Paradise") site is expected to be completed in the spring of 2017, and the facility at the Allen Fossil Plant ("Allen") site is expected to be completed in 2018. Work on the Gallatin Fossil Plant ("Gallatin") scrubber and selective catalytic reduction systems ("SCRs") continues with the first two SCRs expected to be completed in the spring of 2017 and the second two SCRs expected to be completed in the fall of 2017. Because of its strong financial position in 2016, TVA was able to fund current year work on these and other projects primarily from operating funds instead of issuing a large amount of additional debt. During 2016, TVA also contracted for 615 MWs of output from a natural gas-fired facility in northern Alabama through 2026 and for the 53 MWs of output from a solar project in western Tennessee through 2038.

During March 2016, TVA removed from service Units 1-4 at the Colbert Fossil Plant ("Colbert") with a summer net capability of 712 MW and subsequently retired all units at Colbert in April 2016. Colbert Unit 5 had previously been removed from service in 2013. As the Paradise and Allen natural gas-fired generation facilities are completed, TVA will be retiring five coal-fired units with a net summer capability of 1,971 MW at those two sites.

During its reassessment of dam structures in 2016, TVA’s analyses of Pickwick Landing Dam ("Pickwick") in southwestern Tennessee indicated that a seismic event could cause slope stability failures in portions of the south embankment. TVA will begin the design phase of the south embankment remediation project in November 2016. Work is also continuing to remediate the seepage discovered in October 2014 at Boone Dam, which is expected to take five to seven years to complete.

Collaboration with LPCs is becoming more important in designing TVA’s rate structure, pricing products, and programs to help customers make more informed decisions on energy usage, and, as distributed energy technologies mature, TVA is working with LPCs in integrating changes to their distribution systems. TVA’s efforts to attract and encourage expansion of business and industries in the Tennessee Valley have stimulated economic development by helping attract over $8.3 billion in investments in the Tennessee Valley and helping create or retain over 72,100 jobs during 2016. Due in part to its focus on cost reduction and strategic product pricing, TVA continues to work to put itself in a more competitive position to attract and retain customers.

Going forward, TVA anticipates that electricity demand in its service area will be impacted by more stringent energy efficiency standards, technological advances, and evolving customer behaviors, as well as increased individual, government, and business use of distributed generation, the entrance of non-traditional competitors into the power delivery system markets, regulatory policies, and grid and storage technology advancements. With a minimal projected sales growth rate, TVA expects that improved productivity and control of expenses will be key to maintaining rate competitiveness. Organizational effectiveness will be continually assessed to seek to ensure that TVA best meets changes in the industry and the evolving business needs of its customers. To this end, a distributed energy resources group was established within TVA in 2016 to help determine TVA’s role in the evolving marketplace and guide TVA’s collaboration with customers as changes unfold.

52

Table of Contents

Results of Operations

Sales of Electricity

Sales of electricity accounted for virtually all of TVA's operating revenues in 2016, 2015, and 2014. TVA sells power at wholesale rates to LPCs that resell the power to their customers at retail rates. TVA also sells power to directly served customers, consisting primarily of federal agencies and customers with large or nonstandard loads. In addition, power that exceeds the needs of the TVA system is sold under exchange power arrangements with certain other power systems.

The following chart compares TVA’s energy sales statistics for the years ended September 30, 2016, 2015, and 2014:

Sales of Electricity
(millions of kWh)

Note
(1) Includes approximately 579 million kWh of pre-commercial generation at Watts Bar Unit 2. See Note 1 — Pre-Commercial Plant Operations.

Table of Contents

Weather affects both the demand for TVA power and the price for that power. TVA uses degree days to measure the impact of weather on its power operations. Degree days measure the extent to which average temperatures in the five largest cities in TVA's service area vary from 65 degrees Fahrenheit.

Degree Days

Notes
* Normal heating degree days for the year ended September 30, 2016 were 3,381. Normal heating degree days for the years ended September 30, 2015 and 2014 were 3,360. This calculation is updated every five years in order to incorporate the then most recent 30 years. It was last updated in 2011. The 2016 normal heating degree days differ from 2015 and 2014 due to the occurrence of a leap year in 2016.
** Normal cooling degree days for the years ended September 30, 2016, 2015, and 2014 were 1,863. This calculation is updated every five years in order to incorporate the then most recent 30 years. It was last updated in 2011.

2016 Compared to 2015

Sales of electricity decreased 1.5 percent for the year ended September 30, 2016, as compared to the prior year, primarily on account of decreased sales volume for LPCs resulting from a 26 percent decrease in heating degree days due to the polar vortex in the winter of 2015. Additionally, a decrease in sales to federal agencies and other occurred primarily as a result of a decrease in off-system sales, as TVA had less excess generation available for sale to the market as compared to the prior year. Partially offsetting these decreases was an increase in sales to industries directly served as a result of two customers increasing production at their facilities.

2015 Compared to 2014

Sales of electricity increased .10 percent for the year ended September 30, 2015, as compared to the year ended September 30, 2014, primarily due to increased sales volume for LPCs resulting from a seven percent increase in cooling degree days. This increase was partially offset by both a decrease in sales to industries directly served as a result of economic conditions affecting certain customers and a decrease in sales to federal agencies and other, primarily from a reduction in off-system sales as TVA had less excess generation available for sale.

Table of Contents

Financial Results

The following table compares operating results for 2016, 2015, and 2014:

Summary Consolidated Statements of Operations

	2016	2015	2014
Operating revenues	$10,616	$11,003	$11,137
Operating expenses	8,290	8,788	9,548
Operating income	2,326	2,215	1,589
Other income, net	43	29	49
Net interest expense	1,136	1,133	1,169
Net income	$1,233	$1,111	$469

Operating Revenues. Operating revenue components as a percentage of total operating revenues for 2016, 2015, and 2014 consisted of the following:

Operating Revenues

Note

The 2016 amounts in the chart above exclude a contra-revenue amount of approximately $18 million representing revenue capitalized during pre-commercial operations at Watts Bar Unit 2. See Note 1 — Pre-Commercial Plant Operations.

The rate structure in effect for the years ended September 30, 2016, 2015, and 2014 provides price signals intended to reflect higher cost periods to serve LPCs and their end-use customers. Under this structure, weather can positively or negatively impact both volume and effective rates. This is because the wholesale structure includes two components: a demand charge and an energy charge. The demand charge is based on the customer's peak monthly usage and increases as the peak increases. The energy charge is based on the kilowatt hours ("kWh") used by the customer. The rate structure also includes a separate fuel rate that includes the costs of natural gas, fuel oil, purchased power, coal, emission allowances, nuclear fuel, and other fuel-related commodities; realized gains and losses on derivatives purchased to hedge the costs of such commodities; and tax equivalents associated with the fuel cost adjustments.

Table of Contents

The changes in revenue components are summarized below:

	2016	Variance 2016 vs 2015	2015	Variance 2015 vs 2014	2014
Base revenue	$7,468 [1]	$ (56)	$7,524	$ 230	$7,294
Fuel cost recovery	2,986	(319)	3,305	(371)	3,676
Off-system sales	7	(11)	18	(11)	29
Revenue from sales of electricity	10,461	(386)	10,847	(152)	10,999
Other revenue	155	(1)	156	18	138
Total operating revenues	$10,616	$ (387)	$11,003	$ (134)	$11,137

Note

(1) Includes approximately $18 million of revenue capitalized during pre-commercial operations at Watts Bar Unit 2. See Note 1 — Pre-Commercial Plant Operations.

2016 Compared to 2015

Operating revenues decreased $387 million for the year ended September 30, 2016, as compared to the prior year, primarily due to a $319 million decrease in fuel cost recovery revenues and a $56 million decrease in base revenue. The $319 million decrease in fuel cost recovery revenues reflects a $279 million decrease attributable to lower fuel rates and a $40 million decrease attributable to lower energy sales. The lower fuel rates experienced were primarily driven by favorable market prices for natural gas and a change in the mix of generation resources. The $56 million decrease in base revenue was predominantly driven by a decrease of $105 million resulting from lower sales volume during the year ended September 30, 2016, as compared to the prior year. In addition, the capitalization of approximately $18 million of revenue, resulting from pre-commercial generation at Watts Bar Unit 2, contributed to the decrease in base revenue. See Note 1 — Pre-Commercial Plant Operations. These decreases in base revenue were partially offset by an increase of approximately $67 million attributable to higher effective rates resulting primarily from the base rate adjustment that became effective October 1, 2015. The increase attributable to the rate adjustment was partially offset by lower levels of peak customer usage due to the milder winter weather experienced during the year ended September 30, 2016, as compared to the prior year.

2015 Compared to 2014

Operating revenues decreased $134 million for the year ended September 30, 2015, as compared to the year ended September 30, 2014, primarily due to a $371 million decrease in fuel cost recovery revenues, which was partially offset by a $230 million increase in base revenue. The $371 million decrease in fuel cost recovery revenues was primarily attributable to lower fuel rates. The $230 million increase in base revenue was predominantly driven by an increase of $206 million resulting from the non-fuel base rate increase that became effective October 1, 2014, and an increase of $24 million from higher volume. The $230 million increase in base revenue is split between an increase in energy revenue of $138 million and an increase in demand revenue of $105 million.

See Sales of Electricity above for further discussion of the change in the volume of sales of electricity and Operating Expenses below for further discussion of the change in fuel expense.

Operating Expenses. Operating expense components as a percentage of total operating expenses for 2016, 2015, and 2014 consisted of the following:

Table of Contents

The following table summarizes TVA's expenses for various fuels for the years indicated:

Fuel Expense for TVA-Owned Facilities[1]
For the years ended September 30
(in millions)

	Fuel Expense By Source			Cost per kWh[2]		
	2016	2015	2014	2016	2015	2014
Coal[3]	$1,275	$1,564	$1,873	2.77	2.84	3.05
Natural gas and/or oil-fired[4]	632	611	579	2.51	3.25	4.30
Nuclear fuel	277	273	307	0.52	0.50	0.57
Total fuel	$2,184	$2,448	$2,759	1.76	1.91	2.14

Note
(1) Excludes effects of the fuel cost adjustment deferrals and amortization on fuel expense in the amounts of $(58) million, $(4) million, and $(29) million for the years ended September 30, 2016, 2015, and 2014, respectively.
(2) Total cost per kWh is based on a weighted average.
(3) Fuel expense related to oil consumed for startup at coal-fired facilities was $21 million, $30 million, and $36 million for the years ended September 30, 2016, 2015, and 2014, respectively.
(4) Fuel expense related to oil consumed for generation at natural gas and/or oil-fired facilities was $2 million, $6 million, and $12 million for the years ended September 30, 2016, 2015, and 2014, respectively.

The following table shows TVA's generation and purchased power by generating source as a percentage of all electrical power generated and purchased (based on kWh) for the periods indicated:

Power Supply from TVA-Operated Generation Facilities and Purchased Power
For the years ended September 30
(millions of kWh)

	2016		2015		2014	
Coal-fired	46,028	29 %	56,017	34 %	62,525	39 %
Nuclear	52,897	33 %	54,543	34 %	53,778	33 %
Hydroelectric	12,618	8 %	13,812	9 %	13,228	8 %
Natural gas and/or oil-fired	25,221	16 %	17,893	11 %	12,615	8 %
Renewable resources (non-hydro)	—	— %	—	— %	5	— %
Total TVA-operated generation facilities	136,764	86 %	142,265	88 %	142,151	88 %
Purchased power (non-renewable)	13,807	9 %	9,788	6 %	10,632	7 %
Purchased power (renewable)	8,300	5 %	9,049	6 %	8,108	5 %
Total power supply	158,871	100%	161,102	100%	160,891	100%

Note
(1) Purchased power amounts include generation from Caledonia Combined Cycle Plant, which is currently a leased facility operated by TVA. Generation from Caledonia Combined Cycle Plant was 4,532 million kWh, 3,173 million kWh, and 3,059 million kWh for the years ended September 30, 2016, 2015 and 2014, respectively.
(2) The nuclear amount for the year ended September 30, 2016 includes approximately 579 million kWh of pre-commercial generation at Watts Bar Unit 2. See Note 1 — Pre-Commercial Plant Operations.

Table of Contents

2016 Compared to 2015

Fuel

Fuel expense decreased $318 million for the year ended September 30, 2016, as compared to the prior year. The decrease in fuel expense was due in part to favorable market prices for natural gas and a change in the mix of generation resources, which collectively contributed approximately $169 million to the decrease. As an indication of general market direction, the average Henry Hub natural gas spot price for the year ended September 30, 2016, was approximately 26 percent lower than the prior year. Additionally, a three percent decrease in generation from TVA-owned resources contributed approximately $95 million to the decrease in fuel expense.

Purchased Power

Purchased power expense increased $14 million for the year ended September 30, 2016, as compared to the prior year. An increase of 17 percent in the volume of power purchased for the year ended September 30, 2016, as compared to the prior year contributed approximately $165 million to the increase in purchased power expense. This increase in volume was driven primarily by the favorability of natural gas prices as compared to other sources of generation, as TVA’s primary source of purchased power is natural gas-fired generation. Partially offsetting this increase was a $130 million decrease in purchased power expense due to lower rates driven by lower market prices for natural gas.

Operating and Maintenance

Operating and maintenance expense remained essentially flat for the year ended September 30, 2016, as compared to the same period of the prior year. This was due in part to a $42 million increase in maintenance expenses related to major projects, including dam safety and remediation projects and projects relating to natural gas-fired facilities, in the year ended September 30, 2016, as compared to the same period of the prior year. Additionally, there was an increase of approximately $23 million in net write-offs during the year ended September 30, 2016, as compared to the same period of the prior year, primarily due to inventory and project write-offs. These increases in operating and maintenance expense were partially offset by a $48 million decrease in planned outage expense, primarily due to the timing and efficiencies of planned nuclear outages and decreased planned coal outages during the year ended September 30, 2016, as compared to the same period of the prior year. Additionally, there was a decrease of $12 million in fuel-related operating and maintenance expense primarily as a result of lower coal generation during the year ended September 30, 2016, as compared to the same period of the prior year.

Depreciation and Amortization

Depreciation and amortization expense decreased $195 million for the year ended September 30, 2016, as compared to the prior year. The decrease was primarily a result of approximately $294 million less depreciation expense driven by the retirement of Widows Creek Unit 7 in September 2015 and Colbert Fossil Plant ("Colbert") Units 1-4 in March 2016. See Key Initiatives and Challenges — Generation Resources — Coal-Fired Units. In addition, there was a $79 million decrease in depreciation and amortization expense related to the 20-year license extension for Sequoyah. Partially offsetting these decreases was an increase of $100 million in the amortization of the non-nuclear decommissioning regulatory asset and an increase of approximately $77 million primarily from net additions to Completed plant.

Depreciation rates are determined based on an external depreciation study. See Note 1 — Property, Plant, and Equipment, and Depreciation — Depreciation. TVA obtained and implemented a new study during the first quarter of 2017. Implementation of the new study is expected to result in a decrease to depreciation and amortization expense of approximately $170 million during 2017. This estimate represents the impact of implementing the new study only and does not include any potential impact of other possible changes, including additions to or retirements of net completed plant, that may occur during 2017.

Tax Equivalents

Tax equivalents expense decreased $3 million for the year ended September 30, 2016, as compared to the same period of the prior year. This change primarily reflects a decrease in the accrued tax equivalent expense related to the fuel cost adjustment mechanism. The accrued tax equivalent expense is equal to five percent of the fuel cost adjustment mechanism revenues and decreased for the year ended September 30, 2016, as compared to the same period of the prior year.

Table of Contents

2015 Compared to 2014

Fuel

Fuel expense decreased $286 million for the year ended September 30, 2015, as compared to the prior year. This decrease was primarily driven by overall favorable fuel rates and a change in the mix of generation resources, which collectively contributed approximately $314 million to the decrease in fuel expense. Partially offsetting this decrease in fuel expense was an increase in fuel expense driven by more timely collections of fluctuations in fuel costs during the year ended September 30, 2015, which accounted for a $25 million increase.

Purchased Power

Purchased power expense decreased $144 million for the year ended September 30, 2015, as compared to the prior year, primarily due to lower market prices for natural gas, as TVA’s primary source of purchased power is natural gas-fired generation. The average Henry Hub natural gas spot price for the year ended September 30, 2015, was approximately 30 percent lower than the prior year. The lower prices contributed to a $156 million decrease in purchased power expense. Partially offsetting this decrease in purchased power expense was a $6 million increase in purchased power expense driven by more timely collections of fluctuations in fuel costs in the year ended September 30, 2015. Additionally offsetting the decrease in purchased power expense was an increase of one percent in the volume of power purchased contributing to an increase in purchased power expense of $6 million.

Operating and Maintenance

Operating and maintenance expense decreased $503 million for the year ended September 30, 2015, as compared to the prior year. This decrease was due to several factors including a $241 million decrease in pension and post-retirement costs due mainly to regulatory accounting actions taken by the TVA Board. Beginning October 1, 2014, TVA began deferring pension costs as regulatory assets to the extent that the amount calculated under accounting principles generally accepted in the United States of America ("GAAP") as pension expense differs from the amount TVA contributes to the pension plan. The ongoing cost savings initiatives undertaken by management contributed approximately $164 million to the decrease in operating and maintenance expense, with approximately $114 million attributable to labor savings. Additionally, there was a $60 million decrease in projects expense due primarily to the timing of nuclear and information technology maintenance projects and a $34 million decrease in planned outage expense, resulting from approximately 50 less nuclear outage days in the year ended September 30, 2015, as compared to the prior year.

Depreciation and Amortization

Depreciation and amortization expense increased $188 million for the year ended September 30, 2015, as compared to the prior year, primarily due to an increase of $177 million in the amount of accelerated depreciation expense recognized on certain coal-fired units. The increase in accelerated depreciation was driven primarily by the decision to accelerate the retirement of Widows Creek Unit 7. See Note 1 — Property, Plant, and Equipment, and Depreciation.

Tax Equivalents

Tax equivalents expense decreased $15 million for the year ended September 30, 2015, as compared to the same period of the prior year. This change primarily reflects a decrease in the accrued tax equivalent expense related to the fuel cost adjustment mechanism. The accrued tax equivalent expense is equal to five percent of fuel cost adjustment mechanism revenues and decreased for the year ended September 30, 2015, as compared to the same period of the prior year.

Table of Contents

Interest Expense. Interest expense and interest rates for 2016, 2015, and 2014 were as follows:

Interest Expense and Rates
For the years ended September 30

	2016	Percent Change	2015	Percent Change	2014
Interest expense[1]					
Interest expense	$1,371	1.8 %	$1,347	0.2 %	$1,344
Allowance for funds used during construction	(235)	9.8 %	(214)	22.3 %	(175)
Net interest expense	$1,136	0.3 %	$1,133	(3.1)%	$1,169
Average blended interest rate	5.15 %	(0.2)%	5.16 %	0.2 %	5.15 %

Notes
(1) Interest expense includes amortization of debt discounts, issuance, and reacquisition costs, net.

2016 Compared to 2015

Net interest expense increased $3 million for the year ended September 30, 2016, as compared to prior year. This increase was attributable to an increase in interest expense of $24 million primarily due to interest associated with certain other financing obligations. The increase was partially offset by an increase of $21 million in allowance for funds used during construction ("AFUDC") as a result of ongoing construction activities at Watts Bar Unit 2.

2015 Compared to 2014

Net interest expense decreased $36 million for the year ended September 30, 2015, as compared to the prior year. This decrease was primarily attributable to an increase of $39 million in AFUDC as a result of ongoing construction activities at Watts Bar Unit 2, which was partially offset by a $3 million increase in interest expense mainly due to a higher average balance of long-term debt.

Liquidity and Capital Resources

Sources of Liquidity

To meet cash needs and contingencies, TVA depends on various sources of liquidity. TVA’s primary sources of liquidity are cash from operations and proceeds from the issuance of short-term and long-term debt. Current liabilities may exceed current assets from time to time in part because TVA uses short-term debt to fund short-term cash needs, as well as to pay scheduled maturities and other redemptions of long-term debt. The daily balance of cash and cash equivalents maintained is based on near-term expectations for cash expenditures and funding needs.`

In addition to cash from operations and proceeds from the issuance of short-term and long-term debt, TVA's sources of liquidity include a $150 million credit facility with the U.S. Treasury, three long-term revolving credit facilities totaling $2.5 billion, and proceeds from other financings. See Note 12 — Credit Facility Agreements. Other financing arrangements may include sales of receivables, loans, and other assets.

The TVA Act authorizes TVA to issue Bonds in an amount not to exceed $30.0 billion outstanding at any time. At September 30, 2016, TVA had $24.1 billion of Bonds outstanding (not including noncash items of foreign currency exchange gain of $150 million, unamortized debt issue costs of $62 million and net discount on sale of Bonds of $100 million). The balance of Bonds outstanding directly affects TVA’s capacity to meet operational liquidity needs and to strategically use Bonds to fund certain capital investments as management and the TVA Board may deem desirable.

Other options for financing not subject to the limit on Bonds, including lease financings (see Lease Financings below and Note 9), could provide supplementary funding if needed. Also, the impact of energy efficiency and demand response initiatives may reduce generation requirements and thereby reduce capital investment needs. Currently, TVA believes that it has adequate capability to fund its ongoing operational liquidity needs and make planned capital investments over the next decade through a combination of Bonds, additional power revenues through power rate increases, cost reductions, or other ways. See Lease Financings below, Note 9, and Note 12 — Credit Facility Agreements for additional information.

Debt Securities. TVA’s Bonds are not obligations of the United States, and the United States does not guarantee the payments of principal or interest on Bonds. TVA’s Bonds consist of power bonds and discount notes. Power bonds have maturities of between one and 50 years. At September 30, 2016, the average maturity of long-term power bonds was 16.8 years, and the average interest rate was 4.79 percent. Discount notes have maturities of less than one year. Power bonds and discount notes have a first priority and equal claim of payment out of net power proceeds. Net power proceeds are defined as the remainder of TVA's gross power revenues after deducting the costs of operating, maintaining, and administering its power

Table of Contents

properties and payments to states and counties in lieu of taxes, but before deducting depreciation accruals or other charges representing the amortization of capital expenditures, plus the net proceeds from the sale or other disposition of any power facility or interest therein. In addition to power bonds and discount notes, TVA had outstanding at September 30, 2016, the long-term debt of three variable interest entities. See Lease Financings below, Note 9, and Note 12 — Credit Facility Agreements for additional information.

Power bonds and discount notes are both issued pursuant to Section 15d of the TVA Act and pursuant to the Basic Tennessee Valley Authority Power Bond Resolution adopted by the TVA Board on October 6, 1960, as amended on September 28, 1976, October 17, 1989, and March 25, 1992 (the "Basic Resolution"). The TVA Act and the Basic Resolution each contain two bond tests: the rate test and the bondholder protection test.

Under the rate test, TVA must charge rates for power which will produce gross revenues sufficient to provide funds for:

- Operation, maintenance, and administration of its power system;
- Payments to states and counties in lieu of taxes;
- Debt service on outstanding Bonds;
- Payments to the U.S. Treasury in repayment of and as a return on the government's appropriation investment in TVA's power facilities (the "Power Program Appropriation Investment"); and
- Such additional margin as the TVA Board may consider desirable for investment in power system assets, retirement of outstanding Bonds in advance of maturity, additional reduction of the Power Program Appropriation Investment, and other purposes connected with TVA’s power business, having due regard for the primary objectives of the TVA Act, including the objective that power shall be sold at rates as low as are feasible. See Note 16 — Appropriation Investment.

The rate test for the one-year period ended September 30, 2016, was calculated after the end of 2016, and TVA met the test’s requirements.

Under the bondholder protection test, TVA must, in successive five-year periods, use an amount of net power proceeds at least equal to the sum of:

- The depreciation accruals and other charges representing the amortization of capital expenditures, and
- The net proceeds from any disposition of power facilities,

for either

- The reduction of its capital obligations (including Bonds and the Power Program Appropriation Investment), or
- Investment in power assets.

The bondholder protection test for the five-year period ended September 30, 2015, was calculated after the end of 2015, and TVA met the test’s requirements. TVA must next meet the bondholder protection test for the five-year period ending September 30, 2020.

TVA uses proceeds from the issuance of discount notes, in addition to other sources of liquidity, to fund short-term cash needs and scheduled maturities of long-term debt.

The following table provides additional information regarding TVA's short-term borrowings.

Short-Term Borrowing Table

	At	At

	September 30 2016	For the year ended September 30 2016	At September 30 2015	For the year ended September 30 2015	September 30 2014	For the year ended September 30 2014
Amount Outstanding (at End of Period) or Average Amount Outstanding (During Period)						
Discount notes	$ 1,407	$ 1,323	$ 1,034	$ 1,357	$ 596	$ 1,737
Weighted Average Interest Rate						
Discount notes	0.203 %	0.240 %	0.055 %	0.051 %	0.002 %	0.051 %
Maximum Month-End Amount Outstanding (During Period)						
Discount notes	N/A	$ 1,561	N/A	$ 2,590	N/A	$ 2,442

Table of Contents

TVA ended with a higher balance of short-term debt at September 30, 2016, than at September 30, 2015, due to timing of cash flows and debt portfolio management decisions. The average balance of short-term debt was lower in 2016 than 2015 due to timing of financing activities in both years. TVA held a higher balance of short-term debt at September 30, 2015, than at September 30, 2014, due to timing of cash flows and debt portfolio management decisions. The average balance of short-term debt was lower in 2015 than 2014 due to timing of financing activities in both years. The variance in the average interest rate on discount notes is primarily due to changes in market conditions.

TVA uses a significant portion of its power bond proceeds to refinance previously-issued power bonds as they mature or are redeemed. From time to time, TVA also uses power bond proceeds for other power program purposes, including financing construction projects.

TVA issued no power bonds during 2016 and $1.0 billion of power bonds during 2015. TVA redeemed $76 million and $1.2 billion of power bonds during 2016 and 2015, respectively. Power bonds outstanding, excluding unamortized discounts and premiums and net exchange losses from foreign currency transactions, at September 30, 2016 were $24.1 billion (including current maturities) and at September 30, 2015 were $23.9 billion (including current maturities). For additional information about TVA debt issuance activity and debt instruments issued and outstanding at September 30, 2016, and 2015, including rates, maturities, outstanding principal amounts, and redemption features, see Note 12 — Debt Securities Activity and Debt Outstanding.

TVA Bonds are traded in the public bond markets. TVA's Bonds are listed on the New York Stock Exchange ("NYSE") except for TVA's discount notes, the 2009 Series A and B power bonds, and the power bonds issued under TVA's electronotes® program. TVA's Putable Automatic Rate Reset Securities are traded on the NYSE under the exchange symbols “TVC” and “TVE.” Other NYSE-listed bonds are assigned various symbols by the exchange, which are noted on the NYSE's web site. TVA has also listed certain bonds on foreign exchanges from time to time, including the Luxembourg, Hong Kong, and Singapore Stock Exchanges. See Item 1A, Risk Factors for additional information regarding the market for TVA's Bonds.

Although TVA Bonds are not obligations of the United States, TVA, as a corporate agency and instrumentality of the United States government, may be impacted if the sovereign credit ratings of the United States are downgraded. Additionally, TVA may be impacted by how the United States government addresses situations of approaching its statutory debt limit. According to statements made by nationally recognized credit rating agencies, downward pressure on the ratings of the United States could eventually develop if there are no changes in current policies and budget deficits and the trajectory of debt begins to increase; additionally, current ratings factor in the prospect that debates over raising the debt ceiling of the United States government could continue to be protracted and difficult. The outlook on the ratings of the United States government and TVA ratings is currently stable with all three agencies that provide ratings on TVA Bonds. TVA’s rated senior unsecured Bonds are currently rated Aaa, AAA, and AA+. TVA's short-term discount notes are not rated.

Lease Financings. TVA has entered into certain leasing transactions with special purpose entities to obtain third-party financing for its facilities. These special purpose entities are sometimes identified as variable interest entities ("VIEs") of which TVA is determined to be the primary beneficiary. TVA is required to account for these VIEs on a consolidated basis. See Note 9 and Note 12 for information about TVA’s lease financing activities, and see Note 8 for information regarding TVA’s recent acquisition of equity interests in certain special purpose entities created for the purpose of facilitating lease financing. TVA may seek to enter into similar arrangements in the future.

Summary Cash Flows

A major source of TVA's liquidity is operating cash flows resulting from the generation and sale of electricity. There was no net change in cash and cash equivalents for the year ended September 30, 2016. The net change in cash and cash equivalents was $(200) million and $(1.1) billion for the years ended September 30, 2015 and 2014, respectively. A summary of cash flow components for the years ended September 30 follows:

Cash provided by (used in):

Table of Contents

Operating Activities

TVA’s cash flows from operations are primarily driven by sales of electricity, fuel costs, and operating and maintenance costs. The timing and level of cash flows from operations can be affected by the weather, changes in working capital, commodity price fluctuations, outages, and other project expenses.

2016 Compared to 2015

Net cash flows provided by operating activities decreased $273 million in 2016 compared to 2015, primarily as a result of the timing of revenue collections, increases in decommissioning settlements, increases in purchase power due to favorability of natural gas prices, and decreases in receipts of Kingston Fossil Plant ("Kingston") ash spill insurance proceeds. These changes were partially offset by decreases in margin requirements due to lower volumes, decreases in fossil fuel inventory expenditures, and the timing of payments related to operating and maintenance activities.

2015 Compared to 2014

Net cash flows provided by operating activities increased by $335 million in 2015 compared to 2014. This increase was due primarily to continued cost reduction initiatives, as well as decreases in nuclear and information technology projects, fewer outages in 2015 compared to 2014, decreases in the Kingston ash spill costs, and timing of revenue collections. These changes were partially offset by a decrease in Kingston insurance recovery proceeds, increases in cash used for pension contributions, increases in TVA’s margin requirements due to lower natural gas prices, increases in asset retirement project expenditures, and increases in cash used due to timing of payments.

Investing Activities

The majority of TVA’s investing cash flows are due to investments to acquire, upgrade, or maintain generating and transmission assets, including environmental projects and the purchase of nuclear fuel.

2016 Compared to 2015

Net cash flows used in investing activities decreased by $472 million in 2016 compared to 2015, primarily driven by higher spending in 2015, related to the Ackerman Combined Cycle Plant ("Ackerman") acquisition, Watts Bar Unit 2 construction, and nuclear fuel expenditures. These decreases were partially offset by current year increases in capacity expansion spending for the natural gas-fired generation facility at Allen and other capital projects.

2015 Compared to 2014

Net cash flows used in investing activities increased by $829 million in 2015 compared to 2014. This increase was driven by capacity expansion spending for the natural gas-fired generation facilities at Paradise and Allen, the Ackerman acquisition, and the nuclear seismic upgrade projects for Browns Ferry Nuclear Plant ("Browns Ferry") and Sequoyah.

Financing Activities

2016 Compared to 2015

Net cash flows provided by financing activities was essentially flat in 2016 compared to 2015. Net proceeds from the issuance and redemption of debt were higher in 2016 compared to 2015 due to portfolio debt management decisions and timing of financing and investing activities. This was offset by an increase in payments on leases and leasebacks related to the settlement of lease/leaseback obligations. See Note 8.

2015 Compared to 2014

The $1.4 billion change in net cash provided by financing activities was primarily due to net issuances of debt of $198 million in 2015 attributable to more power bonds maturing, as compared to net redemptions of debt of $1.2 billion in 2014. The net redemptions in 2014 were primarily due to the strategic decision to use $1.1 billion of cash on hand to meet some near-term capital funding needs. The net increase in cash provided by financing activities in 2015 was partially offset by the strategic decision to use $200 million of cash on hand in 2015 to meet some near-term capital funding needs.

Table of Contents

Cash Requirements and Contractual Obligations

The future planned capital expenditures for property, plant, and equipment additions, including clean air projects and new generation, are estimated to be as follows:

Capital Expenditures[1]
As of September 30

	Actual	Estimated Capital Expenditures		
	2016	2017	2018	2019
Capacity expansion expenditures				
Watts Bar Unit 2	$191	$—	$—	$—
Allen combined cycle plant	353	271	162	—
Paradise combined cycle plant	248	285	15	—
Other capacity expansion	186	298	262	185
Environmental expenditures				
Clean air and waste water	203	209	93	119
Coal combustion residual	90	179	164	130
Transmission expenditures	367	403	365	355
Other capital expenditures[2]	824	921	828	803
Total construction expenditures	$2,462[3]	$2,566	$1,889	$1,592

Notes
(1) TVA plans to fund these expenditures with cash from operations and proceeds from power program financings. This table shows only expenditures that are currently planned. Additional expenditures may be required, among other things, for TVA to meet growth in demand for power in its service area or to comply with new environmental laws, regulations, or orders.
(2) Other capital expenditures are primarily associated with short lead time construction projects aimed at the continued safe and reliable operation of generating assets.
(3) The numbers above exclude AFUDC capitalized during the year, related to construction expenditures, of $235 million and include construction in progress expenditures accrued in Accounts payable and accrued liabilities of $30 million.

TVA continually reviews its construction expenditures and financing programs. The amounts shown in the table above are forward-looking amounts based on a number of assumptions and are subject to various uncertainties. Amounts may differ materially based upon a number of factors, including, but not limited to, changes in assumptions about system load growth, environmental regulation, rates of inflation, total cost of major projects, and availability and cost of external sources of capital. See Forward-Looking Information.

In the near term, TVA's cash flows may be negatively impacted by investments in new generation, such as the combined cycle facilities at the Allen and Paradise sites, that are not expected to contribute positively to cash flows until put into service.

TVA has certain obligations and commitments to make future payments under contracts, including contracts executed in connection with certain of the planned construction expenditures. The following table sets forth TVA's estimates of future payments at September 30, 2016. See Note 9, Note 10, Note 12, Note 16, and Note 20 for a further description of these obligations and commitments.

Table of Contents

Commitments and Contingencies
Payments due in the year ending September 30

	2017	2018	2019	2020	2021	Thereafter	Total
Debt[1]	$2,962	$1,682	$1,032	$30	$1,860	$ 16,609	$24,175
Interest payments relating to debt	1,195	1,105	1,030	1,020	981	16,960	22,291
Debt of VIEs[2]	35	36	38	40	41	1,056	1,246
Interest payments relating to debt of VIEs	58	56	54	52	50	590	860
Notes payable	27	27	21	—	—	—	75
Interest payments relating to notes payable	1	—	—	—	—	—	1
Lease obligations							
Capital[3]	51	51	50	50	50	564	816
Non-cancelable operating[4]	43	32	25	25	25	13	163
Purchase obligations							
Power[5]	254	265	266	246	244	1,541	2,816
Fuel[6]	1,312	917	569	324	327	1,006	4,455
Other[7]	88	65	58	47	34	604	896
Environmental Agreements	34	5	4	1	1	7	52
Membership interests of variable interest entity subject to mandatory redemption	2	2	2	3	3	23	35
Interest payments related to membership interests of variable interest entity subject to mandatory redemption	2	2	2	2	2	11	21
Flood response commitment to NRC	14	16	—	—	—	—	30
Litigation settlements	7	2	—	—	—	—	9
Unfunded loan commitments	9	4	—	—	—	—	13
Long-term monitoring costs -- Kingston ash spill	1	1	1	1	1	9	14
Payments on other financings	76	76	75	73	207	26	533
Payments to U.S. Treasury - Return on Power Program Appropriation Investment	5	5	6	6	7	69	98
Retirement Plan[8]	300	300	300	300	300	4,500	6,000
Total	$6,476	$4,649	$3,533	$2,220	$4,133	$ 43,588	$64,599

Note
(1) Does not include noncash items of foreign currency exchange gain of $150 million, unamortized debt issue costs of $62 million, and net discount on sale of Bonds of $100 million.
(2) Debt of VIE's does not include the noncash item of unamortized debt issue costs of $12 million.
(3) Includes the interest component of capital leases based on the interest rates stated in the lease agreements and excludes certain related executory costs. Minimum commitments related to executory costs are included in purchase obligations.
(4) Does not include purchased power agreements that are accounted for as operating leases and included in power purchase obligations.
(5) Includes commitments for energy and/or capacity under power purchase agreements from coal-fired, hydroelectric, diesel, and gas-fired facilities, as well as transmission service agreements to support purchases of power from the market and wind purchase power agreements.
(6) Includes commitments to purchase nuclear fuel, coal, and natural gas, as well as related transportation and storage services.
(7) Primarily includes long-term service contracts, contracts that contain minimum purchase levels for the purchase of limestone along with related storage and transportation, and contractual obligations related to load control programs.
(8) Pursuant to amendments to the TVA Retirement System ("TVARS") Rules and Regulations that became effective October 1, 2016, TVA will contribute to TVARS for a period of 20 years (2017-2036) or, if earlier, through the fiscal

year in which it is determined by actuarial valuation that TVARS has reached and remained at a 100% funded status, not be less than the greater of (a) the minimum required TVARS actuarial valuation contribution or (b) $300 million.

In addition to the obligations above, TVA has energy prepayment obligations in the form of revenue discounts. See Note 1 — Energy Prepayment Obligations.

Energy Prepayment Obligations

Obligations due in the year ending September 30

	2017	2018	2019	2020	2021	Thereafter	Total
Energy Prepayment Obligations	$100	$100	$ 10	$ —	$ —	$ —	$210
Interest payments relating to energy prepayment obligations	46	46	4	—	—	—	96
Total	$146	$146	$ 14	$ —	$ —	$ —	$306

Table of Contents

EnergyRight® Solutions Program. TVA purchases certain loans receivable from its LPCs in association with the EnergyRight® Solutions program. Depending on the nature of the energy-efficiency project, loans may have a maximum term of five years or ten years. The loans receivable are then transferred to a third-party bank with which TVA has agreed to repay in full any loan receivable that has been in default for 180 days or more or that TVA has determined is uncollectible. As of September 30, 2016, the total carrying amount of the loans receivable, net of discount, was approximately $141 million. Such amounts are not reflected in the Commitments and Contingencies table above. The total carrying amount of the financing obligation was approximately $163 million at September 30, 2016. See Note 6 and Note 10 for additional information.

Off-Balance Sheet Arrangements

At September 30, 2016, TVA had no off-balance sheet arrangements.

Key Initiatives and Challenges

Distributed Energy Resources

Changes in the energy delivery market will impact the way TVA and LPCs do business in the future. Energy efficiency and demand response are a growing part of TVA’s energy portfolio, and TVA wants to be positioned to proactively manage these resources to optimize their value for consumers in the Tennessee Valley. These resources, together with other options that are typically connected to the distribution systems of the LPCs, represent a new component in the utility marketplace called distributed energy resources ("DER"). To help implement this transition, TVA recently formed a new organization focused on DER to evaluate the right combination of DER that will enable TVA and the LPCs to meet the new demands of customers while continuing to ensure low cost and reliable power for the Tennessee Valley.

As technologies for producing energy using distributed solar, micro turbines, and other types of smaller scale distributed resources are evolving, they are becoming more cost-competitive. Consumers have expressed greater interest in utilizing these technologies for their own needs, including commercial and industrial customers who are beginning to integrate sustainability strategies and environmental policies into their business models. Previously, absorbing the impact of electricity from the small numbers of these distributed generation sites was well within the capacity of a system the size of TVA’s. As the amount of distributed generation grows on the TVA system, the need for TVA’s traditional generation resources may be reduced, and the ability of the system to reliably and economically operate in conjunction with these distributed generation sources may become more challenging. To meet this challenge, TVA is working with LPCs and others on long-term pricing and product development that includes DER products and addresses the implementation and support of those products.

TVA is also developing and managing demand side energy resources in collaboration with the LPC community. While TVA owns and operates its high-voltage transmission grid, the distribution system is a network of grids belonging to LPCs, each with its own characteristics and operational strengths and challenges. The growth of renewable resources on the distribution grid (primarily rooftop photovoltaic solar) necessitates the involvement of entities in addition to TVA, especially the LPCs. TVA and LPCs will need to focus on the safety and reliability impact of these resources as they are interconnected to the grid, as well as ensuring the pricing of electricity remains as low as feasible. Due to uncertainties related to the technology choices and market penetration rates for DER options, TVA cannot currently predict the potential financial impacts from the future growth in DER, but it is anticipated that future growth will be a part of TVA’s overall strategy to meet customer demand while continuing to supply clean, reliable power in an evolving marketplace.

Generation Resources

Nuclear Response Capability. Since the events that occurred in 2011 at the Fukushima Daiichi Nuclear Power Plant ("Fukushima Events"), the Nuclear Regulatory Commission ("NRC") has issued and adopted additional detailed guidance on the expected response capability to be developed by each nuclear plant site. TVA submitted integrated strategies to the NRC on February 28, 2013. TVA is currently implementing strategies and physical plant modifications to address the actions outlined in this guidance for all of its nuclear plants. As of September 30, 2016, TVA had spent $254 million on modifications related to these actions at all of its nuclear plants, including Watts Bar Unit 2, and expects to spend an additional $31 million to complete the remaining modifications intended to address this guidance.

Extreme Flooding Preparedness. Updates to the TVA analytical hydrology model completed in 2009 indicated that under “probable maximum flood” conditions, some of TVA’s dams might not have been capable of regulating the higher flood waters. A “probable maximum flood” is an extremely unlikely event; however, TVA is obligated to provide protection for its nuclear plants against such events. As a result, TVA installed a series of temporary barriers to raise the height of four TVA dams to manage the issue on an interim basis. Subsequent modifications have replaced the temporary barriers at three of the four dams, and work on the fourth dam, Fort Loudoun, will continue after the completion of a Tennessee Department of Transportation bridge project. During the third quarter of 2016, TVA was informed that work being done by the State of Tennessee to support the Fort Loudoun Dam modifications, originally scheduled to be completed in June 2016, is now estimated to be completed in mid-2017. TVA is taking steps to ensure that it complies with the NRC license requirements for Watts Bar related to the completion of the project.

Table of Contents

Since 2009, TVA has performed further hydrology modeling of portions of the TVA watershed using updated modeling tools. TVA also substantially completed a series of permanent modifications to several other dams identified through the more recent analytical work. The modifications addressed and rectified the potential for certain dams to be overtopped during a “probable maximum flood” event as well as the potential for certain other dams to become unstable under “probable maximum flood” conditions. TVA has also made various improvements to plant protection features at Watts Bar and Sequoyah.

The revised hydrology models were reviewed and approved by the NRC for Watts Bar Units 1 and 2. However, TVA identified an error in the modeling that will require TVA to resubmit models for Watts Bar Units 1 and 2. TVA plans to seek NRC approval for similar modeling for Sequoyah Units 1 and 2 and will subsequently address conditions at Browns Ferry as needed. The updated models for Watts Bar and Sequoyah are expected to be submitted to the NRC in early CY 2018 for review and approval. TVA has deferred some modifications until these updated models are completed.

The hydrology analyses discussed above relate to the current operation and current requirements of TVA’s existing nuclear fleet. In addition, the NRC has required all utilities to reexamine flood hazards at nuclear plants in light of the lessons learned from the Fukushima Events. In March 2015, TVA sent its flood hazard analyses to the NRC for all three of its nuclear sites considering the NRC’s Fukushima-related requirements. Minor modifications to some of TVA’s nuclear plants may result from these analyses, and further modifications to TVA’s dams based on this analysis are expected. Temporary protection measures are in place in the interim while the NRC review is underway. As of September 30, 2016, TVA had spent $148 million on the modifications and improvements related to extreme flooding preparedness and expects to spend up to an additional $30 million to complete the modifications.

Supplementary NRC rulemaking is under development to mitigate beyond design basis flooding events. The final rule is expected to be submitted to the NRC in December 2016 for its review and approval. The final rule is not expected to be issued until mid-2017. The rule could result in TVA having to make modifications to one or more of its nuclear plants. Cost estimates for any required modifications cannot be developed until after the rule is finalized, but costs for modifications could be substantial.

NRC Seismic Assessments. On May 9, 2014, the NRC notified licensees of nuclear power reactors in the central and eastern United States of the results of seismic hazard screening and prioritization evaluations performed by unit owners and
reviewed by the NRC staff. Because the seismic hazards for Browns Ferry, Sequoyah, and Watts Bar had increases in seismic parameters beyond the technical information available when the plants were designed and licensed, TVA must conduct seismic risk evaluations for these plants. TVA must complete the evaluation for Watts Bar by June 30, 2017, and the evaluations for Browns Ferry and Sequoyah by December 31, 2019.

Supplementary NRC rulemaking is under development to mitigate beyond design basis seismic events. The final rule is expected to be submitted to the NRC in December 2016 for its review and approval. The final rule is not expected to be issued until mid-2017. The rule could result in TVA having to make modifications to one or more of its nuclear plants. Cost estimates for any required modifications cannot be developed until after the rule is finalized, but costs for modifications could be substantial.

Baffle-Former Bolt Degradation. In July 2016, Westinghouse issued a Nuclear Safety Advisory Letter (“NSAL”) 16-01 that addresses recently identified degradation of baffle-former bolts in some U.S. pressurized water reactors (“PWRs”). Baffle-former bolts help hold together a structure inside certain reactor vessels. Sequoyah Units 1 and 2, both of which are powered by PWRs, are referenced in the NSAL. It is being recommended that visual inspections of the baffle-former bolts occur during the upcoming Unit 1 and Unit 2 refueling outages in 2017 and ultrasonic inspections occur in the subsequent refueling outages. If TVA were to find any degradation in the first refueling outages, it would have to complete ultrasonic inspections in those outages, and possible bolt replacements, if required. The NRC is aware of the issue, and the issue is not thought to have any impact on the safe operation of plants or public safety at

this time.

Watts Bar Nuclear Plant. In March 2016, the NRC issued a Chilling Effect Letter (“CEL”) to TVA regarding work environment concerns identified at Watts Bar. TVA provided its written response to the NRC on April 22, 2016, and discussed the response in a public meeting with the NRC on May 24, 2016. The NRC is relying on its normal inspection process to monitor TVA’s resolution of the work environment concerns. The NRC conducted its first follow-up inspection in October/November 2016, in which it found that Watts Bar still faces challenges in maintaining a safety conscious work environment. TVA updated the NRC on its correction actions related to the work environment at Watts Bar in a public meeting on November 3, 2016.

Watts Bar Unit 2. On October 22, 2015, the NRC approved the operating license for Watts Bar Unit 2. The license will expire in 2055. Fuel load was completed in December 2015, and Unit 2 achieved initial criticality on May 23, 2016. The Unit 2 generator was initially synchronized to the TVA power system on June 3, 2016. Power ascension testing on Unit 2 was successfully completed and commercial operations commenced on October 19, 2016. Project costs were within the $4.7 billion limit approved by the TVA Board in January 2016.

Bellefonte Nuclear Plant. TVA has been investing at a minimal level to preserve the Bellefonte Nuclear Plant ("Bellefonte") site for future generating use, should it be needed. Given the projections in TVA’s 2015 Integrated Resource Plan related to future need for additional large baseload generation, management recommended in spring 2016 that the site be

Table of Contents

declared surplus, and at its May 5, 2016 meeting, the TVA Board declared the site surplus and directed the sale of some or all of the site at public auction.

Coal-Fired Units. The decision to idle or retire coal-fired units from TVA's generation fleet is being influenced by several factors, including agreements to resolve a dispute under the Clean Air Act, environmental legislation, the cost of adding emission control equipment and other environmental improvements, fuel prices, conditions of TVA's aging plants, and demand for energy. TVA removed Colbert Units 1-4, with a summer net capability of 712 megawatts ("MW"), from service in March 2016. Colbert Unit 5 was previously removed from service in 2013, and all five Colbert units were retired on April 16, 2016. As of September 30, 2016, TVA had retired 24 coal-fired units with a summer net capability of 4,394 MW. TVA continues to evaluate the appropriate mix of generation and assess the status of individual power generating facilities given the cost of continuing to operate some of its coal-fired plants in light of environmental regulations and changing power demands. See Item 1, Business — Power Supply and Load Management Resources — Coal-Fired.

On April 16, 2016, the Environmental Protection Agency ("EPA") issued an Administrative Order ("AO") allowing Paradise Units 1 and 2 to operate for an additional year beyond the compliance date allowed by the Mercury and Air Toxics Standards ("MATS") rule. The extended compliance date under the AO is April 16, 2017. The AO allows TVA to continue to operate these units, which, in their current configuration, are not capable of meeting certain requirements of the MATS rule. The AO allows TVA to continue to operate Paradise Units 1 and 2 to maintain electric reliability pending the availability of commercial power from the natural gas-fired units currently under construction at the Paradise site without incurring penalties under the Clean Air Act ("CAA"). These units are expected to come online in the spring of 2017. See Natural Gas-Fired Units below.

Coal Combustion Residual Facilities. TVA has committed to a programmatic approach to the elimination of wet storage of coal combustion residual ("CCR") within the TVA service area. Under this program (the “CCR Conversion Program”), TVA has committed to (1) convert all operational coal-fired plants to dry CCR storage, (2) close all wet storage facilities, and (3) meet all applicable state and federal regulations. To carry out its CCR Conversion Program, TVA is undertaking the following actions:

Dry generation and dewatering projects. Conversion of coal plant CCR wet processes to dry generation or dewatering is complete at Bull Run and construction is underway at Kingston. Planning and engineering phases are currently underway at Gallatin, Cumberland, Shawnee, and Paradise.

Landfills. Lined and permitted dry storage facilities have been constructed and are operational at the Bull Run, Kingston, and Gallatin Fossil Plants. Planning and engineering phases are currently underway at the Cumberland, Paradise, and Shawnee Fossil Plants.

Wet CCR impoundment closures. TVA is planning to close wet CCR impoundments in accordance with federal and state requirements when (1) coal-fired plants are converted to dry CCR processes and dry storage landfills become operational or (2) plant operations cease. Closure project schedules and costs are driven by the selected closure technology (such as cap and close in place or closure by removal). TVA issued an environmental impact statement ("EIS") that addresses the closure of CCR impoundments at TVA's coal-fired plants in June 2016. The EIS was finalized in July 2016. Although the EIS was designed to be programmatic in order to address the mode of impoundment closures, it specifically addressed closure methods at 10 impoundments. TVA subsequently decided to close those impoundments, although final closure plans are still subject to approval by appropriate state regulators. Additional National Environmental Policy Act ("NEPA") analyses will be conducted as other units are designated for closure. As environmental studies are performed and closure methodologies are determined, detailed project schedules and estimates will be finalized.

Groundwater monitoring. Compliance with the EPA's CCR rule will require additional engineering and analysis as well as implementation of a comprehensive groundwater monitoring program.

The CCR Conversion Program is scheduled to be completed by 2022 with two exceptions. First, a new landfill at Shawnee will be required to accommodate the addition of air pollution controls and is scheduled to be completed by 2026. Once the new landfill is in service, the existing bottom ash impoundment and dry stack will be closed in accordance with federal and state requirements. Second, the impoundments at Gallatin are pending additional studies to determine the final closure methodology and schedule.

Through September 30, 2016, TVA had spent approximately $977 million on its CCR Conversion Program. TVA expects to spend an additional $1.2 billion on the CCR Conversion Program through 2022. Once the CCR Conversion Program is completed, TVA will continue to undertake certain CCR projects to support long-term plant generation, including building new landfill sections under existing permits and closing existing sections once they reach capacity. See Item 1, Business — Environmental Matters — Cleanup of Solid and Hazardous Wastes — Coal Combustion Residuals.

Natural Gas-Fired Units. During 2014, the TVA Board approved the construction of two natural gas-fired generation facilities. One facility, with an expected generation capacity of approximately 1,000 MW, will be constructed at the Paradise site at a cost not to exceed $1.1 billion. A second facility, with an expected generation capacity of approximately 1,000 MW, will be constructed at the Allen site at a cost not to exceed $975 million. Upon completion of each facility, existing coal-fired units at the site will be retired with the exception of Paradise Unit 3, which will continue to be operated on the Paradise site.

Table of Contents

TVA initially intended to use wastewater for the Allen facility's cooling system but has now determined such a method would be cost prohibitive from both a capital and long-term operations and maintenance perspective. Due to the industrial nature of the wastewater, it would have required significantly more water treatment than initially anticipated. TVA evaluated several wastewater treatment alternatives and concluded the current plan to build five wells to obtain cooling water from an aquifer is the preferred method. Three of the five wells are in place. However, certain groups have expressed concern over the planned installation of the remaining two wells. At this time, TVA does not believe these concerns will affect the current construction schedule but cannot predict the outcome.

Small Modular Reactors. TVA submitted an Early Site Permit Application ("ESPA") for review by the NRC in May 2016. This submittal is based on the development of a Plant Parameter Envelope reflecting application for two or more small modular reactor ("SMR") units at TVA's Clinch River site in Oak Ridge, Tennessee. TVA is considering the four SMR designs under development in the United States and will evaluate the designs and vendors for the SMR technology. TVA and DOE have entered into an interagency agreement to jointly fund licensing activities for the Clinch River site with DOE reimbursement of up to 50 percent of TVA's eligible costs through 2020.

TVA is developing the Clinch River site on a schedule that supports submittal of a combined construction and operating license ("COL") application in 2019, in conjunction with supporting NRC's review of the ESPA. This submittal is subject to sufficient progress being made by the SMR vendor(s) with their design certification(s), and a TVA decision to select a specific SMR technology and proceed with development of a COL application in 2017. A decision to build a SMR will need TVA Board approval.

Dam Safety and Remediation Initiatives

Assurance Initiatives. TVA has an established dam safety program, which includes procedures based on the Federal Guidelines for Dam Safety, with the objective of reducing the risk of a dam safety event. The program is comprised of various engineering activities for all of TVA's dams including safety reassessments using modern industry criteria and the new probable maximum flood and site-specific seismic load cases.

One aspect of the guidelines is that dam structures will be periodically reassessed to assure that TVA's dams meet current design criteria. These reassessments include material sampling of the dam and foundational structures and detailed engineering analysis. TVA is currently performing reassessments on its 49 dam projects. Thirty-eight reassessments have been completed through September 30, 2016. The remaining 11 assessments were initiated in 2016 and are scheduled to be completed by the end of 2017. Results of the completed reassessments identified areas for further studies at several TVA dams, including Boone and Pickwick (see below). TVA has spent $61 million on dam safety assurance initiatives since 2012 and expects to spend an additional $207 million through 2021.

Boone Dam Remediation. In October 2014, a sinkhole was discovered near the base of the earthen embankment at Boone Dam, and a small amount of water and sediment was found seeping from the river bank below the dam. TVA identified underground pathways contributing to the seepage and prepared a plan to repair the dam which consists of the construction of a composite seepage barrier in the dam's earthen embankment. An environmental assessment review through TVA's NEPA process was completed on January 7, 2016, and a Finding of No Significant Impact was published. TVA completed the first part (low mobility grouting) of its test grouting program on the embankment in September 2016 and is currently evaluating the effectiveness of that grouting phase. The second phase of the grouting program (high mobility grouting) is underway, and it is anticipated those efforts will be completed in late 2017.

TVA continues to perform investigative drilling, grouting, and other activities in support of the seepage barrier design. Based on preliminary findings, the design plans are being modified. The cost and duration for the overall remediation of Boone Dam will be determined upon completion of design during the summer of 2017 with

construction plans being finalized thereafter. It is anticipated that construction plans will be completed by December 2017. These plans will not include any future repairs or projects that may be required as a result of the change in water flow once the composite seepage barrier is complete. The cost and duration of additional work efforts will be determined as design and construction plans are finalized. Benchmarking durations and costs of similar activities at other facilities to complete composite walls have ranged from $200 million to $300 million with a range of five to seven years to complete. TVA will continue working with the community to help mitigate local impacts of the extended drawdown.

Pickwick Landing Dam South Embankment Remediation. Recent reassessments of Pickwick found low safety factors for post-earthquake stability indicating that the dam is at significant risk for slope stability failure following a seismic event in portions of the south embankment. Slope stability failure could lead to a breach of the south embankment and loss of the reservoir, resulting in loss of life and damage to property downstream, disruption to navigation, and loss of generation and recreation.

On September 30, 2016, TVA issued a final environmental assessment and finding of no significant impact for its proposed upgrades to the south embankment. Upon completion of the Phase 1 study, TVA has determined that remediation of the south embankment should be performed by constructing berms on the upstream and downstream slopes. The design phase

Table of Contents

of the project is scheduled to begin in the fall of 2016 with the construction phase scheduled to begin in the fall of 2017 with an anticipated duration of two years. The project is currently estimated to be completed in two years. However, the project could take longer than two years depending on the sequencing and loading of the dam. The total project cost is estimated to be approximately $100 million.

Major Capital Projects

The table below summarizes major projects of at least $1.0 billion, as approved by the TVA Board, which support TVA's strategic imperatives related to having a diversified, cleaner portfolio, providing electricity at the lowest feasible rate, responding to changing regulatory requirements including environmental regulations, and meeting operational challenges related to generation reliability. See Liquidity and Capital Resources and Key Initiatives and Challenges.

Summary Table of Major Projects

Projects	Estimated Project Cost (in billions)	Estimated In-Service Year
Capacity Expansion Projects		
Paradise combined cycle plant	$ 1.1	2017
Allen combined cycle plant	1.0	2018
Environmental		
Gallatin clean air controls	1.0	2018

Regulatory Compliance

Environmental Mitigation. Of the $290 million that TVA is required to spend on environmental mitigation projects under the Environmental Agreements, TVA has already spent approximately $238 million in implementing energy efficiency, electric vehicle, and renewable energy projects. These expenditures on environmental mitigation projects are in addition to the decisions TVA made under the Environmental Agreements to control, convert, or retire additional coal-fired units. See Part I, Business — Power Supply and Load Management Resources — Coal-Fired.

Transmission Issues. TVA anticipates expenditures related to transmission facilities to increase as a result of both new and evolving regulatory requirements. The North American Electric Reliability Corporation ("NERC") approved revisions to the Transmission Planning ("TPL") Reliability Standards in 2013. TVA has spent $20 million since the approval of the standard on existing transmission facilities and anticipates spending an additional $40 million through 2018 to ensure compliance with the 2013 revision of the TPL standards. Total costs of compliance with the standard, including those beyond 2018, are estimated to be $592 million.

Steam-Electric Effluent Guidelines. On November 3, 2015, the EPA published a final rule revising the existing steam electric effluent limitation guidelines ("ELGs"). The ELGs update the existing technology-based water discharge limitations for power plants. Compliance with new requirements is required in the 2018-2023 timeframe and will necessitate major upgrades to wastewater treatment systems at all coal-fired plants. Dry fly ash handling is mandated by the rule. The rule also requires either dry bottom ash handling systems or “no discharge” recycle of bottom ash transport waters, and new technology-based limits on flue gas desulfurization (scrubber) wastewater require primary physical/chemical treatment and secondary biological treatment to meet extremely low limits for arsenic, mercury, and selenium.

TVA currently has four plants with wet scrubbers that will have to comply with the scrubber-related limits, the largest being Cumberland Fossil Plant ("Cumberland"). TVA is working with the State of Tennessee and the EPA in an effort to address compliance with the ELGs at Cumberland given its unique “once-through” scrubber design. Compliance with the rule at Cumberland without modification to address the unique design could cause TVA to incur disproportionately high costs at Cumberland or experience other operational outcomes which TVA cannot predict at this time. See Item 1, Business — Environmental Matters — Steam-Electric Effluent Guidelines.

Pension Fund

As of September 30, 2016, TVA's qualified pension plan had assets of $7.1 billion compared with liabilities of $13.1 billion. The potential for the plan's funded status to improve in the near term is limited because of expected equity performance, the significant amount of benefits paid each year to plan beneficiaries, and historically low discount rates to measure the plan’s benefit obligation. The plan currently has approximately 34,000 participants, of which approximately 24,000 are retirees and beneficiaries currently receiving benefits. Benefits of over $700 million are expected to be paid in 2017. Amendments were adopted for the plan in 2016 to reduce the benefit obligation by $960 million and to commit TVA to annual contributions of the greater of the minimum contribution calculated by TVARS's actuary according to the TVARS Rules and Regulations or $300 million for a period of 20 years or until the plan has reached a fully funded status.

Table of Contents

Ratemaking

At its August 25, 2016 meeting, the TVA Board approved a base rate adjustment which took effect on October 1, 2016. The base rate adjustment is expected to contribute approximately $200 million to fiscal year 2017 revenues. See Distributed Energy Resources and Item 1, Business — Rates — Rate Methodology.

Safeguarding Assets

Physical Security — Non-Nuclear Asset Protection. TVA utilizes a variety of security technologies, security awareness activities, and security personnel to prevent sabotage, vandalism, and thefts. Any of these activities could negatively impact the ability of TVA to generate, transport, and deliver power to its customers. TVA's Police and Emergency Management are active participants with numerous professional and peer physical security organizations in both the electric industry and law enforcement communities.

Recent physical attacks on transmission facilities across the country have heightened awareness of the need to physically protect facilities. TVA is working with the Department of Homeland Security ("DHS"), the Federal Energy Regulatory Commission ("FERC"), NERC, the Southeastern Reliability Corporation, the North American Transmission Forum, and other utilities to implement industry approved recommendations and standards.

Nuclear Security. Nuclear security is carried out in accordance with federal regulations as set forth by the NRC. These regulations are designed for the protection of TVA's nuclear power plants, the public, and employees from the threat of radiological sabotage and other nuclear-related terrorist threats. TVA has security forces to guard against such threats.

Cyber Security. TVA operates in a highly regulated environment. TVA's cyber security program aligns or complies with the Federal Information System Management Act, the NERC Critical Infrastructure Protection requirements, and the NRC requirements for cyber security, as well as industry best practices. As part of the U.S. government, TVA coordinates with and works closely with the DHS and the United States Computer Emergency Readiness Team ("US-CERT"). US-CERT functions as a liaison between the DHS and the public and private sectors to coordinate responses to security threats from the Internet. TVA is also participating in studies funded through the DOE to identify, design, and test new solutions for protecting critical infrastructure from cyber attacks.

Although TVA has continued to experience increased cybersecurity threats, none of the attacks to date have impacted TVA's ability to operate as planned or compromised data which could involve TVA in legal proceedings. See Item 1A, Risk Factors — Operational Risks — TVA's facilities and information infrastructure may not operate as planned due to physical and cyber threats to TVA's security.

Transmission Assets. In addition to physical and cybersecurity attacks, TVA’s transmission assets are vulnerable to various types of electrically charged energy disruptions such as those from geomagnetic disturbances ("GMD") and electromagnetic pulses ("EMP"). Although the effects of GMD and EMP are dissimilar, they are often considered together. On September 22, 2016, FERC approved the Phase 2 NERC Standard TPL-007 to address GMD events. TVA has already met many of the requirements of the new standard with completion of a model of the 500 kV grid and evaluation of the effects of solar storms ranging from NERC’s reference case to possible extreme levels. Only a few items of equipment would exceed threshold levels even for the extreme cases and no damage would be expected. The most serious threats from EMP are those caused by high-altitude nuclear explosions. Like others in the industry, TVA is coordinating with federal and state authorities, NERC, and other grid owners and operators to address this emerging concern.

Critical Accounting Policies and Estimates

TVA's consolidated financial statements are prepared in accordance with GAAP, which require management to make estimates, judgments, and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Each of these estimates varies in regard to the level of judgment involved and its potential impact on TVA's financial results. Estimates are deemed critical either when a different estimate could have reasonably been used, or where changes in the estimate are reasonably likely to occur from period to period, and such use or change also would materially impact TVA's financial condition, results of operations, or cash flows. TVA's critical accounting policies are also discussed in Note 1 of the Notes to Consolidated Financial Statements in this Annual Report.

TVA believes that its most critical accounting policies and estimates relate to the following:

- Regulatory Accounting
- Asset Retirement Obligations
- Pension and Other Post-Retirement Benefits

Management has discussed the development, selection, and disclosure of critical accounting policies and estimates with the Audit, Risk, and Regulation Committee of the TVA Board. While TVA's estimates and assumptions are based on its knowledge of current events and actions it may undertake in the future, actual results may ultimately differ from these estimates

Table of Contents

and assumptions.

Regulatory Accounting

Description	The TVA Board is authorized by the TVA Act to set rates for power sold to customers; thus, TVA is "self-regulated." Additionally, TVA's regulated rates are designed to recover its costs of providing electricity. In view of demand for electricity and the level of competition, TVA has assumed that rates, set at levels that will recover TVA's costs, can be charged and collected. As a result of these factors, TVA records certain assets and liabilities that result from the regulated ratemaking process that would not be recorded under GAAP for non-regulated entities. Regulatory assets generally represent incurred costs that have been deferred because such costs are probable of future recovery in customer rates. Regulatory liabilities generally represent obligations to make refunds to customers for previous collections of costs that are not likely to be incurred or deferral of gains that will be credited to customers in future periods. The timeframe over which the regulatory assets are recovered from customers or regulatory liabilities are credited to customers is subject to annual TVA Board approval. At September 30, 2016, TVA had $10.7 billion of Regulatory assets and $157 million of Regulatory liabilities.
Judgments and Uncertainties	TVA assesses whether the regulatory assets are probable of future recovery by considering factors such as applicable regulatory changes, potential legislation, and changes in technology. Based on these assessments, TVA believes the existing regulatory assets are probable of recovery. This determination reflects the current regulatory and political environment and is subject to change in the future. TVA has not made any material changes in the accounting policy used to record regulatory assets and liabilities during the past three fiscal years.
Effect if Actual Results Differ From Assumptions	TVA does not believe there is a reasonable likelihood that there will be a material change in the estimates or assumptions used to record regulatory assets and liabilities. If future recovery of regulatory assets ceases to be probable, or any of the other factors described herein cease to be applicable, TVA would be required to write off these costs and recognize them in net income or other comprehensive income.

Table of Contents

Asset Retirement Obligations

TVA recognizes legal obligations associated with the future retirement of certain tangible long-lived assets. These obligations relate to TVA’s generating facilities, including coal-fired, nuclear, hydroelectric, and natural gas and/or oil-fired. They also pertain to coal ash impoundments, transmission facilities, and other property-related assets. Activities involved with the retirement of these assets could include decontamination and demolition of structures, removal and disposal of wastes, and site restoration. Revisions to the estimates of asset retirement obligations ("AROs") are made whenever factors indicate that the timing or amounts of estimated cash flows have changed. Any accretion or depreciation expense related to these liabilities and assets is charged to a regulatory asset. See Note 7 — Nuclear Decommissioning Costs and Non-Nuclear Decommissioning Costs and Note 11.

Asset Retirement Obligations: Nuclear Decommissioning

Description	Utilities that own and operate nuclear plants are required to recognize a liability for legal obligations related to nuclear decommissioning. An equivalent amount is recorded as an increase in the carrying value of the capitalized asset and allocated to a regulatory asset over the useful life of the capitalized asset. The initial obligation is measured at its estimated fair value using various judgments and assumptions. Fair value is developed using an expected present value technique that is based on assumptions of market participants and that considers estimated retirement costs in current period dollars that are inflated to the anticipated decommissioning date and then discounted back to the date the ARO was incurred. Decommissioning cost studies are updated for each of TVA's nuclear units at least every five years. Changes in assumptions and estimates included within the calculations of the fair value of AROs could result in significantly different results than those identified and recorded in the financial statements. TVA periodically reviews its estimated ARO liabilities. Any change to an ARO liability is recognized prospectively as an equivalent increase or decrease in the carrying value of the capitalized asset. Any accretion or depreciation expense related to these liabilities and assets is charged to a regulatory asset. At September 30, 2016, the estimated future nuclear decommissioning cost recognized in the financial statements was $2.5 billion and was included in AROs, and the unamortized regulatory asset related to nuclear decommissioning ARO costs of $938 million was included in Regulatory assets.
Judgments and Uncertainties	The following key assumptions can have a significant effect on estimates related to the nuclear decommissioning costs reported in TVA's nuclear ARO liability: Timing and Method – In projecting decommissioning costs, two assumptions must be made to estimate the timing of plant decommissioning. First, the date of the plant's retirement must be estimated. (At Browns Ferry and Sequoyah, the estimated retirement date is based on the unit with the longest license period remaining. At Watts Bar, the estimated retirement date is based on each unit's license period.) Second, an assumption must be made on the timing of the decommissioning. TVA has ascribed probabilities to two different decommissioning methods related to its nuclear decommissioning obligation estimate: the DECON method and the SAFSTOR method. The DECON method requires that radioactive contamination be removed from a site and safely disposed of or decontaminated to a level that permits the site to be released for unrestricted use shortly after it ceases operation. The SAFSTOR method allows nuclear facilities to be placed and maintained in a condition that allows the facilities to be safely stored and subsequently decontaminated to levels that permit release for unrestricted use. TVA bases its nuclear decommissioning estimates on site-specific cost studies, which are updated for each of TVA’s nuclear units at least every five years. TVA plans to complete new cost studies in 2017. Changes in probabilities ascribed to the assumptions for license

	extension or the timing of decommissioning can significantly change the present value of TVA's obligations. Cost Estimates – There is limited experience with actual decommissioning of large nuclear facilities. Changes in technology and experience as well as changes in regulations regarding nuclear decommissioning could cause cost estimates to change significantly. TVA's cost studies assume current technology and regulations. Cost Escalation Rate – TVA uses expected inflation rates over the remaining timeframe until the costs are expected to be incurred to estimate the amount of future cash flows required to satisfy TVA’s decommissioning obligations. Discount Rate – TVA uses its incremental borrowing rate over a period consistent with the remaining timeframe until the costs are expected to be incurred to calculate the present value of the weighted estimated cash flows required to satisfy TVA’s decommissioning obligations. The actual decommissioning costs may vary from the derived estimates because of changes in current assumptions, such as the assumed dates of decommissioning, changes in regulatory requirements, changes in technology, and changes in the cost of labor, materials, and equipment.
Effect if Actual Results Differ From Assumptions	A 10 percent change in TVA's ARO for nuclear decommissioning cost at September 30, 2016, would have affected the liability by approximately $250 million.

Table of Contents

Asset Retirement Obligations: Non-Nuclear Decommissioning

Description	The present value of the estimated future non-nuclear decommissioning cost was $1.5 billion at September 30, 2016. This decommissioning cost estimate involves estimating the amount and timing of future expenditures and making judgments concerning whether or not such costs are considered a legal obligation. Estimating the amount and timing of future expenditures includes, among other things, making projections of the timing and duration of the asset retirement process and predicting how costs will escalate with inflation. The following key assumptions can have a significant effect on estimates related to the non-nuclear decommissioning costs: Timing and Method – In projecting non-nuclear decommissioning costs, the date of the asset's retirement must be estimated. In instances where the retirement of a specific asset will precede the retirement of the generating plant, the anticipated retirement date of the specific asset is used. Additionally, TVA expects to incur certain ongoing costs subsequent to the initial asset retirement. TVA develops its cost estimates based on likelihood of decommissioning method where options exist in fulfilling legal obligations, (e.g., cap and close in place or clean closure for coal ash impoundments). The decommissioning method is determined based on several factors including available technologies, environmental studies, cost factors, resource availability, and timing requirements. As these factors are considered and decommissioning methods are determined, the detailed project schedules and estimates are adjusted. During 2016, TVA management updated its non-nuclear plant closure method assumption from a maintain-in-place method to a plant demolition method.
Judgments and Uncertainties	Technology and Regulation – Changes in technology and experience as well as changes in regulations regarding non-nuclear decommissioning could cause cost estimates to change significantly. TVA's cost estimates generally assume current technology and regulations. In April 2015, the EPA published its final rule governing CCRs, which regulates landfill and impoundment location, design, and operations; dictates certain pond-closure conditions; and establishes groundwater monitoring and closure and post-closure standards. As a result of this ruling, in 2015 TVA made revisions to the assumptions and estimates used to calculate its CCR AROs. TVA continues to evaluate the impact of the rule on its operations, including cost and timing estimates of related projects. As a result, further adjustments to its ARO liabilities may be required as estimates are refined. Cost Escalation Rate – TVA uses expected inflation rates over the remaining timeframe until the costs are expected to be incurred to estimate the amount of future cash flows required to satisfy TVA's decommissioning obligations. Discount Rate – TVA uses its incremental borrowing rate over a period consistent with the remaining timeframe until the costs are expected to be incurred to calculate the present value of the weighted estimated cash flows required to satisfy TVA's decommissioning obligations.
Effect if Actual Results Differ From Assumptions	The actual decommissioning costs may vary from the derived estimates because of changes in current assumptions, such as the assumed dates of decommissioning, changes in the discount or escalation rates, changes in regulatory requirements, changes in technology, and changes in the cost of labor, materials, and equipment.

A 10 percent change in TVA's ARO for non-nuclear decommissioning costs at September 30, 2016, would have affected the liability by approximately $155 million.

Table of Contents

Pension and Other Post-Retirement Benefits

Description	TVA sponsors a defined benefit pension plan that is qualified under section 401(a) of the Internal Revenue Code and covers substantially all of its full-time annual employees hired prior to July 1, 2014. The Tennessee Valley Authority Retirement System ("TVARS"), a separate legal entity governed by its own board of directors, administers the qualified defined benefit pension plan. TVA also provides a Supplemental Executive Retirement Plan (“SERP”) to certain executives in critical positions, which provides supplemental pension benefits tied to compensation levels that exceed limits imposed by IRS rules applicable to the qualified defined benefit pension plan. Additionally, TVA provides post-retirement health care benefits for most of its full-time employees who reach retirement age while still working for TVA.
Judgments and Uncertainties	TVA's pension and other post-retirement benefits contain uncertainties because they require management to make certain assumptions related to TVA's cost to provide these benefits. Numerous factors are considered including the provisions of the plans, changing employee demographics, various actuarial calculations, assumptions, and accounting mechanisms. The most significant of these factors are discussed below. Expected Return on Plan Assets – The qualified defined benefit pension plan is the only plan that is funded with qualified plan assets. In determining the expected long-term rate of return on pension plan assets, TVA uses a process that incorporates actual historical asset class returns and an assessment of expected future performance and takes into consideration external actuarial advice and asset class factors. Asset allocations are periodically updated using the pension plan asset/liability studies, and are part of the determination of the estimates of long-term rates of return. The current asset allocation policy approved by the TVARS Board diversifies plan assets across multiple asset classes so as to minimize the risk of large losses. The asset allocation policy is designed to be dynamic in nature and responsive to changes in the funded status of TVARS. Changes in the expected return rates are based on annual studies performed by third party professional investment consultants. Upon review of TVARS's asset allocation policy effective in 2017, the 2016 annual study, and the current outlook on capital markets, TVA management decided to maintain the expected return on assets at 7.00 percent, which will be used to measure 2017 net periodic benefit cost. TVA used an expected rate of return of 7.00 percent to measure benefit costs in 2016 and 2015 and used 7.25 percent to measure benefit costs in 2014. Discount Rate – In the case of selecting an assumed discount rate, TVA reviews market yields on high-quality corporate debt and long-term obligations of the U.S. Treasury and endeavors to match, through the use of a hypothetical bond portfolio, instrument maturities with the maturities of its pension obligations in accordance with the prevailing accounting standards. The selected bond portfolio is derived from a universe of high quality corporate bonds of Aa quality or higher. After the bond portfolio is selected, a single interest rate is determined that equates the present value of the plan's projected benefit payments discounted at this rate with the market value of the bonds selected. At September 30, 2016, the discount rates used to determine the pension and other post-retirement benefit obligations were 3.65 percent and 3.70 percent, respectively. At September 30, 2015, the discount rates used to determine the pension and other post-retirement benefit obligations were 4.50 percent and 4.65 percent, respectively. The discount rate assumptions used to determine the obligations at year-end are used to determine the net periodic benefit cost for the following year. TVA will use discount rates of 3.65 percent and 3.70 percent to estimate its 2017 pension and other post-retirement net periodic benefit costs, respectively. The discount rate is somewhat volatile because it is determined based upon the prevailing rate as of the measurement date.

Mortality – Mortality assumptions are based upon actuarial projections in combination with actuarial studies of the actual mortality experience of TVA's pension and post-retirement plan participants. In 2014 and 2013, TVA had used the RP-2000 base table of the Society of Actuaries ("SOA") with a modified improvement scale of Scale AA to 2022. In 2015, TVA adopted an adjusted version of the SOA's RP-2014 mortality tables and a modified MP-2014 improvement scale for purposes of measuring its pension and other post-retirement benefit obligations at September 30, 2015. In 2016, TVA maintained its mortality table assumption adopted in 2015, but updated the improvement scale assumption to a modified version of the SOA's RP-2015 scale for purposes of measuring its pension and other post-retirement benefit obligations at September 30, 2016. The mortality rate assumption used to determine the obligations at year-end are used to determine the net periodic benefit costs for the following year.

Health Care Cost Trends –TVA reviews actual recent cost trends and projected future trends in establishing health care cost trend rates. The assumed health care trend rates used to determine pre-Medicare eligible post-retirement benefit obligations for 2016 and 2015 were 6.50 percent and 7.00 percent, respectively. The 2016 health care cost trend rate of 6.50 percent used to determine the pre-Medicare eligible post-retirement benefit obligations is assumed to gradually decrease each successive year until it reaches a 5.00 percent annual increase in health care costs in the years beginning October 1, 2019, and beyond. The assumed health care trend rates used to determine post-Medicare eligible post-retirement benefit obligations for 2016 and 2015 were 0.00 percent and 7.00 percent, respectively. The 2016 health care cost trend rate of 0.00 percent used to determine the post-Medicare eligible post-retirement benefit obligations is assumed to remain at 0.00 percent through 2020 at which point it rises to 4.00 percent in the years beginning October 1, 2021 and beyond as a result of the move of Medicare eligible retirees to a private exchange. The assumed health care cost trend rates used to determine the net periodic post-retirement cost were 7.00 percent for 2016, 7.50 percent for 2015, and 8.00 percent for 2014. TVA plans to use 6.50 and 0.00 percent in the determination of 2017 net periodic post-retirement cost for pre-Medicare eligible and post-Medicare eligible, respectively. The current trend rate assumption reflects review of TVA medical claims, more participants moving to the high deductible plan, and TVA moving to a private exchange.

Cost of Living Adjustment – Cost-of-living adjustments ("COLAs") are an increase in the benefits for eligible retirees to help maintain the purchasing power of benefits as consumer prices increase. Eligible retirees receive a COLA on the base pension portion of the monthly pension benefit equal to the percentage change in the Consumer Price Index for All Urban Consumers ("CPI-U") in January following any year in which the 12-month average CPI-U exceeded by as much as one percent the 12-month average of the CPI-U for the preceding year in which a COLA was given. Prior to October 1, 2016, the minimum COLA was one percent and the maximum was five percent. Effective October 1, 2016, the calculation of the COLA benefit will be equal to the percentage change in the CPI-U minus 0.25 percent with a minimum of still one percent and the maximum increased to six percent.

Table of Contents

TVA's 2016 COLA assumption was changed to be 1.25 percent in 2017 and 2.00 percent in 2018 and thereafter, to better reflect anticipated future plan experience and the plan amendments to the COLA. Prior to 2013, TVA had maintained a 2.50 percent COLA, but TVA determined that a more accurate estimate would be to lower the COLA for the short term with a gradual increase that would trend back up to the long-term expectations based upon the economic forecast and the Federal Reserve policy. The 2015 and 2014 COLA assumptions assumed that the COLA would trend to the ultimate rate of 2.40 percent in 2021 and to the ultimate rate of 2.50 percent in 2020, respectively.

Contributions – The minimum contribution for 2016 was $209 million; however, TVA made a $275 million contribution to TVARS. The 2015 minimum contribution was $215 million; however, TVA contributed $275 million to TVARS. In 2016, TVA made contributions of $6 million to the SERP and $47 million to the other post-retirement benefit plans. In 2015, TVA made contributions of $7 million to the SERP and $44 million to the other post-retirement benefit plans. TVA expects to contribute $300 million to TVARS, $5 million to the SERP, and $35 million to the other post-retirement benefit plans in 2017.

Effect if Actual Results Differ From Assumptions

Accounting Mechanisms – In accordance with current accounting guidance, TVA utilizes a number of accounting mechanisms that reduce the volatility of reported pension expense. Differences between actuarial assumptions and actual plan results are deferred and are amortized into periodic expense only when the accumulated differences exceed 10 percent of the greater of the projected benefit obligation or the market-related value of plan assets. If necessary, the excess is amortized over the average remaining service period of active employees.

Expected Return on Plan Assets – TVA recognizes the impact of asset performance on pension expense over a three-year phase-in period through a market-related value of assets calculation. Since the market-related value of assets recognizes investment gains and losses over a three-year period, the future value of assets will be impacted as previously deferred gains or losses are recognized. As a result, losses that the pension plan assets experience may have an adverse impact on pension expense in future years depending on whether the actuarial losses at each measurement date exceed 10 percent of the greater of the projected pension benefit obligation or the market-related value of plan assets in accordance with current accounting methodologies.

The actuarial gain (loss) related to the difference between expected and actual return on pension plan assets for 2016 and 2015 was $287 million and $(762) million, respectively. Compared with the assumed return of 7.00 percent, the 2016 and 2015 actuarial gain (loss) was due to the actual rates of return on the fair value of assets of 11.20 percent and (4.48) percent, respectively. The differences between expected and actual returns that result in an actuarial gain or loss are recognized as a increase or decrease, respectively, in the related regulatory asset and the projected pension benefit obligation. A higher expected rate of return assumption decreases the net periodic pension benefit cost, whereas a lower expected rate of return assumption increases the net periodic pension benefit cost. A 0.25 percent decrease in the expected rate of return on plan assets would increase the 2016 net periodic pension cost by $16 million.

Changes in the expected rate of return on pension plan assets do not affect TVA's post-retirement benefit plans because TVA does not separately set aside assets to fund such benefits. TVA funds its post-retirement plan benefits on an as-paid basis. These changes in the expected rate of return on pension plan assets also do not impact the Supplemental Executive Retirement Plan ("SERP") as any assets set aside for that plan are not considered plan assets under GAAP.

Discount Rate – A higher discount rate decreases the plan obligations and correspondingly decreases the net periodic pension and net post-retirement benefit costs for those plans where actuarial losses are being amortized. On the other hand, a lower discount rate increases net periodic pension and net periodic post-retirement benefit costs.

Assuming the other components of the calculation are held constant and excluding any impact for unamortized gains or losses, a 0.25 percent decrease would increase the 2016 net periodic pension cost by $22 million and the 2016 projected pension benefit obligation by $388 million.

Mortality – As the mortality assumptions improve (e.g., assume participants are living longer), the benefit obligation increases. The change in the improvement scale reflected decreased life expectancies resulting in an increase in the pension and other post-retirement benefit obligations by $133 million and $7 million, respectively, as of September 30, 2016.

Periodic post-retirement benefit cost could fluctuate if there are changes in the health care cost trend rate. Assuming that the other components of the calculation are held constant and excluding any impact for unamortized actuarial gains or losses, a one percent increase in the assumed health care cost trend rate would impact the post-retirement service and interest cost components by $6 million and the accumulated post-retirement benefit obligation by $105 million. Likewise, a one percent decrease in the health care cost trend rate would impact the post-retirement service and interest cost components by $(6) million and the accumulated post-retirement benefit obligation by $(88) million.

A higher COLA assumption increases the pension benefit obligation and correspondingly increases the net periodic pension benefit cost. A lower COLA assumption decreases the pension benefit obligation and the net periodic pension benefit cost. Assuming the other components of the calculation are held constant and excluding any impact for unamortized actuarial gains or losses, a 0.25 percent increase in the COLA assumption would increase the 2016 pension benefit obligation by $254 million and increase the net periodic pension benefit cost by $31 million.

Fair Value Measurements

Investments

Investment Funds. Investments classified as trading consist of amounts held in the Nuclear Decommissioning Trust ("NDT"), Asset Retirement Trust ("ART"), SERP, and Long-Term Deferred Compensation Plan ("LTDCP"). These assets are generally measured at fair value based on quoted market prices or other observable market data such as interest rate indices. These investments are primarily U.S. and international equities, real estate investment trusts, fixed income investments, high-yield fixed income investments, U.S. Treasury Inflation-Protected Securities, commodities, currencies, derivative

Table of Contents

instruments, and other investments. TVA has classified all of these trading securities as either Level 1, Level 2, or Investments measured at net asset value. See Note 15 — Valuation Techniques for a discussion of valuation levels of the investments.

Plan Investments. TVA's qualified benefit pension plan is funded with qualified plan assets. These investments are primarily global public equities, private equities, fixed income securities, real estate investment trusts, Treasury Inflation-Protected Securities, commodities, Master Limited Partnerships, and private real assets. See Note 19 — Fair Value Measurements for disclosure of fair value measurements for investments held by TVARS that support TVA's qualified defined benefit pension plan.

Pricing. Prices provided by third-parties for the assets in investment funds and plan investments are subjected to automated tolerance checks by the investment portfolio trustee to identify and avoid, where possible, the use of inaccurate prices. Any such prices identified as outside the tolerance thresholds are reported to the vendor that provided the price. If the prices are validated, the primary pricing source is used. If not, a secondary source price that has passed the applicable tolerance check is used (or queried with the vendor if it is out of tolerance), resulting in either the use of a secondary price, where validated, or the last reported default price, as in the case of a missing price. For monthly valued accounts, where secondary price sources are available, an automated inter-source tolerance report identifies prices with an inter-vendor pricing variance of over two percent at an asset class level. For daily valued accounts, each security is assigned, where possible, an indicative major market index, against which daily price movements are automatically compared. Tolerance thresholds are established by asset class. Prices found to be outside of the applicable tolerance threshold are reported and queried with vendors as described above.

For investment funds, TVA additionally performs its own analytical testing on the change in fair value measurements each period to ensure the valuations are reasonable based on changes in general market assumptions. TVA also performs pricing tests on various portfolios comprised of securities classified in Levels 1 and 2 on a quarterly basis to confirm accuracy of the values received from the investment portfolio trustee. For plan investments, TVARS reviews the trustee's Service Organization Controls report and the pricing policies of the trustee's largest pricing vendor.

Derivatives

TVA has entered into various derivative transactions, including commodity option contracts, forward contracts, swaps, swaptions, futures, and options on futures, to manage various market risks. Other than certain derivative instruments included in investment funds, it is TVA's policy to enter into these derivative transactions solely for hedging purposes and not for speculative purposes.

Currency and Interest Rate Derivatives. TVA has three currency swaps and four "fixed for floating" interest rate swaps. The currency swaps protect against changes in cash flows caused by volatility in exchange rates related to outstanding Bonds denominated in British pounds sterling. The currency and interest rate swaps are classified as Level 2 valuations as the rate curves and interest rates affecting the fair value of the contracts are based on observable data. The application of credit valuation adjustments ("CVAs") did not materially affect the fair value of these assets and liabilities at September 30, 2016.

Commodity Contracts. TVA enters into commodity derivatives for coal and natural gas that require physical delivery of the contracted quantity of the commodity. The fair values of these derivative contracts are determined using internal models based on income approaches. TVA develops an overall coal forecast based on widely-used short-term and mid-range market data from an external pricing specialist in addition to long-term internal estimates. To value the volume option component of applicable coal contracts, TVA uses a Black-Scholes pricing model which includes inputs from the overall coal price forecast, contract-specific terms, and other market inputs. Based on the use of certain significant unobservable inputs, these valuations are classified as Level 3 valuations. Additionally, any

settlement fees related to early termination of coal supply contracts are included at the contractual amount. The application of CVAs did not materially affect the fair value of these assets and liabilities at September 30, 2016.

Commodity Derivatives under the Financial Trading Program. TVA established a Financial Trading Program ("FTP") under which it could purchase and sell futures, swaps, options, and similar derivative instruments to hedge its exposure to changes in prices of natural gas, fuel oil, coal, and other commodities. Although certain natural gas futures and swaps under the FTP remain at September 30, 2016, future purchases under the program have been suspended. TVA plans to continue to manage fuel price volatility through other methods and to periodically reevaluate its suspended FTP program for future use of financial instruments. TVA is prohibited from taking speculative positions in its FTP.

Financial instruments under the FTP are valued based on market approaches which utilize Chicago Mercantile Exchange ("CME") quoted prices and other observable inputs. Futures and options contracts settled on the CME are classified as Level 1 valuations. Swap contracts are valued using a pricing model based on CME inputs and are subject to nonperformance risk outside of the exit price. These contracts are classified as Level 2 valuations. The application of CVAs did not materially affect the fair value of these assets and liabilities at September 30, 2016.

TVA maintains policies and procedures to value commodity contracts using what is believed to be the best and most relevant data available. In addition, TVA’s risk management group reviews valuations and pricing data. TVA retains independent

Table of Contents

pricing vendors to assist in valuing certain instruments without market liquidity. TVA plans to continue to manage fuel price volatility through various methods, but is currently evaluating the future use of financial instruments.

Fair Value Considerations

In determining the fair value of its financial instruments, TVA considers the source of observable market data inputs, liquidity of the instrument, credit risk, and risk of nonperformance of itself or the counterparty to the contract. The conditions and criteria used to assess these factors are described below.

Sources of Market Assumptions. TVA derives its financial instrument market assumptions from market data sources (e.g., CME, Moody's Investors Service, Inc. ("Moody's")). In some cases, where market data is not readily available, TVA uses comparable market sources and empirical evidence to derive market assumptions and determine a financial instrument's fair value.

Market Liquidity. Market liquidity is assessed by TVA based on criteria as to whether the financial instrument trades in an active or inactive market. A financial instrument is considered to be in an active market if the prices are fully transparent to the market participants, the prices can be measured by market bid and ask quotes, the market has a relatively high trading volume, and the market has a significant number of market participants that will allow the market to rapidly absorb the quantity of the assets traded without significantly affecting the market price. Other factors TVA considers when determining whether a market is active or inactive include the presence of government or regulatory control over pricing that could make it difficult to establish a market-based price upon entering into a transaction.

Nonperformance Risk. In determining the potential impact of nonperformance risk, which includes credit risk, TVA considers changes in current market conditions, readily available information on nonperformance risk, letters of credit, collateral, other arrangements available, and the nature of master netting arrangements. TVA is a counterparty to derivative instruments that subject TVA to nonperformance risk. Nonperformance risk on the majority of investments and certain exchange-traded instruments held by TVA is incorporated into the exit price that is derived from quoted market data that is used to value the investment.

Nonperformance risk for most of TVA’s derivative instruments is an adjustment to the initial asset/liability fair value. TVA adjusts for nonperformance risk, both of TVA (for liabilities) and the counterparty (for assets), by applying a CVA. TVA determines an appropriate CVA for each applicable financial instrument based on the term of the instrument and TVA’s or the counterparty’s credit rating as obtained from Moody’s. For companies that do not have an observable credit rating, TVA uses internal analysis to assign a comparable rating to the company. TVA discounts each financial instrument using the historical default rate (as reported by Moody’s for CY 1983 to CY 2015) for companies with a similar credit rating over a time period consistent with the remaining term of the contract.

All derivative instruments are analyzed individually and are subject to unique risk exposures. The application of CVAs resulted in a $2 million decrease in the fair value of assets and a $1 million decrease in the fair value of liabilities at September 30, 2016.

Collateral. TVA’s interest rate swaps, currency swaps, and commodity derivatives under the FTP contain contract provisions that require a party to post collateral (in a form such as cash or a letter of credit) when the party’s liability balance under the agreement exceeds a certain threshold. See Note 14 — Other Derivative Instruments — Collateral for a discussion of collateral related to TVA’s derivative liabilities.

New Accounting Standards and Interpretations

See Note 2 for a discussion of recent accounting standards and pronouncements which were issued by the FASB, became effective for TVA, or were adopted by TVA during the presented periods.

Legislative and Regulatory Matters

TVA continues to monitor how regulatory agencies are interpreting and implementing the provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act, which was enacted in July 2010. As a result of this act and its implementing regulations, TVA has become subject to recordkeeping, reporting, and reconciliation requirements related to its derivative transactions. In addition, depending on how regulatory agencies interpret and implement the provisions of this act, TVA’s hedging costs may increase, and TVA may have to post additional collateral and margin in connection with its derivative transactions.

For a discussion of environmental legislation and regulation, see Item 1, Business — Environmental Matters.

TVA does not engage, and does not control any entity that is engaged, in any activity listed under Section 13(r) of the Exchange Act, which requires certain issuers to disclose certain activities relating to Iran involving the issuer and its affiliates. Based on information supplied by each such person, none of TVA's directors and executive officers are involved in any such

Table of Contents

activities. While TVA is an agency and instrumentality of the United States of America, TVA does not believe its disclosure obligations, if any, under Section 13(r) extend to the activities of any other departments, divisions, or agencies of the United States.

Environmental Matters

See Item 1, Business — Environmental Matters, which discussion is incorporated by reference into this Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations.

Legal Proceedings

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting its activities, as a result of catastrophic events or otherwise. TVA had accrued approximately $61 million with respect to Legal Proceedings at September 30, 2016. No assurance can be given that TVA will not be subject to significant additional claims and liabilities. If actual liabilities significantly exceed the estimates made, TVA's results of operations, liquidity, and financial condition could be materially adversely affected.

For a discussion of certain current material Legal Proceedings, see Note 20 — Legal Proceedings, which discussion is incorporated into this Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations.

Risk Management Activities

TVA is exposed to various market risks. These market risks include risks related to commodity prices, investment prices, interest rates, currency exchange rates, inflation, and counterparty credit and performance risk. To help manage certain of these risks, TVA has entered into various derivative transactions, including commodity option contracts, forward contracts, swaps, swaptions, futures, and options on futures. Other than certain derivative instruments in its trust investment funds, it is TVA's policy to enter into these derivative transactions solely for hedging purposes and not for speculative purposes. TVA plans to continue to manage fuel price volatility through various methods, but is currently evaluating the future use of financial instruments. See Note 14.

Risk Governance

The Enterprise Risk Council ("ERC") was created in 2005 to strengthen and formalize TVA's enterprise-wide risk management efforts. The ERC is responsible for the highest level of risk oversight at TVA and is also responsible for communicating enterprise-wide risks with policy implications to the TVA Board or a designated TVA Board committee. The ERC is comprised of the Executive Management Committee ("EMC") and the Chief Risk Officer ("CRO") who will act as Chair. ERC members may invite additional attendees to meetings as non-voting participants. Regular attendees will include the Director, Enterprise Risk Management and the Director, Financial Planning and Portfolio Risk Management. The ERC has established a subordinate Portfolio Risk Oversight Committee ("PROC"), which is comprised of business unit leaders with specific expertise. PROC is responsible for the evaluation of TVA's portfolio risk management processes and infrastructure for power, fuel, and other commodities critical to TVA's power supply.

TVA has a designated Enterprise Risk Management ("ERM") organization within its Financial Services organization responsible for (1) establishing enterprise risk management policies and guidelines, (2) developing an enterprise risk profile aligned with the strategic objectives, (3) performing annual risk assessments across all TVA business units, (4) monitoring and reporting on identified enterprise risks and emerging risks, (5) facilitating enterprise risk discussions with the risk subject matter experts across the organization and at the ERC and TVA Board levels, and (6) developing

and improving TVA's risk awareness culture. TVA has cataloged major short-term and long-term enterprise level risks across the organization. A discussion of significant risks is presented in Item 1A, Risk Factors.

Commodity Price Risk

TVA is exposed to effects of market fluctuations in the price of commodities that are critical to its operations, including electricity, coal, and natural gas. The magnitude of exposure to these risks is influenced by many factors including contract terms and market liquidity. TVA’s commodity price risk is substantially mitigated by its cost-based rates, including its total fuel cost adjustment, and long-term fixed price commodity contracts.

TVA previously used its FTP to help manage cost volatility for its wholesale and directly served customers. Although management has suspended the use of financial instruments under the program, certain natural gas hedges remained in place at September 30, 2016, and September 30, 2015, for the mitigation of risks associated with the price of natural gas. A hypothetical 10 percent decline in the market price of natural gas on September 30, 2016, and 2015, would have resulted in decreases of approximately $6 million and $14 million, respectively, in the fair value of TVA’s natural gas trading derivative instruments at these dates.

Table of Contents

Additionally, TVA manages risk with commodity contract derivatives for both coal and natural gas that require physical delivery of the contracted quantity. A hypothetical 10 percent decline in the market price of coal on September 30, 2016, and 2015, would have resulted in decreases of approximately $41 million and $61 million, respectively, in the fair value of TVA’s coal derivative instruments at these dates. A hypothetical 10 percent decline in the market price of natural gas on September 30, 2016, and 2015, would have resulted in decreases of approximately $45 million and $40 million, respectively, in the fair value of TVA’s natural gas derivative instruments at these dates.

Investment Price Risk

TVA’s investment price risk relates primarily to investments in TVA’s NDT, ART, pension fund, SERP, and Long-Term Deferred Compensation Plan ("LTDCP").

Nuclear Decommissioning Trust. The NDT is generally designed to achieve a return in line with overall equity market performance. The assets of the trust are invested in debt and equity securities, private partnerships and limited liability companies, and certain derivative instruments including forwards, futures, options, and swaps, and through these investments the trust has exposure to U.S. equities, international equities, real estate investment trusts, high-yield debt, domestic debt, U.S. Treasury Inflation-Protected Securities ("TIPS"), commodities, and private real estate, private equity, and absolute return strategies. At September 30, 2016, and 2015, an immediate 10 percent decrease in the price of the investments in the trust would have reduced the value of the trust by $165 million and $148 million, respectively.

Asset Retirement Trust. The ART is presently invested to achieve a return in line with equity and debt market performance. The assets of the trust are invested in securities directly and indirectly through commingled funds. At September 30, 2016, and 2015, an immediate 10 percent decrease in the price of the investments in the trust would have reduced the value of the trust by $52 million and $43 million, respectively.

Qualified Pension Plan. The TVARS Board’s current asset allocation policy for the investment of qualified pension plan assets has targets of 47 percent percent equity including global public and private equity investments, 30 percent fixed income securities, and 23 percent real assets including Treasury Inflation-Protected Securities ("TIPS"), commodities, Master Limited Partnerships ("MLPs"), real estate investment trusts ("REITS"), and private real assets. TVARS has a long-term investment plan that contains a dynamic de-risking strategy which will allocate investments to assets that better match the liability, such as long duration fixed income securities, over time as improved funding status targets are met. Pursuant to the TVARS Rules and Regulations, any proposed changes in asset allocation that would change the system’s assumed rate of investment return are subject to TVA’s review and veto.

As set forth above, the qualified pension plan assets are invested across global public equity, private equity, safety oriented fixed income, opportunistic fixed income, public real assets, and private real assets. The TVARS asset allocation policy includes permissible deviations from these target allocations. The TVARS Board can take action, as appropriate, to rebalance the system’s assets consistent with the asset allocation policy.

At September 30, 2016, and 2015, an immediate 10 percent decrease in the value of the net assets of the fund would have reduced the value of the fund by approximately $715 million and $680 million, respectively.

Supplemental Executive Retirement Plan. The SERP is a non-qualified defined benefit pension plan similar to those typically found in other companies in TVA's peer group and is provided to a limited number of executives. TVA's SERP was created to recruit and retain key executives. The plan is designed to provide a competitive level of retirement benefits in excess of the limitations on contributions and benefits imposed by TVA's qualified defined benefit plan and Internal Revenue Code Section 415 limits on qualified retirement plans. The SERP currently targets an asset allocation policy for its plan assets of 65 percent equity securities, which includes U.S. and non-U.S. equities,

and 35 percent fixed income securities. The SERP plan assets are presently invested to achieve a return in line with overall equity market performance. At September 30, 2016, and 2015, an immediate 10 percent decrease in the value of the SERP investments would have reduced the value of the investments by $5 million.

Long-Term Deferred Compensation Plan. The LTDCP is designed to provide long-term incentives to executives to encourage them to stay with TVA and to provide competitive levels of total compensation to such executives. The plan assists in the recruitment of top executive talent for TVA. As in other corporations, deferred compensation can be an integral part of a total compensation package. Assets include long-term deferred compensation and any other deferred balances. The default return on investment of the accounts is interest calculated based on the composite rate of all marketable U.S. Treasury issues. Executives may alternatively choose to have their balances adjusted based on the return of certain mutual funds. At September 30, 2016, and 2015, an immediate 10 percent decrease in the value of the deferred compensation accounts would have reduced the value of the accounts by $4 million.

Interest Rate Risk

TVA’s interest rate risk is related primarily to its short-term investments, short-term debt, long-term debt, and interest rate derivatives.

Table of Contents

Investments. At September 30, 2016, TVA had $300 million of cash and cash equivalents, and the average balance of cash and cash equivalents for 2016 was $363 million. The average interest rate that TVA received on its short-term investments during 2016 was less than one percent. If the rates of interest that TVA received on its short-term investments during 2016 were zero percent, TVA would have received approximately $1 million less in interest from its short-term investments during 2016. At September 30, 2015, TVA had $300 million of cash and cash equivalents, and the average balance of cash and cash equivalents for 2015 was $600 million. The average interest rate that TVA received on its short-term investments during 2015 was less than one percent. If the rates that TVA received on its short-term investments during 2015 were zero percent, TVA would have received less than $1 million less in interest on short-term investments during 2015. In addition to affecting the amount of interest that TVA receives from its short-term investments, changes in interest rates could affect the value of the investments in its pension plan, ART, NDT, SERP, and LTDCP. See Risk Management Activities — Investment Price Risk above.

Short-Term Debt. At September 30, 2016, TVA's short-term borrowings were $1.4 billion, and the current maturities of long-term debt were $1.6 billion. Based on TVA's interest rate exposure at September 30, 2016, an immediate one percentage point increase in interest rates would have resulted in an increase of $30 million in TVA's short-term interest expense. At September 30, 2015, TVA's short-term borrowings were $1.0 billion, and the current maturities of long-term debt were $65 million. Based on TVA's interest rate exposure at September 30, 2015, an immediate one percentage point increase in interest rates would have resulted in an increase of $11 million in TVA's short-term interest expense.

Long-Term Debt. At September 30, 2016, and 2015, the interest rates on all of TVA's outstanding long-term debt were fixed (or subject only to downward adjustment under certain conditions). Accordingly, an immediate one percentage point increase in interest rates would not have affected TVA's interest expense associated with its long-term debt. When TVA's long-term debt matures or is redeemed, however, TVA typically refinances this debt by issuing additional long-term debt. Accordingly, if interest rates are high when TVA issues this additional long-term debt, TVA's cash flows, results of operations, and financial condition may be adversely affected. This risk is somewhat mitigated by the fact that TVA's debt portfolio is diversified in terms of maturities and has a long average life. At September 30, 2016, and 2015, the average life of TVA's debt portfolio was 16.8 years and 17.8 years, respectively. A schedule of TVA's debt maturities is contained in Note 12 — Debt Outstanding.

Interest Rate Derivatives. Changes in interest rates also affect the mark-to-market valuation of TVA's interest rate derivatives. See Note 14 — Derivatives Not Receiving Hedge Accounting Treatment — Interest Rate Derivatives. TVA had four interest rate swaps outstanding at September 30, 2016 and September 30, 2015. Net unrealized gains and losses on these instruments are reflected on TVA's consolidated balance sheets in a regulatory asset account, and realized gains and losses are reflected in earnings. Based on TVA's interest rate exposure at September 30, 2016, an immediate one-half percentage point decrease in interest rates would have increased the interest rate swap liabilities by $294 million. Based on TVA's interest rate exposure at September 30, 2015, an immediate one-half percentage point decrease in interest rates would have increased the interest rate swap liabilities by $266 million.

Currency Exchange Rate Risk

Over the next several years, TVA plans to spend a significant amount of capital on clean air projects, capacity expansion, and other projects. A portion of this amount may be spent on contracts that are denominated in one or more foreign currencies. Additionally, TVA's three issues of Bonds denominated in British pounds sterling are hedged by currency swap agreements. The value of the U.S. dollar compared with other currencies has fluctuated widely in recent years, including recent fluctuations in the U.S. dollar to British pound sterling exchange rate primarily driven by the "BREXIT" vote for the United Kingdom to leave the European Union. If not effectively managed, foreign currency exposure could negatively impact TVA's counterparty risk, cash flows, results of operations, and financial

condition.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Quantitative and qualitative disclosures about market risk are reported in Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Risk Management Activities, which discussion is incorporated into this Item 7A, Quantitative and Qualitative Disclosures About Market Risk.

Table of Contents

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED BALANCE SHEETS
At September 30
(in millions)
ASSETS

	2016	2015
Current assets		
Cash and cash equivalents	$300	$300
Restricted cash and investments	—	15
Accounts receivable, net	1,747	1,600
Inventories, net	993	1,031
Regulatory assets	536	506
Other current assets	68	54
Total current assets	3,644	3,506
Property, plant, and equipment		
Completed plant	51,564	50,069
Less accumulated depreciation	(27,592)	(26,318)
Net completed plant	23,972	23,751
Construction in progress	8,458	7,147
Nuclear fuel	1,450	1,415
Capital leases	163	94
Total property, plant, and equipment, net	34,043	32,407
Investment funds	2,257	2,011
Regulatory and other long-term assets		
Regulatory assets	10,164	10,418
Other long-term assets	386	403
Total regulatory and other long-term assets	10,550	10,821
Total assets	$50,494	$48,745

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED BALANCE SHEETS
At September 30
(in millions)
LIABILITIES AND PROPRIETARY CAPITAL

	2016	2015
Current liabilities		
Accounts payable and accrued liabilities	$2,163	$2,127
Accrued interest	363	366
Current portion of leaseback obligations	58	79
Current portion of energy prepayment obligations	100	100
Regulatory liabilities	154	164
Short-term debt, net	1,407	1,034
Current maturities of power bonds	1,555	32
Current maturities of long-term debt of variable interest entities	35	33
Current maturities of notes payable	27	—
Total current liabilities	5,862	3,935
Other liabilities		
Post-retirement and post-employment benefit obligations	6,929	7,107
Asset retirement obligations	3,840	3,682
Other long-term liabilities	2,776	2,221
Leaseback obligations	409	537
Energy prepayment obligations	110	210
Total other liabilities	14,064	13,757
Long-term debt, net		
Long-term power bonds, net	20,901	22,617
Long-term debt of variable interest entities, net	1,199	1,233
Long-term notes payable	48	—
Total long-term debt, net	22,148	23,850
Total liabilities	42,074	41,542
Commitments and contingencies (Note 20)		
Proprietary capital		
Power program appropriation investment	258	258
Power program retained earnings	7,594	6,357
Total power program proprietary capital	7,852	6,615
Nonpower programs appropriation investment, net	580	590
Accumulated other comprehensive income (loss)	(12)	(2)
Total proprietary capital	8,420	7,203
Total liabilities and proprietary capital	$50,494	$48,745

The accompanying notes are an integral part of these consolidated financial statements.

83

Table of Contents

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF OPERATIONS
For the years ended September 30
(in millions)

	2016	2015	2014
Operating revenues			
Revenue from sales of electricity	$10,461	$10,847	$10,999
Other revenue	155	156	138
Total operating revenues	10,616	11,003	11,137
Operating expenses			
Fuel	2,126	2,444	2,730
Purchased power	964	950	1,094
Operating and maintenance	2,842	2,838	3,341
Depreciation and amortization	1,836	2,031	1,843
Tax equivalents	522	525	540
Total operating expenses	8,290	8,788	9,548
Operating income	2,326	2,215	1,589
Other income (expense), net	43	29	49
Interest expense			
Interest expense	1,371	1,347	1,344
Allowance for funds used during construction	(235)	(214)	(175)
Net interest expense	1,136	1,133	1,169
Net income (loss)	$1,233	$1,111	$469

The accompanying notes are an integral part of these consolidated financial statements.

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
For the years ended September 30
(in millions)

	2016	2015	2014
Net income (loss)	$1,233	$1,111	$469
Other comprehensive income (loss)			
Net unrealized gain (loss) on cash flow hedges	(139)	(72)	4
Reclassification to earnings from cash flow hedges	129	65	(2)
Total other comprehensive income (loss)	$(10)	$(7)	$2
Total comprehensive income (loss)	$1,223	$1,104	$471

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the years ended September 30
(in millions)

	2016	2015	2014
Cash flows from operating activities			
Net income (loss)	$1,233	$1,111	$469
Adjustments to reconcile net income (loss) to net cash provided by operating activities			
Depreciation and amortization (including amortization of debt issuance costs and premiums/discounts)	1,882	2,077	1,888
Amortization of nuclear fuel cost	287	277	279
Non-cash retirement benefit expense	327	332	572
Prepayment credits applied to revenue	(100)	(100)	(100)
Fuel cost adjustment deferral	(83)	(6)	(38)
Fuel cost tax equivalents	(16)	(18)	6
Changes in current assets and liabilities			
Accounts receivable, net	(83)	93	(79)
Inventories and other current assets, net	50	(12)	34
Accounts payable and accrued liabilities	(4)	(121)	147
Accrued interest	(3)	(13)	2
Regulatory asset costs	(31)	(23)	(56)
Pension contributions	(281)	(282)	(256)
Insurance recoveries	7	63	175
Settlements of asset retirement obligations	(139)	(58)	(14)
Other, net	(4)	(5)	(49)
Net cash provided by operating activities	3,042	3,315	2,980
Cash flows from investing activities			
Construction expenditures	(2,710)	(2,850)	(2,384)
Combustion turbine asset acquisition	—	(342)	—
Nuclear fuel expenditures	(300)	(350)	(326)
Purchases of investments, net	(50)	(52)	(48)
Loans and other receivables			
Advances	(10)	(17)	(6)
Repayments	7	8	6
Other, net	(50)	18	2
Net cash used in investing activities	(3,113)	(3,585)	(2,756)
Cash flows from financing activities			
Long-term debt			
Issues of power bonds	—	973	989
Redemptions and repurchases of power bonds	(76)	(1,180)	(365)
Payments on debt of variable interest entities	(33)	(32)	(30)
Short-term debt issues (redemptions), net	370	437	(1,837)
Payments on leases and leasebacks	(159)	(80)	(73)
Financing costs, net	—	(7)	(4)
Payments to U.S. Treasury	(6)	(5)	(14)
Other, net	(25)	(36)	8
Net cash (used in) provided by financing activities	71	70	(1,326)
Net change in cash and cash equivalents	—	(200)	(1,102)
Cash and cash equivalents at beginning of year	300	500	1,602

Cash and cash equivalents at end of year	$300	$300	$500

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF CHANGES IN PROPRIETARY CAPITAL
For the years ended September 30
(in millions)

	Power Program Appropriation Investment	Power Program Retained Earnings	Nonpower Programs Appropriation Investment, Net	Accumulated Other Comprehensive Income (Loss)from Net Gains (Losses) on Cash Flow Hedges	Total
Balance at September 30, 2013	$ 268	$ 4,767	$ 609	$ 3	$ 5,647
Net income (loss)	—	477	(8)	—	469
Total other comprehensive income (loss)	—	—	—	2	2
Return on power program appropriation investment	—	(4)	—	—	(4)
Return of power program appropriation investment	(10)	—	—	—	(10)
Balance at September 30, 2014	$ 258	$ 5,240	$ 601	$ 5	$ 6,104
Net income (loss)	—	1,122	(11)	—	1,111
Total other comprehensive income (loss)	—	—	—	(7)	(7)
Return on power program appropriation investment	—	(5)	—	—	(5)
Balance at September 30, 2015	$ 258	$ 6,357	$ 590	$ (2)	$ 7,203
Net income (loss)	—	1,243	(10)	—	1,233
Total other comprehensive income (loss)	—	—	—	(10)	(10)
Return on power program appropriation investment	—	(6)	—	—	(6)
Balance at September 30, 2016	$ 258	$ 7,594	$ 580	$ (12)	$ 8,420

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in millions except where noted)

1. Summary of Significant Accounting Policies

General

The Tennessee Valley Authority ("TVA") is a corporate agency and instrumentality of the United States that was created in 1933 by legislation enacted by the United States ("U.S.") Congress in response to a request by President Franklin D. Roosevelt. TVA was created to, among other things, improve navigation on the Tennessee River, reduce the damage from destructive flood waters within the Tennessee River system and downstream on the lower Ohio and Mississippi Rivers, further the economic development of TVA's service area in the southeastern United States, and sell the electricity generated at the facilities TVA operates.

Today, TVA operates the nation's largest public power system and supplies power in most of Tennessee, northern Alabama, northeastern Mississippi, and southwestern Kentucky and in portions of northern Georgia, western North Carolina, and southwestern Virginia to a population of over nine million people.

TVA also manages the Tennessee River, its tributaries, and certain shorelines to provide, among other things, year-round navigation, flood damage reduction, and affordable and reliable electricity. Consistent with these primary purposes, TVA also manages the river system and public lands to provide recreational opportunities, adequate water supply, improved water quality, cultural and natural resource protection, and economic development.

The power program has historically been separate and distinct from the stewardship programs. It is required to be self-supporting from power revenues and proceeds from power financings, such as proceeds from the issuance of

bonds, notes, or other evidences of indebtedness ("Bonds"). Although TVA does not currently receive congressional appropriations, it is required to make annual payments to the United States Department of the Treasury ("U.S. Treasury") as a return on the government's appropriation investment in TVA's power facilities (the "Power Program Appropriation Investment"). In the 1998 Energy and Water Development Appropriations Act, Congress directed TVA to fund essential stewardship activities related to its management of the Tennessee River system and nonpower or stewardship properties with power revenues in the event that there were insufficient appropriations or other available funds to pay for such activities in any fiscal year. Congress has not provided any appropriations to TVA to fund such activities since 1999. Consequently, during 2000, TVA began paying for essential stewardship activities primarily with power revenues, with the remainder funded with user fees and other forms of

Table of Contents

revenues derived in connection with those activities. The activities related to stewardship properties do not meet the criteria of an operating segment under accounting principles generally accepted in the United States of America ("GAAP"). Accordingly, these assets and properties are included as part of the power program, TVA's only operating segment.

Power rates are established by the TVA Board of Directors (the "TVA Board") as authorized by the Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee (the “TVA Act”). The TVA Act requires TVA to charge rates for power that will produce gross revenues sufficient to provide funds for operation, maintenance, and administration 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 Power Program Appropriation Investment; and such additional margin as the TVA Board may consider desirable for investment in power system assets, retirement of outstanding Bonds in advance of maturity, additional reduction of the Power Program Appropriation Investment, and other purposes connected with TVA's power business. In setting TVA's rates, the TVA Board is charged by the TVA Act to have due regard for the primary objectives of the TVA Act, including the objective that power shall be sold at rates as low as are feasible. Rates set by the TVA Board are not subject to review or approval by any state or other federal regulatory body.

Fiscal Year

TVA's fiscal year ends September 30. Years (2016, 2015, etc.) refer to TVA's fiscal years unless they are preceded by “CY,” in which case the references are to calendar years.

Cost-Based Regulation

Since the TVA Board is authorized by the TVA Act to set rates for power sold to its customers, TVA is self-regulated. Additionally, TVA's regulated rates are designed to recover its costs. Based on current projections, TVA believes that rates, set at levels that will recover TVA's costs, can be charged and collected. As a result of these factors, TVA records certain assets and liabilities that result from the regulated ratemaking process that would not be recorded under GAAP for non-regulated entities. Regulatory assets generally represent incurred costs that have been deferred because such costs are probable of future recovery in customer rates. Regulatory liabilities generally represent obligations to make refunds to customers for previous collections for costs that are not likely to be incurred or deferral of gains that will be credited to customers in future periods. TVA assesses whether the regulatory assets are probable of future recovery by considering factors such as applicable regulatory changes, potential legislation, and changes in technology. Based on these assessments, TVA believes the existing regulatory assets are probable of recovery. This determination reflects the current regulatory and political environment and is subject to change in the future. If future recovery of regulatory assets ceases to be probable, or any of the other factors described above cease to be applicable, TVA would no longer be considered to be a regulated entity and would be required to write off these costs. All regulatory asset write offs would be required to be recognized in earnings in the period in which future recovery ceases to be probable.

Basis of Presentation

The accompanying consolidated financial statements, which have been prepared in accordance with GAAP, include the accounts of TVA, two wholly-owned direct subsidiaries, and three variable interest entities ("VIEs") of which TVA is the primary beneficiary. See Note 8 and Note 9. Intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements requires TVA to estimate the effects of various matters that are inherently uncertain as of the date of the consolidated financial statements. Although the consolidated financial statements are prepared in conformity with GAAP, TVA is required to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities, and the amounts of revenues and expenses reported during the reporting period. Each of these estimates varies in regard to the level of judgment involved and its potential impact on TVA's financial results. Estimates are considered critical either when a different estimate could have reasonably been used, or where changes in the estimate are reasonably likely to occur from period to period, and such use or change would materially impact TVA's financial condition, results of operations, or cash flows.

Reclassifications

In the Consolidated Balance Sheet at September 30, 2015, TVA reclassified $80 million of debt issuance costs previously presented in Other long-term assets and presented $67 million as a reduction to Long-term power bonds, net and $13 million as a reduction to Long-term debt of variable interest entities, net. See Note 2 for additional information.

Certain historical amounts have been reclassified in the Consolidated Statement of Cash Flows to conform to the current year presentation. Amounts previously presented in Cash flows from operating activities as Other, net of $(58) million and $(14) million for the years ended September 30, 2015 and 2014, respectively, are currently reported in Settlements of asset retirement obligations.

Table of Contents

Cash and Cash Equivalents

Cash includes cash on hand and non-interest bearing cash and deposit accounts. All highly liquid investments with original maturities of three months or less are considered cash equivalents.

Restricted Cash and Investments

Restricted cash and investments reflect amounts related to collateral posted with TVA by a swap counterparty.

Allowance for Uncollectible Accounts

The allowance for uncollectible accounts reflects TVA's estimate of probable losses inherent in its accounts and loans receivable balances. TVA determines the allowance based on known accounts, historical experience, and other currently available information including events such as customer bankruptcy and/or a customer failing to fulfill payment arrangements after 90 days. It also reflects TVA's corporate credit department's assessment of the financial condition of customers and the credit quality of the receivables.

The allowance for uncollectible accounts was $1 million at September 30, 2016, and 2015, for accounts receivable. Additionally, loans receivable of $141 million and $129 million at September 30, 2016, and 2015, respectively, are included in Accounts receivable, net and Other long-term assets, for the current and long-term portions, respectively, and reported net of allowances for uncollectible accounts of $8 million at both September 30, 2016, and September 30, 2015, respectively.

Revenues

Revenues from power sales are recorded as electricity is delivered to customers. In addition to power sales invoiced and recorded during the month, TVA accrues estimated unbilled revenues for power sales provided to six customers whose billing date occurs prior to the end of the month. Exchange power sales are presented in the accompanying consolidated statements of operations as a component of Sales of electricity. Exchange power sales are sales of excess power after meeting TVA native load and directly served requirements. (Native load refers to the customers on whose behalf a company, by statute, franchise, regulatory requirement, or contract, has undertaken an obligation to serve.)

From time to time TVA transfers fiber optic capacity on TVA’s network to telecommunications service carriers and local power company customers of TVA ("LPCs"). These transactions are structured as indefeasible rights of use ("IRUs"), which are the exclusive right to use a specified amount of fiber optic capacity for a specified term. TVA accounts for the consideration received on transfers of fiber optic capacity for cash and on all of the other elements deliverable under an IRU as revenue ratably over the term of the agreement. TVA does not recognize revenue on any contemporaneous exchanges of its fiber optic capacity for an IRU of fiber optic capacity of the counterparty to the exchange.

TVA engages in a wide array of arrangements in addition to power sales. TVA records revenue when it is realized or realizable and earned when all of the following criteria are met: persuasive evidence of an arrangement exists; delivery has occurred or services have been rendered; the price or fee is fixed or determinable; and collectability is reasonably assured. Revenues from activities related to TVA’s overall mission are recorded as other operating revenue versus those that are not related to the overall mission, which are recorded in Other income (expense), net.

Pre-Commercial Plant Operations

As part of the process of completing the construction of Watts Bar Unit 2, TVA commenced pre-commercial plant operations on June 3, 2016. The pre-commercial plant operations period ended, and commercial operations began, on October 19, 2016. The electricity produced during the pre-commercial plant operations period was used to serve the demands of the system; therefore, TVA calculated estimates of revenue realized from such pre-commercial generation based on the guidance provided by FERC regulations. The calculated revenue, through September 30, 2016, of $18 million was capitalized to offset project costs and is included in Revenue from sales of electricity as a contra-revenue amount on the consolidated statement of operations for the year ended September 30, 2016. During this same period, TVA capitalized related fuel costs of approximately $6 million.

Inventories

Certain Fuel, Materials, and Supplies. Materials and supplies inventories are valued using an average unit cost method. A new average cost is computed after each inventory purchase transaction, and inventory issuances are priced at the latest moving weighted average unit cost. Coal, fuel oil, and natural gas inventories are valued using an average cost method. A new weighted average cost is computed monthly, and monthly issues are priced accordingly.

Table of Contents

Allowance for Inventory Obsolescence. TVA reviews material and supplies inventories by category and usage on a periodic basis. Each category is assigned a probability of becoming obsolete based on the type of material and historical usage data. Based on the estimated value of the inventory, TVA adjusts its allowance for inventory obsolescence.

Emission Allowances. TVA has emission allowances for sulfur dioxide ("SO_2") and nitrogen oxides ("NO_x") which are accounted for as inventory. The average cost of allowances used each month is charged to operating expense based on tons of SO_2 and NO_x emitted during the respective compliance periods. Allowances granted to TVA by the Environmental Protection Agency ("EPA") are recorded at zero cost.

Property, Plant, and Equipment, and Depreciation

Property, Plant, and Equipment. Additions to plant are recorded at cost, which includes direct and indirect costs and may include an allowance for funds used during construction ("AFUDC"), if eligible. The cost of current repairs and minor replacements is charged to operating expense. Nuclear fuel inventories, which are included in Property, plant, and equipment, are valued using the average cost method for raw materials and the specific identification method for nuclear fuel in a reactor. Amortization of nuclear fuel in a reactor is calculated on a units-of-production basis and is included in fuel expense.

Depreciation. TVA accounts for depreciation of its properties using the composite depreciation convention of accounting. Accordingly, the original cost of property retired is charged to accumulated depreciation. Depreciation is generally computed on a straight-line basis over the estimated service lives of the various classes of assets. Depreciation rates are determined based on an external depreciation study. This study will be updated at least every five years, and TVA plans to implement the results of a new study in 2017. Depreciation expense for the years ended September 30, 2016, 2015, and 2014 was $1.4 billion, $1.7 billion, and $1.6 billion, respectively. Depreciation expense expressed as a percentage of the average annual depreciable completed plant was 2.97 percent for 2016, 3.71 percent for 2015, and 3.42 percent for 2014. Average depreciation rates by asset class are as follows:

Property, Plant, and Equipment
Depreciation Rates
At September 30
(percent)

	2016	2015	2014
Asset Class			
Nuclear	2.37	2.81	2.90
Coal-fired	3.50	5.50	4.37
Hydroelectric	1.29	1.30	1.44
Gas and oil-fired	3.09	3.18	3.23
Transmission	2.80	2.78	2.76
Other	8.97	8.65	8.40

Nuclear. In September 2015, the Nuclear Regulatory Commission ("NRC") approved renewed licenses for Sequoyah Nuclear Plant ("Sequoyah") Units 1 and 2, which allow both units to operate for an additional 20 years, and TVA adjusted prospectively the Sequoyah depreciation rate. This change resulted in a $79 million decrease in depreciation and amortization expense for 2016.

Coal-Fired. In April 2011, TVA entered into two substantively similar agreements, one with the EPA and the other with Alabama, Kentucky, North Carolina, Tennessee, and three environmental advocacy groups (collectively, the "Environmental Agreements"). See Note 20 — Legal Proceedings — Environmental Agreements. Under the Environmental Agreements, TVA committed, among other things, to retire, on a phased schedule, 18 coal-fired units.

Consistent with the Environmental Agreements, Units 1 and 2 at John Sevier Fossil Plant ("John Sevier") were retired on December 31, 2012, and Units 3 and 4 were idled on December 31, 2012 and subsequently retired on June 25, 2014. Units 3 and 5 at Widows Creek Fossil Plant ("Widows Creek") were retired on July 31, 2013, and Units 1, 2, 4, and 6 at Widows Creek were retired on July 31, 2014. On October 1, 2013, Colbert Fossil Plant ("Colbert") Unit 5 and Johnsonville Fossil Plant ("Johnsonville") Units 5, 6, 9, and 10 were idled. In addition, Units 7 and 8 at Johnsonville were idled on March 1, 2012. Unit 10 at Shawnee Fossil Plant ("Shawnee") was idled in October 2010 and subsequently retired on June 30, 2014. Pursuant to the requirements of the Environmental Agreements, Johnsonville Units 5-10 were retired on December 31, 2015.

On November 14, 2013, the TVA Board approved the retirement of Colbert Units 1-5 no later than June 30, 2016, and the retirement of Widows Creek Unit 8. On April 16, 2016, TVA retired Colbert Units 1-5. Additionally, the TVA Board approved the retirement of Paradise Fossil Plant ("Paradise") Units 1 and 2 upon the completion of a natural gas-fired plant at the Paradise location.

Table of Contents

On August 21, 2014, the TVA Board approved the retirement of Allen Fossil Plant ("Allen") Units 1-3 upon the completion of a natural gas-fired plant at the Allen location, but no later than December 31, 2018.

On May 7, 2015, the TVA Board approved the retirement of Widows Creek Unit 7 no later than October 31, 2015, and Johnsonville Units 1-4 by December 31, 2017. TVA retired Widows Creek Units 7 and 8 on September 30, 2015.

Depreciation rates are adjusted to reflect current assumptions so that the units will be fully depreciated by the applicable idle dates. As a result of TVA's decision to idle or retire units, TVA recognized $139 million, $383 million, and $206 million in accelerated depreciation expense related to the units during the years ended September 30, 2016, 2015, and 2014, respectively.

Capital Lease Agreements. Property, plant, and equipment also includes assets recorded under capital lease agreements. These primarily consist of a natural gas lateral pipeline, power production facilities, water treatment assets, and land of $163 million and $94 million at September 30, 2016 and 2015, respectively. Amortization expense related to capital leases is included in Depreciation and amortization in TVA’s statement of operations, excluding leases where regulatory accounting is applied. See Note 7 — Other Non-Current Regulatory Assets — Deferred Capital Leases.

On April 4, 2016, TVA entered into a letter agreement with Choctaw Generation Limited Partnership, LLLP (“CGLP”) for the reimbursement of certain capital costs and ongoing operating and maintenance costs related to assets recently constructed at the Red Hills lignite-fired power facility. These capital additions were required to comply with new Mercury and Air Toxics Standards. As a result of the new agreement, TVA was required to reassess a related 1997 power purchase and operating agreement (“PPOA”) with CGLP that was previously classified as an executory contract. This reassessment determined that the PPOA contained a capital lease and resulted in TVA recording a capital lease asset at the estimated fair value of $76 million with an offsetting capital lease liability included in Accounts payable and accrued liabilities and Other long-term liabilities.

Allowance for Funds Used During Construction. AFUDC capitalized during the year ended September 30, 2016, was $235 million, as compared to $214 million capitalized during the year ended September 30, 2015. TVA may capitalize interest on eligible projects as AFUDC, based on the average interest rate of TVA’s outstanding debt. The allowance is applicable to construction in progress related to eligible projects with (1) an expected total project cost of $1.0 billion or more, and (2) an estimated construction period of at least three years in duration. During 2015, the TVA Board authorized AFUDC to be applied only to the Watts Bar Unit 2 completion project during 2016. The accumulated balance of costs, which is used to calculate AFUDC, averaged approximately $4.5 billion for the year ended September 30, 2016.

Software Costs. TVA capitalizes certain costs incurred in connection with developing or obtaining internal-use software. Capitalized software costs are included in Property, plant, and equipment on the consolidated balance sheets and are generally amortized over five years. At September 30, 2016 and 2015, unamortized computer software costs totaled $27 million and $18 million, respectively. Amortization expense related to capitalized computer software costs was $43 million, $38 million, and $31 million for 2016, 2015, and 2014, respectively. Software costs that do not meet capitalization criteria are expensed as incurred.

Impairment of Assets. TVA evaluates long-lived assets for impairment when events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. For long-lived assets, TVA bases its evaluation on impairment indicators such as the nature of the assets, the future economic benefit of the assets, any historical or future profitability measurements, and other external market conditions or factors that may be present. If such impairment indicators are present or other factors exist that indicate that the carrying amount of an asset may not be recoverable, TVA determines whether an impairment has occurred based on an estimate of undiscounted cash flows

attributable to the asset as compared with the carrying value of the asset. If an impairment has occurred, the amount of the impairment recognized is measured as the excess of the asset's carrying value over its fair value. Additionally, TVA regularly evaluates construction projects. If the project is canceled or deemed to have no future economic benefit, the project is written off as an asset impairment or, upon TVA Board approval, reclassified as a regulatory asset.

Decommissioning Costs

TVA recognizes legal obligations associated with the future retirement of certain tangible long-lived assets. These obligations relate to fossil fuel-fired generating plants, nuclear generating plants, hydroelectric generating plants/dams, transmission structures, and other property-related assets. These other property-related assets include, but are not limited to, easements and coal rights. Activities involved with retiring these assets could include decontamination and demolition of structures, removal and disposal of wastes, and site restoration. Revisions to the estimates of asset retirement obligations ("AROs") are made whenever factors indicate that the timing or amounts of estimated cash flows have changed. Any accretion or depreciation expense related to these liabilities and assets is charged to a regulatory asset. See Note 7 — Nuclear Decommissioning Costs and Non-Nuclear Decommissioning Costs and Note 11.

Table of Contents

Blended Low-Enriched Uranium Program

Under the blended low-enriched uranium ("BLEU") program, TVA, the U.S. Department of Energy ("DOE"), and certain nuclear fuel contractors have entered into agreements providing for the DOE's surplus of enriched uranium to be blended with other uranium down to a level that allows the blended uranium to be fabricated into fuel that can be used in nuclear power plants. Under the terms of an interagency agreement between TVA and the DOE, in exchange for supplying highly enriched uranium materials to the appropriate third-party fuel processors for processing into usable BLEU fuel for TVA, the DOE participates to a degree in the savings generated by TVA’s use of this blended nuclear fuel. Over the life of the program, TVA projects that the DOE’s share of savings generated by TVA’s use of this blended nuclear fuel could result in payments to the DOE of as much as $165 million. TVA accrues an obligation with each BLEU reload batch related to the portion of the ultimate future payments estimated to be attributable to the BLEU fuel currently in use. At September 30, 2016, TVA had paid out approximately $151 million for this program, and the obligation recorded was $5 million.

Investment Funds

Investment funds consist primarily of trust funds designated to fund decommissioning requirements (see Note 20 — Contingencies — Decommissioning Costs), the Supplemental Executive Retirement Plan ("SERP") (see Note 19 — Overview of Plans and Benefits — Supplemental Executive Retirement Plan), and the Long-Term Deferred Compensation Plan ("LTDCP"). The NDT holds funds primarily for the ultimate decommissioning of TVA's nuclear power plants. The ART holds funds primarily for the costs related to the future closure and retirement of TVA's other long-lived assets. NDT and SERP funds are invested in portfolios of securities generally designed to achieve a return in line with overall equity market performance, while ART and LTDCP funds are invested in portfolios of securities generally designed to achieve a return in line with overall equity and debt market performance. The NDT funds, ART funds, SERP funds, and LTDCP funds are all classified as trading.

Energy Prepayment Obligations

In 2004, TVA and its largest customer, Memphis Light, Gas and Water Division ("MLGW"), entered into an energy prepayment agreement under which MLGW prepaid TVA $1.5 billion for the future costs of electricity to be delivered by TVA to MLGW over a period of 180 months. TVA accounted for the prepayment as unearned revenue and is reporting the obligation to deliver power under this arrangement as Energy prepayment obligations and Current portion of energy prepayment obligations on the September 30, 2016 and 2015 Consolidated Balance Sheets. TVA expects to recognize approximately $100 million of noncash revenue in each year of the arrangement as electricity is delivered to MLGW based on the ratio of units of kilowatt hours delivered to total units of kilowatt hours under contract. At September 30, 2016, approximately $1.3 billion had been recognized as noncash revenue on a cumulative basis during the life of the agreement, $100 million of which was recognized as noncash revenue during each of 2016, 2015, and 2014.

Discounts, which are recorded as a reduction to electricity sales, amounted to $46 million for the year ended September 30, 2016, 2015 and 2014.

Insurance

Although TVA uses private companies to administer its healthcare plans for eligible active and retired employees not covered by Medicare, TVA does not purchase health insurance. Third-party actuarial specialists assist TVA in determining certain liabilities for self-insured claims. TVA recovers the costs of claims through power rates and through adjustments to the participants’ contributions to their benefit plans. These liabilities are included in Other liabilities on the balance sheets.

TVA sponsors an Owner Controlled Insurance Program which provides workers' compensation and liability insurance for a select group of contractors performing maintenance, modifications, outage, and new construction activities at TVA facilities.

The Federal Employees' Compensation Act ("FECA") governs liability to employees for service-connected injuries. TVA purchases excess workers' compensation insurance above a self-insured retention.

In addition to excess workers' compensation insurance, TVA purchases the following types of insurance:

- Nuclear liability insurance; nuclear property, decommissioning, and decontamination insurance; and nuclear accidental outage insurance. See Note 20 — Contingencies — Nuclear Insurance.

- Excess liability insurance for aviation, auto, marine, and general liability exposures.

- Property insurance for certain conventional (non-nuclear) assets.

The insurance policies are subject to the terms and conditions of the specific policy, including deductibles or self-insured retentions. To the extent insurance would not provide either a partial or total recovery of the costs associated with a loss, TVA would have to recover any such costs through other means, including through power rates.

Table of Contents

Research and Development Costs

Research and development costs are expensed when incurred. TVA's research programs include those related to power delivery technologies, emerging technologies (clean energy, renewables, distributed resources, and energy efficiency), technologies related to generation (fossil fuel, nuclear, and hydroelectric), and environmental technologies.

Tax Equivalents

The TVA Act requires TVA to make payments to states and counties in which TVA conducts its power operations and in which TVA has acquired power properties previously subject to state and local taxation. The total amount of these payments is five 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. TVA calculates tax equivalent expense by subtracting the prior year fuel cost-related tax equivalent regulatory asset or liability from the payments made to the states and counties and adding back the current year fuel cost-related tax equivalent regulatory asset or liability. Fuel cost-related tax equivalent expense is recognized in the same accounting period in which the fuel cost-related revenue is recognized.

Maintenance Costs

TVA records maintenance costs and repairs related to its property, plant, and equipment in the statements of operations as they are incurred except for the recording of certain regulatory assets for retirement and removal costs.

2. Impact of New Accounting Standards and Interpretations

The following are accounting standard updates issued by the Financial Accounting Standards Board ("FASB") that TVA adopted during 2016.

Standard	Description	Effective Date for TVA	Effect on the Financial Statements or Other Significant Matters
Debt Issuance Costs	This guidance changes the presentation of debt issuance costs in financial statements. This standard requires that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct reduction of that debt liability, consistent with debt discounts, including retrospectively adjusting all prior periods presented. The guidance does not change the recognition and measurement of debt issuance costs.	Early adopted on October 1, 2015	In the consolidated balance sheets, TVA reclassified $80 million of debt issuance costs previously presented in Other long-term assets on the September 30, 2015 Consolidated Balance Sheet and presented these amounts as a reduction to Long-term power bonds, net and Long-term debt of variable interest entities, net.
Derivatives and Hedging	This guidance clarifies that the novation of a derivative contract in a hedge accounting relationship does not, in and of itself, require dedesignation of that hedge accounting relationship. Hedge accounting relationships could continue as long as all other hedge accounting criteria continue to be met, including the expectation that the hedge will be highly effective when the creditworthiness of the new	Prospectively early adopted on April 1, 2016	The adoption of the standard did not materially impact TVA's financial condition, results of operations, or cash flows.

counterparty to the derivative contracts is considered.

Table of Contents

The following accounting standards have been issued, but as of September 30, 2016, were not effective and had not been adopted by TVA.

Standard	Description	Effective Date for TVA	Effect on the Financial Statements or Other Significant Matters
Revenue Recognition	This guidance applies to revenue from contracts with customers. The standard requires that an entity recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In August 2015, the FASB issued a one-year deferral of the effective date. The new effective date allows for either a full retrospective or a modified retrospective application. Early adoption is permitted.	October 1, 2018	TVA is currently evaluating the potential impact of these changes on its consolidated financial statements and related disclosures and the application method to be used.
Consolidation	This guidance amends the consolidation analysis for VIEs as well as voting interest entities. The standard reduces the number of consolidation models through the elimination of the indefinite deferral for certain entities that was previously allowed and places more emphasis on risk of loss when determining a controlling financial interest. This guidance allows for either a full retrospective or a modified retrospective application.	October 1, 2016	TVA has evaluated the impact of adopting this guidance and expects no material impact on TVA's financial condition, results of operations, or cash flows.
Inventory Valuation	This guidance changes the model used for the subsequent measurement of inventory from the previous lower of cost or market model to the lower of cost or net realizable value. The guidance applies only to inventory valued using methods other than last-in, first out or the retail inventory method (for example, first-in, first-out or average cost). This amendment is intended to simplify the subsequent measurement of inventory. When the standard becomes effective, it will include interim periods within the fiscal year that begins on that date, and will be required to be applied prospectively. Early adoption is permitted.	October 1, 2017	TVA is currently evaluating the potential impact of these changes on its consolidated financial statements.
Lease Accounting	This guidance changes the provisions of recognition in both the lessee and lessor accounting models. The standard requires entities that lease assets — referred to as “lessees” — to recognize on the balance sheet the assets and liabilities for the rights and obligations created by leases with terms of more than 12 months. The recognition, measurement, and presentation of expenses and cash flows arising from a lease by a lessee primarily will depend on its classification as a finance (similar to current capital leases) or operating lease. However, unlike current lease accounting rules — which require only capital leases to be recognized on the balance sheet — the new standard will require both types of leases to be recognized on the balance sheet. Operating leases will result in straight-line expense, while finance leases will result in	October 1, 2019	TVA is currently evaluating the potential impact of these changes on its consolidated financial statements and related disclosures.

recognition of interest on the lease liability separate from amortization expense. The accounting for the owner of the assets leased by the lessee — also known as lessor accounting — will remain largely unchanged from current lease accounting rules. When the standard becomes effective, it will include interim periods within that fiscal year, and will be required to be applied using a modified retrospective transition. Early adoption is permitted.

Table of Contents

3. Accounts Receivable, Net

Accounts receivable primarily consist of amounts due from customers for power sales. The table below summarizes the types and amounts of TVA's accounts receivable:

Accounts Receivable, Net
At September 30

	2016	2015
Power receivables	$1,637	$1,509
Other receivables	111	92
Allowance for uncollectible accounts	(1)	(1)
Accounts receivable, net	$1,747	$1,600

4. Inventories, Net

The table below summarizes the types and amounts of TVA's inventories:

Inventories, Net
At September 30

	2016	2015
Materials and supplies inventory	$673	$651
Fuel inventory	345	414
Emission allowance inventory, net	14	13
Allowance for inventory obsolescence	(39)	(47)
Inventories, net	$993	$1,031

5. Net Completed Plant

Net completed plant consisted of the following:

Net Completed Plant
At September 30

	2016			2015		
	Cost	Accumulated Depreciation	Net	Cost	Accumulated Depreciation	Net
Coal-fired	$15,587	$ 10,473	$5,114	$15,202	$ 9,942	$5,260
Gas and oil-fired	3,918	1,267	2,651	3,794	1,194	2,600
Nuclear	19,280	10,422	8,858	18,920	10,063	8,857
Transmission	7,061	2,975	4,086	6,803	2,823	3,980
Hydroelectric	2,891	932	1,959	2,702	911	1,791
Other electrical plant	1,857	1,126	731	1,678	997	681
Subtotal	50,594	27,195	23,399	49,099	25,930	23,169
Multipurpose dams	928	379	549	928	371	557
Other stewardship	42	18	24	42	17	25
Subtotal	970	397	573	970	388	582
Total	$51,564	$ 27,592	$23,972	$50,069	$ 26,318	$23,751

Table of Contents

6. Other Long-Term Assets

The table below summarizes the types and amounts of TVA's other long-term assets:

Other Long-Term Assets
At September 30

	2016	2015
EnergyRight® receivables	$112	$124
Loans and other long-term receivables, net	136	126
Commodity contract derivative assets	3	1
Prepaid capacity payments	42	52
Currency swap assets, net	—	25
Other	93	75
Total other long-term assets	$386	$403

In association with the EnergyRight® Solutions program, LPCs offer financing to end-use customers for the purchase of energy-efficient equipment. Depending on the nature of the energy-efficiency project, loans may have a maximum term of five years or ten years. TVA purchases the resulting loans receivable from its LPCs. The loans receivable are then transferred to a third-party bank with which TVA has agreed to repay in full any loan receivable that has been in default for 180 days or more or that TVA has determined is uncollectible. Given this continuing involvement, TVA accounts for the transfer of the loans receivable as secured borrowings. The current and long-term portions of the loans receivable are reported in Accounts receivable, net and Other long-term assets, respectively, on TVA's consolidated balance sheets. As of September 30, 2016 and September 30, 2015, the carrying amount of the loans receivable, net of discount, reported in Accounts receivable, net was approximately $29 million and $32 million, respectively. See Note 10 for information regarding the associated financing obligation.

Table of Contents

7. Regulatory Assets and Liabilities

Regulatory assets generally represent incurred costs that have been deferred because such costs are probable of future recovery in customer rates. Regulatory liabilities generally represent obligations to make refunds to customers for previous collections for costs that are not likely to be incurred or deferral of gains that will be credited to customers in future periods. Components of regulatory assets and regulatory liabilities are summarized in the table below.

Regulatory Assets and Liabilities
At September 30

	2016	2015
Current regulatory assets		
Deferred nuclear generating units	$237	$237
Unrealized losses on commodity derivatives	122	162
Environmental agreements	34	47
Environmental cleanup costs – Kingston ash spill	42	43
Fuel cost adjustment receivable	98	15
Other current regulatory assets	3	2
Total current regulatory assets	536	506
Non-current regulatory assets		
Deferred pension costs and other post-retirement benefits costs	5,385	5,565
Unrealized losses on interest rate derivatives	1,547	1,236
Nuclear decommissioning costs	938	1,003
Environmental cleanup costs - Kingston ash spill	299	348
Non-nuclear decommissioning costs	819	828
Deferred nuclear generating units	850	1,042
Environmental agreements	18	55
Unrealized losses on commodity derivatives	56	63
Other non-current regulatory assets	252	278
Total non-current regulatory assets	10,164	10,418
Total regulatory assets	$10,700	$10,924
Current regulatory liabilities		
Fuel cost adjustment tax equivalents	$148	$164
Unrealized gains on commodity derivatives	6	—
Total current regulatory liabilities	154	164
Non-current regulatory liabilities		
Unrealized gains on commodity derivatives	3	2
Total non-current regulatory liabilities	3	2
Total regulatory liabilities	$157	$166

Unrealized Gains (Losses) on Commodity Derivatives. Unrealized gains (losses) on coal purchase contracts, included as part of unrealized gains (losses) on commodity derivatives, relate to the mark-to-market ("MtM") valuation of coal purchase contracts. These contracts qualify as derivative contracts but do not qualify for cash flow hedge accounting treatment. As a result, TVA recognizes the changes in the market value of these derivative contracts as a regulatory liability or asset. This treatment reflects TVA’s ability and intent to recover the cost of these commodity contracts on a settlement basis for ratemaking purposes through the fuel cost adjustment. TVA recognizes the actual cost of fuel received under these contracts in fuel expense at the time the fuel is used to generate electricity. These contracts expire at various times through 2019. Unrealized gains and losses on contracts with a maturity of less than one year are included as a current regulatory asset or liability on TVA's consolidated balance sheets. See Note 14.

Deferred gains and losses relating to TVA’s Financial Trading Program ("FTP") represent net unrealized gains and losses on swaps, which are also included as part of unrealized gains (losses) on commodity derivatives. Although currently suspended, the FTP was used to reduce TVA’s economic risk exposure associated with purchases and sales of commodities used in electricity generation, purchases, and sales. TVA defers all FTP MtM unrealized gains or losses as regulatory liabilities or assets, respectively, and records realized gains or losses in fuel and purchased power expense to match the delivery period

Table of Contents

of the underlying commodity product. Net unrealized losses at September 30, 2016, and September 30, 2015, were approximately $39 million and $116 million, respectively. This accounting treatment reflects TVA's ability and intent to recover the cost of these commodity contracts in future periods through the fuel cost adjustment. The current regulatory asset/liability for net unrealized gains and losses, included as part of the commodity derivatives, represents deferred gains and losses from contracts with a maturity of less than one year.

Deferred Nuclear Generating Units. In November 2013, the TVA Board approved the treatment of all amounts currently included in Construction in progress related to Bellefonte Nuclear Plant ("Bellefonte") as a regulatory asset. Additionally, the TVA Board approved combining (1) the amounts related to Bellefonte previously included in Construction in progress, (2) the $619 million in Regulatory asset-Construction costs, and (3) the remaining amounts included in Regulatory asset-Deferred nuclear generating units into a single regulatory asset titled Deferred nuclear generating units. Furthermore, in August 2016 the TVA Board approved the recognition of a regulatory asset for (1) all costs attributable to (a) the expected disposition of Bellefonte assets, including preparing or preserving the Bellefonte site, and (b) associated liabilities directly related to those assets, (2) any related future operating and project costs until the assets are sold, (3) the amount by which the book value of Bellefonte exceeds its fair market value less cost to sell, if any, (4) any subsequent gains and losses resulting from the disposition or impairment of Bellefonte, and (5) any costs attributable to the steam generators for Bellefonte until TVA disposes of the generators.

Deferred costs related to Bellefonte totaled $1.1 billion at September 30, 2016. Such amounts have been classified as a Regulatory asset in the September 30, 2016 Consolidated Balance Sheet. The TVA Board approved the recovery of this asset in future rates at an amount of $237 million per year until fully recovered. The amount to be amortized over the next year is included as a current regulatory asset on TVA's consolidated balance sheets.

Environmental Agreements. In conjunction with the Environmental Agreements (see Note 20 — Legal Proceedings — Environmental Agreements), TVA recorded certain liabilities totaling $360 million ($290 million investment in energy efficiency projects, demand response projects, renewable energy projects, and other TVA projects; $60 million to be provided to Alabama, Kentucky, North Carolina, and Tennessee to fund environmental projects with preference for projects in the Tennessee River watershed; and $10 million in civil penalties). The TVA Board determined that these costs would be collected in customer rates in the future, and, accordingly, the amounts were deferred as a regulatory asset. Through the end of 2016, $238 million has been paid with respect to environmental projects, $60 million has been paid to Alabama, Kentucky, North Carolina, and Tennessee, and $10 million has been paid with respect to civil penalties. The remaining deferred amounts will be charged to expense and recovered in rates over future periods as payments are made through 2027.

Environmental Cleanup Costs – Kingston Ash Spill. In August 2009, TVA began using regulatory accounting treatment to defer all actual costs incurred and expected future costs related to the Kingston Fossil Plant ("Kingston") ash spill. The TVA
Board approved a plan to amortize these costs over 15 years beginning October 1, 2009. Insurance proceeds are recorded as
reductions to the regulatory asset and will reduce amounts collected in future rates. Amounts included as a current regulatory
asset on TVA's consolidated balance sheets represent the amount to be amortized in the next 12 months.

Fuel Cost Adjustment Receivable. The fuel cost adjustment provides a mechanism to alter rates monthly to reflect changing fuel and purchased power costs, including realized gains and losses relating to transactions under TVA's FTP. There is typically a lag between the occurrence of a change in fuel and purchased power costs and the reflection of the change in fuel rates. Balances in the fuel cost adjustment regulatory accounts represent over-collected or under-collected revenues that offset fuel and purchased power costs and the fuel rate is designed to recover or refund the balance in less than one year.

Deferred Pension Costs and Other Post-retirement Benefit Costs. TVA measures its benefit obligations related to pension and other post-retirement benefit ("OPEB") costs at each year-end balance sheet date. TVA recognizes the funded status of the plans on TVA's consolidated balance sheets which in an unregulated environment would result in a corresponding offset to accumulated other comprehensive income (loss) ("AOCI"). “Incurred cost” is a cost arising from cash paid out or an obligation to pay for an acquired asset or service, and a loss from any cause that has been sustained and for which payment has been or must be made. In the cases of pension and OPEB costs, the unfunded obligation represents a projected liability to the employee for services rendered, and thus it meets the definition of an incurred cost. Therefore, amounts that otherwise would be charged to AOCI for these costs are recorded as a regulatory asset since TVA has historically recovered pension and OPEB expense in rates. Through historical and current year expense included in ratemaking, the TVA Board has demonstrated the ability and intent to include pension and OPEB costs in allowable costs and in rates for ratemaking purposes. As a result, it is probable that future revenue will result from inclusion of the pension and OPEB regulatory assets in allowable costs for ratemaking purposes.

These regulatory assets are classified as long-term, which is consistent with the pension and post-retirement liabilities, and are not amortized to the consolidated statements of operations over a specified recovery period. They are adjusted either upward or downward each year in conjunction with the adjustments to the unfunded pension liability, as calculated by the actuaries. Ultimately this regulatory asset will be recognized in the consolidated statements of operations in the form of pension expense as the actuarial liability is eliminated in future periods. See Note 19 — Obligations and Funded Status.

Additionally on October 1, 2014, TVA began recognizing pension costs as regulatory assets to the extent that the amount calculated under GAAP as pension expense differs from the amount TVA contributes to the pension plan.

Table of Contents

Unrealized Losses on Interest Rate Derivatives. TVA uses regulatory accounting treatment to defer the unrealized gains and losses on certain interest rate derivative contracts. When these contracts actually settle, the realized gains or losses are included in the ratemaking formula. The unrealized losses on these interest rate derivatives are recorded on TVA's consolidated balance sheets as non-current regulatory assets, and the related realized gains or losses, if any, are recorded in TVA's consolidated statements of operations.

Nuclear Decommissioning Costs. Nuclear decommissioning costs include: (1) certain deferred charges related to the future closure and decommissioning of TVA's nuclear generating units under the NRC requirements, (2) recognition of changes in the liability, (3) recognition of changes in the value of TVA's Nuclear Decommissioning Trust ("NDT"), and (4) certain other deferred charges under the accounting rules for AROs. These future costs will be funded through a combination of the NDT, future earnings on the NDT, and, if necessary, additional TVA cash contributions to the NDT and future earnings thereon. See Note 1 — Investment Funds. There is not a specified recovery period; therefore, the regulatory asset is classified as long-term consistent with the NDT investments and ARO liability.

Non-Nuclear Decommissioning Costs. Non-nuclear decommissioning costs include: (1) certain deferred charges related to the future closure and decommissioning of TVA's non-nuclear long-lived assets, (2) recognition of changes in the liability, (3) recognition of changes in the value of TVA's Asset Retirement Trust ("ART"), and (4) certain other deferred charges under the accounting rules for AROs. TVA has established the ART to more effectively segregate, manage, and invest funds to help meet future non-nuclear AROs. The funds from the ART may be used, among other things, to pay the costs related to the future closure and retirement of non-nuclear long-lived assets under various legal requirements. These future costs can be funded through a combination of investment funds already set aside in the ART, future earnings on those investment funds, and future cash contributions to the ART and future earnings thereon. For 2017, TVA will recover in rates a portion of its estimated current year non-nuclear decommissioning costs and contributions to the ART. Deferred charges will be recovered in rates in 2018 and beyond based on an analysis of the expected expenditures, contributions, and investment earnings required to recover the decommissioning costs.

Other Non-Current Regulatory Assets. Other non-current regulatory assets consist of the following:

Deferred Capital Leases. Deferred capital lease asset costs represent the difference between the Federal Energy Regulatory Commission's ("FERC") Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act ("Uniform System of Accounts") model balances and the balances under GAAP guidance. Under the Uniform System of Accounts, TVA recognizes the initial capital lease asset and liability at inception of the lease; however, the annual expense under the Uniform System of Accounts is equal to the annual lease payments, which differs from GAAP treatment. This practice results in TVA's capital lease asset balances being higher than they otherwise would have been under GAAP, with the difference representing a regulatory asset related to each capital lease. These costs will be amortized over the respective lease terms as lease payments are made.

Debt Reacquisition Costs. Reacquisition expenses, call premiums, and other related costs, such as unamortized debt issue costs associated with redeemed Bond issues, are deferred and amortized (accreted) on a straight-line basis over the weighted average life of TVA's debt portfolio.

Nuclear Training Costs. As a result of refurbishing and restarting Browns Ferry Unit 1 in 2007 and the construction and startup of Watts Bar Nuclear Plant ("Watts Bar") Unit 2, nuclear training costs associated with these units have been deferred as a regulatory asset and will be amortized over a cost recovery period equivalent to the expected useful life of the operating nuclear units.

Retirement Removal Costs. Retirement removal costs that are not legally required are capitalized into fixed assets to be depreciated consistent with the lives in the depreciation study. Beginning in 2017, the depreciation period will be one year subsequent to project completion. See Note 1 — Property, Plant, and Equipment, and Depreciation — Depreciation.

Fuel Cost Adjustment Tax Equivalents. The fuel cost adjustment includes a provision related to the current funding of the future payments TVA will make. As TVA records the fuel cost adjustment, the percent of the calculation that relates to a future asset or liability for tax equivalent payments is recorded as a current regulatory asset or liability and paid or refunded in the following year.

8. Business Combinations and Settlement of Preexisting Relationships

On July 20, 2016, TVA acquired 100 percent of the equity interests in Johnsonville Generation, LLC and Gallatin Generation, LLC, two special purpose entities ("SPEs") designed to administer rent payments TVA makes under certain of its lease/leaseback arrangements. The SPEs also each hold residual interests in four of TVA's peaking combustion turbine units. TVA acquired these businesses in order to exercise its rights of first refusal under certain of its lease/leaseback arrangements and to reacquire the residual interests in eight combustion turbine units it had previously granted in the lease/leaseback arrangements.

Table of Contents

TVA acquired the entities for total cash consideration of $33 million. The fair value of the assets acquired consisted of $111 million of reacquired rights and the fair value of liabilities assumed consisted of $78 million in notes payable. Reacquired rights are an intangible asset included in TVA's completed plant balance and are amortized over the estimated useful life of the underlying combustion turbine units. Notes payable assumed in the transaction are included in TVA's long-term debt and are subject to semi-annual payments through March 2019. The entities acquired by TVA had $1 million of amortization expense, related to reacquired rights, and this expense is included within TVA’s consolidated statements of operations. Transaction costs were expensed as incurred and were not material.

TVA determined that its lease/leaseback obligations were preexisting relationships that were effectively settled in the business combinations. TVA settled the preexisting relationships separately from the business combinations, resulting in a loss on extinguishment of the obligations of $6 million. The carrying value of lease/leaseback obligations effectively settled was $72 million, including accrued interest, and the reacquisition price was $78 million, paid in cash, at the acquisition date.

9. Variable Interest Entities

A VIE is an entity that either (i) has insufficient equity to permit the entity to finance its activities without additional subordinated financial support or (ii) has equity investors who lack the characteristics of owning a controlling financial interest. When TVA determines that it has a variable interest in a variable interest entity, a qualitative evaluation is performed to assess which interest holders have the power to direct the activities that most significantly impact the economic performance of the entity and have the obligation to absorb losses or receive benefits that could be significant to the entity. The evaluation considers the purpose and design of the business, the risks that the business was designed to create and pass along to other entities, the activities of the business that can be directed and which party can direct them, and the expected relative impact of those activities on the economic performance of the business through its life. TVA has the power to direct the activities of an entity when it has the ability to make key operating and financing decisions, including, but not limited to, capital investment and the issuance of debt. Based on the evaluation of these criteria, TVA has determined it is the primary beneficiary of three VIEs and as such is required to account for the VIEs on a consolidated basis.

John Sevier VIE

In 2012, TVA entered into a $1.0 billion construction management agreement and lease financing arrangement with John Sevier Combined Cycle Generation LLC ("JSCCG") for the completion and lease by TVA of the John Sevier Combined Cycle Facility ("John Sevier CCF"). JSCCG is a special single-purpose limited liability company formed in January 2012 to finance the John Sevier CCF through a $900 million secured note issuance (the “JSCCG notes”) and the issuance of $100 million of membership interests subject to mandatory redemption. The membership interests were purchased by John Sevier Holdco LLC ("Holdco"). Holdco is a special single-purpose entity, also formed in January 2012, established to acquire and hold the membership interests in JSCCG. A non-controlling interest in Holdco is held by a third party through nominal membership interests, to which none of the income, expenses, and cash flows is allocated.

The membership interests held by Holdco in JSCCG were purchased with proceeds from the issuance of $100 million of secured notes (the “Holdco notes") and are subject to mandatory redemption pursuant to scheduled amortizing, semi-annual payments due each January 15 and July 15, with a final payment due in January 2042. The payment dates for the mandatorily redeemable membership interests are the same as those of the Holdco notes. The sale of the JSCCG notes, the membership interests in JSCCG, and the Holdco notes closed in January 2012. The JSCCG notes are secured by TVA’s lease payments, and the Holdco notes are secured by Holdco's investment in, and amounts receivable from, JSCCG. TVA’s lease payments to JSCCG are equal to and payable on the same dates as JSCCG’s and Holdco’s semi-annual debt service payments. In addition to the lease payments, TVA pays administrative and

miscellaneous expenses incurred by JSCCG and Holdco. Certain agreements related to this transaction contain default and acceleration provisions.

Due to its participation in the design, business conduct, and credit and financial support of JSCCG and Holdco, TVA has determined that it has a variable interest in each of these entities. Based on its analysis, TVA has concluded that it is the primary beneficiary of JSCCG and Holdco and, as such, is required to account for the VIEs on a consolidated basis. Holdco’s membership interests in JSCCG are eliminated in consolidation.

Southaven VIE

In 2013, TVA entered into a lease financing arrangement with Southaven Combined Cycle Generation LLC ("SCCG") for the lease by TVA of the Southaven Combined Cycle Facility ("Southaven CCF"). SCCG is a special single-purpose limited liability company formed in June 2013 to finance the Southaven CCF through a $360 million secured notes issuance (the “SCCG notes”) and the issuance of $40 million of membership interests subject to mandatory redemption. The membership interests were purchased by Southaven Holdco LLC ("SHLLC"). SHLLC is a special single-purpose entity, also formed in June 2013, established to acquire and hold the membership interests of SCCG. A non-controlling interest in SHLLC is held by a third party through nominal membership interests, to which none of the income, expenses, and cash flows of SHLLC are allocated.

The membership interests held by SHLLC were purchased with proceeds from the issuance of $40 million of secured notes (the "SHLLC notes"), and are subject to mandatory redemption pursuant to a schedule of amortizing, semi-annual

Table of Contents

payments due each February 15 and August 15, with a final payment due on August 15, 2033. The payment dates for the mandatorily redeemable membership interests are the same as those of the SHLLC notes, and the payment amounts are sufficient to provide returns on, as well as returns of, capital until the investment has been repaid to SHLLC in full. The rate of return on investment to SHLLC is 7.0 percent, which is reflected as interest expense in the consolidated statements of operations. SHLLC is required to pay a pre-determined portion of the return on investment to Seven States Southaven, LLC ("SSSL") on each lease payment date as agreed in SHLLC's formation documents (the "Seven States Return"). The current and long-term portions of the Membership interests of VIE subject to mandatory redemption are included in Accounts payable and accrued liabilities and Other long-term liabilities, respectively.

The payment dates for the mandatorily redeemable membership interests are the same as those of the SHLLC notes. The SCCG notes are secured by TVA’s lease payments, and the SHLLC notes are secured by SHLLC’s investment in, and amounts receivable from, SCCG. TVA’s lease payments to SCCG are payable on the same dates as SCCG’s and SHLLC’s semi-annual debt service payments and are equal to the sum of (i) the amount of SCCG’s semi-annual debt service payments, (ii) the amount of SHLLC’s semi-annual debt service payments, and (iii) the amount of the Seven States Return. In addition to the lease payments, TVA pays administrative and miscellaneous expenses incurred by SCCG and SHLLC. Certain agreements related to this transaction contain default and acceleration provisions.

In the event that TVA were to choose to exercise an early buy out feature of the Southaven Facility Lease, in part or in whole, TVA must pay to SCCG amounts sufficient for SCCG to repay or partially repay on a pro rata basis the membership interests held by SHLLC, including any outstanding investment amount plus accrued but unpaid return. TVA also has the right, at any time and without any early redemption of the other portions of the Southaven Facility Lease payments due to SCCG, to fully repay SHLLC's investment, upon which repayment SHLLC will transfer the membership interests to a designee of TVA.

TVA participated in the design, business conduct, and financial support of SCCG and has determined that it has a direct variable interest in SCCG resulting from risk associated with the value of the Southaven CCF at the end of the lease term. Based on its analysis, TVA has determined that it is the primary beneficiary of SCCG and, as such, is required to account for the VIE on a consolidated basis.

Impact on Consolidated Financial Statements

The financial statement items attributable to carrying amounts and classifications of JSCCG, Holdco, and SCCG as of September 30, 2016 and 2015, as reflected in the Consolidated Balance Sheets, are as follows:

Summary of Impact of VIEs on Consolidated Balance Sheets
At September 30

	2016	2015
Current liabilities		
Accrued interest	$11	$12
Accounts payable and accrued liabilities	2	2
Current maturities of long-term debt of variable interest entities	35	33
Total current liabilities	48	47
Other liabilities		
Other long-term liabilities	33	35
Long-term debt, net		
Long-term debt of variable interest entities, net	1,199	1,233
Total liabilities	$1,280	$1,315

Interest expense of $61 million, $63 million and $64 million related to debt of variable interest entities and membership interests of variable interest entity subject to mandatory redemption is included in the Consolidated Statements of Operations for the years ended September 30, 2016, 2015, and 2014, respectively.

Creditors of the VIEs do not have any recourse to the general credit of TVA. TVA does not have any obligations to provide financial support to the VIEs other than as prescribed in the terms of the agreements related to these transactions.

Table of Contents

10. Other Long-Term Liabilities

Other long-term liabilities consist primarily of liabilities related to certain derivative agreements as well as liabilities under agreements related to compliance with certain environmental regulations (see Note 20 — Legal Proceedings — Environmental Agreements). The table below summarizes the types and amounts of Other long-term liabilities:

Other Long-Term Liabilities
At September 30

	2016	2015
Interest rate swap liabilities	$1,938	$1,627
Capital lease obligations	177	100
Currency swap liabilities	162	47
EnergyRight® financing obligation	130	148
Environmental agreements liability	18	55
Membership interests of VIE subject to mandatory redemption	33	35
Commodity contract derivative liabilities	49	17
Regulatory liabilities	3	2
Commodity swap derivative liabilities	2	10
Other	264	180
Total other long-term liabilities	$2,776	$2,221

EnergyRight® Purchase Obligation. TVA purchases certain loans receivable from its LPCs in association with the EnergyRight® Solutions program. The current and long-term portions of the resulting financing obligation are reported in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA’s consolidated balance sheets. As of September 30, 2016 and September 30, 2015, the carrying amount of the financing obligation reported in Accounts payable and accrued liabilities was approximately $33 million and $37 million, respectively. See Note 6 for information regarding the associated loans receivable.

11. Asset Retirement Obligations

During the year ended September 30, 2016, TVA's total ARO liability increased $209 million.

On May 23, 2016, Watts Bar Unit 2 achieved initial criticality. As a result, TVA revised its decommissioning liability estimate for Watts Bar Nuclear Plant and recorded an increase of $198 million. To estimate its decommissioning obligation related to its nuclear generating stations, TVA uses a probability-weighted, discounted cash flow model which, on a unit-by-unit basis, considers multiple outcome scenarios that include significant estimations and assumptions. Those assumptions include (1) estimates of the cost of decommissioning, (2) the method of decommissioning and the timing of the related cash flows, (3) the license period of the nuclear plant, considering the probability of license extensions, (4) cost escalation factors, and (5) the credit adjusted risk free rate to measure the obligation at the present value of the future estimated costs. TVA has ascribed probabilities to two different decommissioning methods related to its nuclear decommissioning obligation estimate: the DECON method and the SAFSTOR method. The DECON method requires radioactive contamination to be removed from a site and safely disposed of or decontaminated to a level that permits the site to be released for unrestricted use shortly after it ceases operation. The SAFSTOR method allows nuclear facilities to be placed and maintained in a condition that allows the facilities to be safely stored and subsequently decontaminated to levels that permit release for unrestricted use. TVA bases its nuclear decommissioning estimates on site-specific cost studies. These cost studies are updated for each of TVA’s nuclear units at least every five years, and TVA plans to complete new cost studies for its nuclear units in 2017.

During 2016, TVA performed reassessments of its AROs for its non-nuclear plants and other buildings. The reassessments consisted of detailed studies of various TVA sites conducted to identify and update benchmarks and standards used in estimating decommissioning costs. Additionally, TVA management updated its non-nuclear plant closure method assumption from a maintain-in-place method to a plant demolition method. TVA's reassessments and change in closure method assumption resulted in a net increase of $32 million to TVA's liability for existing non-nuclear AROs during the year ended September 30, 2016. Also during 2016, TVA recorded a decrease of $54 million to its non-nuclear AROs as a result of changes in estimates related to active decommissioning projects and recorded $15 million of new AROs related to coal ash areas. Further adjustments to TVA's non-nuclear ARO liabilities may be required as projects mature and estimates are refined.

In April 2015, the EPA published its final rule governing coal combustion residuals, which regulates landfill and impoundment location, design, and operations; dictates certain pond-closure conditions; and establishes groundwater monitoring and closure and post-closure standards. As a result of the ruling, TVA made revisions to the assumptions and estimates used to calculate its coal ash AROs. Increases to estimated project costs, including expansion of work scope and higher costs of

Table of Contents

materials, resulted in an increase of $469 million to the ARO liability during the year ended September 30, 2015. TVA continues to evaluate the impact of the rule on its operations, including cost and timing estimates of related projects. Also during 2015, TVA recorded additional obligations of $94 million for other new AROs related to TVA's coal-fired plants and $7 million related to the acquisition of the Ackerman Combined Cycle Plant. Additionally, an increase of $36 million for estimate revisions resulting from a license extension granted to Sequoyah and a decrease of $25 million for other non-nuclear changes in estimates were recorded.

During the years ended September 30, 2016 and 2015, both the nuclear and non-nuclear liabilities were increased by periodic accretion, partially offset by ash area settlement projects that were conducted during these periods. The nuclear and non-nuclear accretion amounts were deferred as regulatory assets. During 2016 and 2015, $144 million and $44 million, respectively, of the related regulatory assets were amortized into expense as these amounts were collected in rates. See Note 7. TVA maintains investment trusts to help fund its decommissioning obligations. See Note 15 and Note 20 — Contingencies — Decommissioning Costs for a discussion of the trusts' objectives and the current balances of the trusts.

Asset Retirement Obligation Activity

	Nuclear	Non-Nuclear	Total
Balance at September 30, 2014	$ 2,052	$ 1,117	$ 3,169
Settlements	—	(58)	(58)
Change in estimate	36	444	480
Additional obligations	—	101	101
Accretion (recorded to regulatory asset)	99	52	151
Balance at September 30, 2015	$ 2,187	$ 1,656	$ 3,843 (1)
Settlements	—	(133)	(133)
Change in estimate	198	(22)	176
Additional obligations	—	15	15
Accretion (recorded to regulatory asset)	107	44	151
Balance at September 30, 2016	$ 2,492	$ 1,560	$ 4,052 (1)

Note

(1) The current portions of the ARO liability in the amounts of $212 million and $161 million as of September 30, 2016 and 2015, respectively, are included in Accounts payable and accrued liabilities.

12. Debt and Other Obligations

General

The TVA Act authorizes TVA to issue Bonds in an amount not to exceed $30.0 billion at any time. At September 30, 2016, 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. Power bonds and discount notes are both issued pursuant to Section 15d of the TVA Act and pursuant to the Basic Tennessee Valley Authority Power Bond Resolution adopted by the TVA Board on October 6, 1960, as amended on September 28, 1976, October 17, 1989, and March 25, 1992 (the "Basic Resolution"). Bonds are not obligations of the United States, and the United States does not guarantee the payments of principal or interest on Bonds.

Power bonds and discount notes rank on parity and have first priority of payment from net power proceeds, which are defined as the remainder of TVA’s gross power revenues after deducting the costs of operating, maintaining, and administering its power properties and tax equivalent payments, but before deducting depreciation accruals or other charges representing the amortization of capital expenditures, plus the net proceeds from the sale or other disposition of any power facility or interest therein.

TVA considers its scheduled rent payments under its leaseback transactions, as well as its scheduled payments under its lease financing arrangements involving John Sevier CCF and Southaven CCF, as costs of operating, maintaining, and administering its power properties. Costs of operating, maintaining, and administering TVA's power properties have priority over TVA’s payments on the Bonds. Once net power proceeds have been applied to payments on power bonds and discount notes as well as any other Bonds that TVA may issue in the future that rank on parity with or subordinate to power bonds and discount notes, Section 2.3 of the Basic Resolution provides that the remaining net power proceeds shall be used only for minimum payments into the U.S. Treasury required by the TVA Act in repayment of, and as a return on, the Power Program Appropriation

Table of Contents

Investment, investment in power assets, additional reductions of TVA's capital obligations, and other lawful purposes related to TVA's power program.

The TVA Act and the Basic Resolution each contain two bond tests: the rate test and the bondholder protection test. Under the rate test, TVA must charge rates for power which will produce gross revenues sufficient to provide funds for, among other things, debt service on outstanding Bonds. As of September 30, 2016, TVA was in compliance with the rate test. See Note 1 — General. Under the bondholder protection test, TVA must, in successive five-year periods, use an amount of net power proceeds at least equal to the sum of (1) the depreciation accruals and other charges representing the amortization of capital expenditures and (2) the net proceeds from any disposition of power facilities for either the reduction of its capital obligations (including Bonds and the Power Program Appropriation Investment) or investment in power assets.

TVA met the bondholder protection test for the five-year period ended September 30, 2015, and must next meet the bondholder protection test for the five-year period ending September 30, 2020.

Secured Debt of VIEs

On August 9, 2013, SCCG issued secured notes totaling $360 million that bear interest at a rate of 3.846 percent. The SCCG notes require amortizing semi-annual payments on each February 15 and August 15, and mature on August 15, 2033. Also on August 9, 2013, SCCG issued $40 million of membership interests subject to mandatory redemption. The proceeds from the secured notes issuance and the issuance of the membership interests was paid to TVA in accordance with the terms of the Southaven head lease. See Note 9 — Southaven VIE. TVA used the proceeds from the transaction primarily to fund the acquisition of the Southaven CCF from SSSL.

On January 17, 2012, JSCCG issued secured notes totaling $900 million in aggregate principal amount that bear interest at a rate of 4.626 percent. Also on January 17, 2012, Holdco issued secured notes totaling $100 million that bear interest at a rate of 7.1 percent. The JSCCG notes and the Holdco notes require amortizing semi-annual payments on each January 15 and July 15, and mature on January 15, 2042. The Holdco notes require a $10 million balloon payment upon maturity. See Note 9 — John Sevier VIE. TVA used the proceeds from the transaction to meet its requirements under the TVA Act.

Secured debt of VIEs, including current maturities, outstanding at September 30, 2016 and 2015 totaled approximately $1.2 billion and $1.3 billion, respectively.

Secured Notes of SPEs

On July 20, 2016, TVA acquired Johnsonville Generation, LLC and Gallatin Generation, LLC, two SPEs designed to administer rent payments TVA makes under certain of its lease/leaseback arrangements. On September 27, 2000, the SPEs issued secured notes totaling $255 million that had an interest rate of 7.299 percent and required amortizing semi-annual payments on each March 15 and September 15 with a maturity date of March 15, 2019. In 2016, TVA assumed these secured notes in the acquisition at a fair value of $78 million.

The secured notes of these SPEs, including current maturities, outstanding at September 30, 2016, totaled approximately $75 million.

Short-Term Debt

The following table provides information regarding TVA's short-term borrowings:

September 30

	2016	2015	2014
Amount outstanding - discount notes	$1,407	$1,034	$596
Weighted average interest rate - discount notes	0.203 %	0.055 %	0.002%

Put and Call Options

Bond issues of $411 million held by the public are redeemable in whole or in part, at TVA's option, on call dates ranging from the present to 2020 and at call prices of 100 percent the principal amount. Ten Bond issues totaling $271 million, with maturity dates ranging from 2025 to 2043, include a "survivor's option," which allows for right of redemption upon the death of a beneficial owner in certain specified circumstances. These Bonds were classified as long-term as of September 30, 2016 and 2015.

Table of Contents

Additionally, TVA has two issues of Putable Automatic Rate Reset Securities ("PARRS") outstanding. After a fixed-rate period of five years, the coupon rate on the PARRS may automatically be reset downward under certain market conditions on an annual basis. The coupon rate reset on the PARRS is based on a calculation. For both series of PARRS, the coupon rate will reset downward on the reset date if the rate calculated is below the then-current coupon rate on the Bond. The calculation dates, potential reset dates, and terms of the calculation are different for each series. The coupon rate on the 1998 Series D PARRS may be reset on June 1 (annually) if the sum of the five-day average of the 30-Year Constant Maturity Treasury ("CMT") rate for the week ending the last Friday in April, plus 94 basis points, is below the then-current coupon rate. The coupon rate on the 1999 Series A PARRS may be reset on May 1 (annually) if the sum of the five-day average of the 30-Year CMT rate for the week ending the last Friday in March, plus 84 basis points, is below the then-current coupon rate. The coupon rates may only be reset downward, but investors may request to redeem their Bonds at par value in conjunction with a coupon rate reset for a limited period of time prior to the reset dates under certain circumstances.

The coupon rate for the 1998 Series D PARRS, which mature in June 2028, has been reset seven times, from an initial rate of 6.750 percent to the current rate of 3.550 percent. In connection with these resets, $301 million of the Bonds have been redeemed, so that $274 million of the Bonds were outstanding at September 30, 2016. The coupon rate for the 1999 Series A PARRS, which mature in May 2029, has been reset six times, from an initial rate of 6.50 percent to the current rate of 3.360 percent. In connection with these resets, $293 million of the Bonds have been redeemed, so that $232 million of the Bonds were outstanding at September 30, 2016.

Due to the contingent nature of the put option on the PARRS, TVA determines whether the PARRS should be classified as long-term debt or current maturities of long-term debt by calculating the expected reset rate for the bonds on the calculation dates, described above. If the reset rate is less than the then-current coupon rate on the PARRS, the PARRS are included in current maturities. Otherwise, the PARRS are included in long-term debt.

Debt Securities Activity

The table below summarizes the long-term debt securities activity for the period from October 1, 2014, to September 30, 2016.

Debt Securities Activity
For the years ended September 30

	2016	2015
Issues		
2015 Series A[1]	$—	$1,000
Discount on debt issues	—	(27)
Total	$—	$973
Acquisitions		
Notes payable[2]	$78	$—
Total	$78	$—
Redemptions/Maturities[3]		
Variable interest entities	$33	$32
Notes payable	3	—
electronotes®	47	62
1998 Series D	—	50
1999 Series A	—	38
2005 Series B	—	1,000
2009 Series A	2	3

2009 Series B	27	27
Total	$112	$1,212

Notes

(1) The 2015 Series A bonds were issued at 97.31 percent of par.

(2) The related leaseback obligation of $70 million previously reported in Other liabilities in TVA's consolidated balance sheets was extinguished in the fourth quarter of 2016 as a result of the acquisition. See Note 8 for additional information.

(3) All redemptions were at 100 percent of par.

Table of Contents

Debt Outstanding

Total debt outstanding at September 30, 2016, and 2015, consisted of the following:

Short-Term Debt
At September 30

CUSIP or Other Identifier	Maturity	Call/(Put) Date	Coupon Rate	2016	2015
Short-term debt, net of discounts				$1,407	$1,034
Current maturities of long-term debt of variable interest entities issued at par				35	33
Current maturities of notes payable				27	—
Current maturities of power bonds issued at par					
880591EE8	11/15/2015		2.250%	—	2
880591EF5	12/15/2016		3.770%	28	27
88059TEL1	11/15/2016		2.650%	3	3
880591DS8	12/15/2016		4.875%	524	—
880591EA6	7/18/2017		5.500%	1,000	—
Total current maturities of power bonds issued at par				1,555	32
Total current debt outstanding, net				$3,024	$1,099

Table of Contents

Long-Term Debt[1]
At September 30

CUSIP or Other Identifier	Maturity	Coupon Rate		Call Date	2016 Par	2015 Par	Stock Exchange Listings
electronotes®[2]	05/15/2020 - 02/15/2043	2.375 - 4.375%		2/15/2015 - 02/15/2018	$ 278	$ 325	None
880591DS8	12/15/2016	4.875%			—	524	New York
880591EA6	7/18/2017	5.500%			—	1,000	New York, Luxembourg
880591CU4	12/15/2017	6.250%			650	650	New York
880591EC2	4/1/2018	4.500%			1,000	1,000	New York, Luxembourg
880591EQ1	10/15/2018	1.750%			1,000	1,000	New York
880591EL2	2/15/2021	3.875%			1,500	1,500	New York
880591DC3	6/7/2021	5.805%	[3]		260	303	New York, Luxembourg
880591EN8	8/15/2022	1.875%			1,000	1,000	New York
880591ER9	9/15/2024	2.875%			1,000	1,000	New York
880591CJ9	11/1/2025	6.750%			1,350	1,350	New York, Hong Kong, Luxembourg, Singapore
880591300[4]	6/1/2028	3.550%			273	274	New York
880591409[4]	5/1/2029	3.360%			232	232	New York
880591DM1	5/1/2030	7.125%			1,000	1,000	New York, Luxembourg
880591DP4	6/7/2032	6.587%	[3]		324	378	New York, Luxembourg
880591DV1	7/15/2033	4.700%			472	472	New York, Luxembourg
880591EF5[5]	6/15/2034	3.770%			332	360	None
880591DX7	6/15/2035	4.650%			436	436	New York
880591CK6	4/1/2036	5.980%			121	121	New York
880591CS9	4/1/2036	5.880%			1,500	1,500	New York
880591CP5	1/15/2038	6.150%			1,000	1,000	New York
880591ED0	6/15/2038	5.500%			500	500	New York
880591EH1	9/15/2039	5.250%			2,000	2,000	New York
880591EP3	12/15/2042	3.500%			1,000	1,000	New York
880591DU3	6/7/2043	4.962%	[3]		195	227	New York, Luxembourg
880591CF7	7/15/2045	6.235%		7/15/2020	140	140	New York
880591EB4	1/15/2048	4.875%			500	500	New York, Luxembourg
880591DZ2	4/1/2056	5.375%			1,000	1,000	New York
880591EJ7	9/15/2060	4.625%			1,000	1,000	New York
880591ES7	9/15/2065	4.250%			1,000	1,000	New York
Subtotal					21,063	22,792	

Table of Contents

Unamortized discounts, premiums, issue costs, and other	(162)	(175)
Total long-term outstanding power bonds, net	20,901	22,617
Long-term debt of variable interest entities, net	1,199	1,233
Long-term notes payable	48	—
Total long-term debt, net	$22,148	$23,850

Notes
(1) Includes net exchange gain (loss) from currency transactions of $150 million at September 30, 2016 and $21 million at September 30, 2015.
(2) Includes one electronotes® issue (88059TEL1) with partial maturities of principal for each required annual payment.
(3) The coupon rate represents TVA's effective interest rate.
(4) TVA PARRS, CUSIP numbers 880591300 and 880591409, may be redeemed under certain conditions. See Put and Call Options above.
(5) These Bonds include partial maturities of principal for each required annual payment.

Maturities Due in the Year Ending September 30

	2017	2018	2019	2020	2021	Thereafter	Total
Long-term power bonds, long-term debt of variable interest entities and notes payable including current maturities[1]	$1,617	$1,745	$1,091	$ 70	$1,901	$ 17,665	$24,089
Short-term debt, net of discounts	1,407	—	—	—	—	—	1,407

Note
(1) Long-term power bonds does not include noncash items of foreign currency exchange gain of $150 million, unamortized debt issue costs of $62 million, and net discount on sale of Bonds of $100 million. Debt of VIEs does not include noncash item of unamortized debt issue costs of $12 million.

Credit Facility Agreements

TVA and the U.S. Treasury, pursuant to the TVA Act, have entered into a memorandum of understanding under which the U.S. Treasury provides TVA with a $150 million credit facility. This credit facility was renewed for 2017 with a maturity date of September 30, 2017. Access to this credit facility or other similar financing arrangements with the U.S. Treasury has been available to TVA since the 1960s. TVA can borrow under the U.S. Treasury credit facility only if it cannot issue Bonds in the market on reasonable terms, and TVA considers the U.S. Treasury credit facility a secondary source of liquidity. The interest rate on any borrowing under this facility is based on the average rate on outstanding marketable obligations of the United States with maturities from date of issue of one year or less. There were no outstanding borrowings under the facility at September 30, 2016. The availability of this credit facility may be impacted by how the U.S. government addresses the possibility of approaching its debt limit.

TVA also has funding available in the form of three long-term revolving credit facilities totaling $2.5 billion. One $500 million credit facility matures on February 1, 2020, one $1.0 billion credit facility matures on June 2, 2020, and another $1.0 billion credit facility matures on September 30, 2020. The interest rate on any borrowing under these facilities varies based on market factors and the rating of TVA's senior unsecured long-term non-credit-enhanced debt. TVA is required to pay an unused facility fee on the portion of the total $2.5 billion that TVA has not borrowed or committed under letters of credit. This fee, along with letter of credit fees, may fluctuate depending on the rating of TVA's senior unsecured long-term non-credit-enhanced debt. At September 30, 2016, and September 30, 2015, there were $1.4 billion and $1.1 billion, respectively, of letters of credit outstanding under the facilities, and there were no borrowings outstanding. See Note 14 — Other Derivative Instruments — Collateral.

108

Table of Contents

The following table provides additional information regarding TVA's funding available in the form of three long-term revolving credit facilities:

Summary of Long-Term Credit Facilities
At September 30, 2016
(in billions)

Maturity Date	Facility Limit	Letters of Credit Outstanding	Cash Borrowings	Availability
February 2020	$ 0.5	$ 0.5	$ —	$ —
June 2020	1.0	0.4	—	0.6
September 2020	1.0	0.5	—	0.5
Total	$ 2.5	$ 1.4	$ —	$ 1.1

Lease/Leasebacks

Prior to 2004, TVA received approximately $945 million in proceeds by entering into lease/leaseback transactions for 24 new peaking combustion turbine units ("CTs"). TVA also received approximately $389 million in proceeds by entering into lease/leaseback transactions for qualified technological equipment and software ("QTE") in 2003. Due to TVA's continuing involvement in the operation and maintenance of the leased units and equipment and its control over the distribution of power produced by the combustion turbine facilities during the leaseback term, TVA accounted for the lease proceeds as financing obligations. On July 20, 2016, TVA acquired 100 percent of the equity interests in two SPEs created for the purpose of facilitating lease/leaseback arrangements. As a result of the acquisition, TVA effectively settled $70 million of its leaseback obligations related to eight CTs. See Note 8. At September 30, 2016, and September 30, 2015, the outstanding leaseback obligations related to CTs and QTE were $467 million and $616 million, respectively.

13. Accumulated Other Comprehensive Income (Loss)

AOCI represents market valuation adjustments related to TVA’s currency swaps. The currency swaps are cash flow hedges and are the only derivatives in TVA’s portfolio that have been designated and qualify for hedge accounting treatment. TVA records exchange rate gains and losses on its foreign currency-denominated debt in net income and marks its currency swap assets and liabilities to market through other comprehensive income (loss) ("OCI"). TVA then reclassifies an amount out of AOCI into net income, offsetting the exchange gain/loss recorded on the debt. For the year ended September 30, 2016, TVA reclassified $129 million of losses related to its cash flow hedges from AOCI to Interest expense. For the year ended September 30, 2015, TVA reclassified $65 million of losses related to its cash flow hedges from AOCI to Interest expense. See Note 14.

TVA records certain assets and liabilities that result from the regulated ratemaking process that would not be recorded under GAAP for non-regulated entities. As such, certain items that would generally be reported in AOCI or that would impact the statements of operations are recorded as regulatory assets or regulatory liabilities. See Note 7, Note 14 — Overview of Accounting Treatment, Note 15, and Note 19.

14. Risk Management Activities and Derivative Transactions

TVA is exposed to various risks. These include risks related to commodity prices, investment prices, interest rates, currency exchange rates, and inflation as well as counterparty credit and performance risks. To help manage certain of these risks, TVA has entered into various derivative transactions, principally commodity option contracts, forward contracts, swaps, swaptions, futures, and options on futures. Other than certain derivative instruments in its trust investment funds, it is TVA’s policy to enter into these derivative transactions solely for hedging purposes and not for

speculative purposes. TVA has suspended its Financial Trading Program ("FTP") and no longer uses financial instruments to hedge risks related to commodity prices; however, TVA plans to continue to manage fuel price volatility through other methods and to periodically reevaluate its suspended FTP program for future use of financial instruments.

Overview of Accounting Treatment

TVA recognizes certain of its derivative instruments as either assets or liabilities on its consolidated balance sheets at fair value. The accounting for changes in the fair value of these instruments depends on (1) whether TVA uses regulatory accounting to defer the derivative gains and losses, (2) whether the derivative instrument has been designated and qualifies for hedge accounting treatment, and (3) if so, the type of hedge relationship (for example, cash flow hedge).

Table of Contents

The following tables summarize the accounting treatment that certain of TVA's financial derivative transactions receive:

Summary of Derivative Instruments That Receive Hedge Accounting Treatment (part 1)
Amount of Mark-to-Market Gain (Loss) Recognized in Other Comprehensive Income (Loss)
For the years ended September 30

Derivatives in Cash Flow Hedging Relationship	Objective of Hedge Transaction	Accounting for Derivative Hedging Instrument	2016	2015
Currency swaps	To protect against changes in cash flows caused by changes in foreign currency exchange rates (exchange rate risk)	Unrealized gains and losses are recorded in AOCI and reclassified to interest expense to the extent they are offset by gains and losses on the hedged transaction	$(139)	$(72)

Summary of Derivative Instruments That Receive Hedge Accounting Treatment (part 2)
Amount of Gain (Loss) Reclassified from OCI to Interest Expense
For the years ended September 30

Derivatives in Cash Flow Hedging Relationship	2016	2015
Currency swaps	$(129)	$(65)

Note
There were no ineffective portions or amounts excluded from effectiveness testing for any of the periods presented. Based on forecasted foreign currency exchange rates, TVA expects to reclassify approximately $19 million of gains from AOCI to interest expense within the next twelve months to offset amounts anticipated to be recorded in interest expense related to exchange gain on the debt.

Summary of Derivative Instruments That Do Not Receive Hedge Accounting Treatment
Amount of Gain (Loss) Recognized in Income on Derivatives[(1)]
For the years ended September 30

Derivative Type	Objective of Derivative	Accounting for Derivative Instrument	2016	2015
Interest rate swaps	To fix short-term debt variable rate to a fixed rate (interest rate risk)	MtM gains and losses are recorded as regulatory assets or liabilities. Realized gains and losses are recognized in interest expense when payments are made or received on the swap settlement dates.	$(109)	$(114)
Commodity derivatives under FTP	To protect against fluctuations in market prices of purchased commodities (price risk)	MtM gains and losses are recorded as regulatory assets or liabilities. Realized gains and losses are recognized in fuel expense or purchased power expense when the related commodity is used in production.	(94)	(98)

Notes
(1) All of TVA's derivative instruments that do not receive hedge accounting treatment have unrealized gains (losses) that would otherwise be recognized in income but instead are deferred as regulatory assets and liabilities. As such, there was no related gain (loss) recognized in income for these unrealized gains (losses) for the years ended September 30, 2016 and 2015.

110

Table of Contents

Fair Values of TVA Derivatives
At September 30

	2016		2015	
Derivatives That Receive Hedge Accounting Treatment:				
	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Currency swaps				
£200 million Sterling	$(82)	Other long-term liabilities	$(41)	Other long-term liabilities
£250 million Sterling	(41)	Other long-term liabilities	25	Other long-term assets
£150 million Sterling	(39)	Other long-term liabilities	(6)	Other long-term liabilities
Derivatives That Do Not Receive Hedge Accounting Treatment:				
	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Interest rate swaps				
$1.0 billion notional	$(1,387)	Other long-term liabilities	$(1,177)	Other long-term liabilities
$476 million notional	(539)	Other long-term liabilities	(438)	Other long-term liabilities
$42 million notional	(12)	Other long-term liabilities	(12)	Other long-term liabilities
Commodity contract derivatives	(125)	Other current assets $6; Other long-term assets $3; Other long-term liabilities $(49); Accounts payable and accrued liabilities $(85)	(97)	Other long-term assets $1; Other long-term liabilities $(17); Accounts payable and accrued liabilities $(81)
FTP Derivatives under FTP[1]	(39)	Other current assets $(30); Other long-term liabilities $(2); Accounts payable and accrued liabilities $(7)	(116)	Other current assets $(89); Other long-term liabilities $(10); Accounts payable and accrued liabilities $(17)

Note
(1) Fair values of certain derivatives under the FTP that were in net liability positions totaling $30 million and $89 million at September 30, 2016 and September 30, 2015, respectively, are recorded in TVA's margin cash accounts in Other current assets. These derivatives are transacted with futures commission merchants, and cash deposits have been posted to the margin cash accounts held with each futures commission merchant to offset the net liability positions in full.

Cash Flow Hedging Strategy for Currency Swaps

To protect against exchange rate risk related to three British pound sterling denominated Bond transactions, TVA entered into foreign currency hedges at the time the Bond transactions occurred. TVA had the following currency swaps outstanding at September 30, 2016:

Currency Swaps Outstanding
At September 30, 2016

Effective Date of Currency Swap Contract	Associated TVA Bond Issues Currency Exposure	Expiration Date of Swap	Overall Effective

			Cost to TVA
1999	£200 million	2021	5.81%
2001	£250 million	2032	6.59%
2003	£150 million	2043	4.96%

When the dollar strengthens against the British pound sterling, the exchange gain on the Bond liability is offset by an exchange loss on the swap contract. Conversely, when the dollar weakens against the British pound sterling, the exchange loss on the Bond liability is offset by an exchange gain on the swap contract. All such exchange gains or losses on the Bond liability are included in Long-term debt, net. The offsetting exchange losses or gains on the swap contracts are recognized in AOCI. If any gain (loss) were to be incurred as a result of the early termination of the foreign currency swap contract, the resulting income (expense) would be amortized over the remaining life of the associated Bond as a component of Interest expense.

Table of Contents

Derivatives Not Receiving Hedge Accounting Treatment

Interest Rate Derivatives. Generally TVA uses interest rate swaps to fix variable short-term debt to a fixed rate, and TVA uses regulatory accounting treatment to defer the MtM gains and losses on its interest rate swaps. The net deferred unrealized gains and losses are classified as regulatory assets or liabilities on TVA's consolidated balance sheets and are included in the ratemaking formula when the transactions settle. The values of these derivatives are included in Other long-term assets or Other long-term liabilities on the consolidated balance sheets, and realized gains and losses, if any, are included in TVA's consolidated statements of operations. For the years ended September 30, 2016 and 2015, the changes in market value of the interest rate derivatives resulted in deferred unrealized losses of $311 million and $279 million, respectively.

Commodity Derivatives. TVA enters into certain derivative contracts for coal and natural gas that require physical delivery of the contracted quantity of the commodity. TVA marks to market all such contracts and defers the fair values as regulatory assets or liabilities on a gross basis. At September 30, 2016, TVA's coal and natural gas contract derivatives both had terms of up to 3 years.

Commodity Contract Derivatives
At September 30

	2016			2015		
	Number of Contracts	Notional Amount	Fair Value (MtM)	Number of Contracts	Notional Amount	Fair Value (MtM)
Coal contract derivatives	20	20 million tons	$(127)	14	19 million tons	$ (98)
Natural gas contract derivatives	39	148 million mmBtu	$2	33	134 million mmBtu	$ 1

Derivatives Under FTP. While TVA has suspended its FTP and no longer uses financial instruments to hedge risks related to commodity prices, certain natural gas swaps with a maturity of two years or less remain as part of the suspended FTP. Under the suspended FTP, TVA was authorized to purchase and sell futures, swaps, options, and combinations of these instruments (as long as they were standard in the industry) to hedge TVA’s exposure to (1) the price of natural gas, fuel oil, electricity, coal, emission allowances, nuclear fuel, and other commodities included in TVA’s fuel cost adjustment calculation, (2) the price of construction materials, and (3) contracts for goods priced in or indexed to foreign currencies. The combined transaction limit for the fuel cost adjustment and construction material transactions was $130 million (based on one-day value at risk). In addition, the maximum hedge volume for the construction material transactions was 75 percent of the underlying net notional volume of the material that TVA anticipated using in approved TVA projects, and the market value of all outstanding hedging transactions involving construction materials was limited to $100 million at the execution of any new transaction. The portfolio value at risk limit for the foreign currency transactions was $5 million and was separate and distinct from the $130 million transaction limit discussed above. TVA's policy prohibits trading financial instruments under the FTP for speculative purposes.

Derivatives under Financial Trading Program
At September 30

	2016		2015	
	Notional Amount	Fair Value (MtM) (in millions)	Notional Amount	Fair Value (MtM) (in millions)
Natural gas (in mmBtu)				

Swap contracts	21,052,500	$ (39)	51,495,000	$ (116)

Note
Fair value amounts presented are based on the net commodity position with the counterparty. Notional amounts disclosed represent the net value of contractual amounts.

Table of Contents

TVA defers all FTP unrealized gains (losses) as regulatory liabilities (assets) and records realized gains or losses to match the delivery period of the underlying commodity. In addition to the open commodity derivatives disclosed above, TVA had closed derivative contracts with market values of $(5) million at September 30, 2016, and $(11) million at September 30, 2015. TVA experienced the following unrealized and realized gains and losses related to the FTP at the dates and during the periods, as applicable, set forth in the tables below:

Financial Trading Program Unrealized Gains (Losses)
At September 30

FTP unrealized gains (losses) deferred as regulatory liabilities (assets)	2016	2015
Natural gas	$(39)	$(116)

Financial Trading Program Realized Gains (Losses)
For the years ended September 30

Decrease (increase) in fuel expense	2016	2015
Natural gas	$(75)	$(79)
Fuel oil/crude oil	—	1

Financial Trading Program Realized Gains (Losses)
For the years ended September 30

Decrease (increase) in purchased power expense	2016	2015
Natural gas	$(19)	$(20)

Table of Contents

Offsetting of Derivative Assets and Liabilities

The amounts of TVA's derivative instruments as reported in the Consolidated Balance Sheets as of September 30, 2016, and September 30, 2015, are shown in the table below.

	As of September 30, 2016		
	Gross Amounts of Recognized Assets/Liabilities	Gross Amounts Offset in the Balance Sheet [1]	Net Amounts of Assets/Liabilities Presented in the Balance Sheet [2]
Assets			
Commodity derivatives under FTP	$6	$ (6)	$ —
Total derivatives subject to master netting or similar arrangement	6	(6)	—
Total derivatives not subject to master netting or similar arrangement	9	—	9
Total	$15	$ (6)	$ 9
Liabilities			
Currency swap(s) [3]	$162	$ —	$ 162
Interest rate swaps [3]	1,938	—	1,938
Commodity derivatives under FTP	45	(36)	9
Total derivatives subject to master netting or similar arrangement	2,145	(36)	2,109
Total derivatives not subject to master netting or similar arrangement	134	—	134
Total	$2,279	$ (36)	$ 2,243

	As of September 30, 2015		
	Gross Amounts of Recognized Assets/Liabilities	Gross Amounts Offset in the Balance Sheet [1]	Net Amounts of Assets/Liabilities Presented in the Balance Sheet [2]
Assets			
Currency swap(s) [3]	$25	$ —	$ 25
Commodity derivatives under FTP	49	(49)	—
Total derivatives subject to master netting or similar arrangement	74	(49)	25
Total derivatives not subject to master netting or similar arrangement	1	—	1
Total	$75	$ (49)	$ 26
Liabilities			
Currency swap(s) [3]	$47	$ —	$ 47
Interest rate swaps [3]	1,627	—	1,627
Commodity derivatives under FTP	165	(138)	27
Total derivatives subject to master netting or similar arrangement	1,839	(138)	1,701
Total derivatives not subject to master netting or similar arrangement	98	—	98

Total	$1,937	$ (138)	$ 1,799

Notes

(1) Amounts primarily include counterparty netting of derivative contracts, margin account deposits for futures commission merchants transactions, and cash collateral received or paid in accordance with the accounting guidance for derivatives and hedging transactions.

(2) There are no derivative contracts subject to a master netting arrangement or similar agreement which are not offset in the balance sheets.

(3) Letters of credit of approximately $1.4 billion and $1.1 billion were posted as collateral at September 30, 2016 and September 30, 2015, respectively, to partially secure the liability positions of one of the currency swaps and one of the interest rate swaps in accordance with the collateral requirements for these derivatives. At September 30, 2016, TVA held no cash collateral in excess of collateral requirements. At September 30, 2015, TVA held $15 million of cash collateral in excess of collateral requirements. Cash collateral held in excess of collateral requirements is recorded in Restricted cash and investments with a corresponding obligation of the same amount recorded in Accounts payable and accrued liabilities.

Other Derivative Instruments

Investment Fund Derivatives. Investment funds consist primarily of funds held in the NDT, ART, SERP, and LTDCP. All securities in the trusts are classified as trading. See Note 15 — Investments Funds for a discussion of the trusts' objectives and the types of investments included in the various trusts. These trusts may invest in derivative instruments which may include swaps, futures, options, forwards, and other instruments. At September 30, 2016 and September 30, 2015, the NDT held investments in forward contracts to purchase debt securities. The fair values of these derivatives were in asset positions totaling $15 million at September 30, 2016 and liability positions totaling $59 million at September 30, 2015.

Table of Contents

At September 30, 2016, and September 30, 2015, the fair value of other derivative instruments in these trusts was not material to TVA's consolidated financial statements.

Collateral. TVA's interest rate swaps, currency swaps, and commodity derivatives under the FTP contain contract provisions that require a party to post collateral (in a form such as cash or a letter of credit) when the party's liability balance under the agreement exceeds a certain threshold. At September 30, 2016, the aggregate fair value of all derivative instruments with credit-risk related contingent features that were in a liability position was $2.1 billion. TVA's collateral obligations at September 30, 2016, under these arrangements, were approximately $1.4 billion, for which TVA had posted approximately $1.4 billion in letters of credit. These letters of credit reduce the available balance under the related credit facilities. TVA's assessment of the risk of its nonperformance includes a reduction in its exposure under the contract as a result of this posted collateral.

For all of its derivative instruments with credit-risk related contingent features:

- If TVA remains a majority-owned U.S. government entity but Standard & Poor's Financial Services, LLC ("S&P") or Moody's Investors Service, Inc. ("Moody's") downgrades TVA's credit rating to AA or Aa2, respectively, TVA's collateral obligations would likely increase by $22 million; and

- If TVA ceases to be majority-owned by the U.S. government, TVA's credit rating would likely be downgraded and TVA would be required to post additional collateral.

Counterparty Risk

TVA may be exposed to certain risks when a counterparty has the potential to fail to meet its obligations in accordance with agreed terms. These risks may be related to credit, operational, or nonperformance matters. To mitigate certain counterparty risk, TVA analyzes the counterparty’s financial condition prior to entering into an agreement, establishes credit limits, monitors the appropriateness of those limits, as well as any changes in the creditworthiness of the counterparty, on an ongoing basis, and when required, employs credit mitigation measures, such as collateral or prepayment arrangements and master purchase and sale agreements, to mitigate credit risk.

Customers. TVA is exposed to counterparty credit risk associated with trade accounts receivable from delivered power sales to LPCs, and from industries and federal agencies directly served, all located in the Tennessee Valley region. Of the $1.6 billion and $1.5 billion of receivables from power sales outstanding at September 30, 2016 and 2015, nearly all were rated investment grade. See Note 1 — Allowance for Uncollectible Accounts and Note 3.

TVA is also exposed to risk from exchange power arrangements with a small number of investor-owned regional utilities related to either delivered power or the replacement of open positions of longer-term purchased power or fuel agreements. TVA believes its policies and procedures for counterparty performance risk reviews have generally protected TVA against significant exposure related to market and economic conditions.

TVA had revenue from six LPCs that accounted for 33 percent of total operating revenue for the years ended both September 30, 2016 and September 30, 2015.

Suppliers. If one of TVA's fuel or purchased power suppliers fails to perform under the terms of its contract with TVA, TVA might lose the money that it paid to the supplier under the contract and have to purchase replacement fuel or power on the spot market, perhaps at a significantly higher price than TVA was entitled to pay under the contract. In addition, TVA might not be able to acquire replacement fuel or power in a timely manner and thus might be unable to satisfy its own obligations to deliver power. Nuclear fuel requirements, including uranium mining and milling, conversion services, enrichment services, and fabrication services, are met from various suppliers, depending on the

type of service. TVA purchases the majority of its natural gas requirements from a variety of suppliers under short-term contracts.

To help ensure a reliable supply of coal, TVA had coal contracts with multiple suppliers at September 30, 2016. The contracted supply of coal is sourced from multiple geographic regions of the United States and is to be delivered via various transportation methods (i.e., barge, rail, and truck). Emerging technologies, environmental regulations, and low natural gas prices have contributed to weak demand for coal. As a result, coal suppliers are facing increased financial pressure, which has led to relatively poor credit ratings and bankruptcies. Continued difficulties by coal suppliers could result in consolidations, additional bankruptcies, restructurings, contract renegotiations, or other scenarios. Under these scenarios and TVA’s potential available responses, TVA does not anticipate a significant financial impact in obtaining continued fuel supply for its coal-fired generation.

TVA has a power purchase agreement that expires on March 31, 2032, with a supplier of electricity for 440 megawatts ("MW") of summer net capability from a lignite-fired generating plant. TVA has determined that the supplier has the equivalent of a non-investment grade credit rating; therefore, the supplier has provided credit assurance to TVA under the terms of the agreement.

Table of Contents

Derivative Counterparties. TVA has entered into physical and financial contracts that qualify as derivatives for hedging purposes, and TVA's NDT fund and qualified defined benefit pension plan have entered into derivative contracts for investment purposes. If a counterparty to one of TVA's hedging transactions defaults, TVA might incur substantial costs in connection with entering into a replacement hedging transaction. If a counterparty to the derivative contracts into which the NDT fund and the qualified pension plan have entered for investment purposes defaults, the value of the investment could decline significantly or perhaps become worthless. TVA has concentrations of credit risk from the banking and coal industries because multiple companies in these industries serve as counterparties to TVA in various derivative transactions. At September 30, 2016, all of TVA's commodity derivatives under the FTP, currency swaps, and interest rate swaps were with banking counterparties whose Moody's credit ratings were A3 or higher.

TVA classifies qualified forward coal and natural gas contracts as derivatives. See Derivatives Not Receiving Hedge Accounting Treatment above. At September 30, 2016, the coal contracts were with counterparties whose Moody's credit rating, or TVA’s internal analysis when such information was unavailable, ranged from Ca or D, respectively, to A3. At September 30, 2016, the natural gas contracts were with counterparties whose ratings ranged from B1 to A2. See Suppliers above for discussion of challenges facing the coal industry. TVA's total value for derivative contracts with coal counterparties in an asset position as of September 30, 2016, was approximately $4 million. TVA currently utilizes two futures commission merchants ("FCMs") to clear commodity contracts, including futures, options, and similar financial derivatives. These transactions are executed under the FTP by the FCMs on exchanges on behalf of TVA. TVA maintains margin cash accounts with the FCMs. TVA makes deposits to the margin cash accounts to adequately cover any net liability positions on its derivatives transacted with the FCMs. See the note to the Fair Values of TVA Derivatives table above.

15. Fair Value Measurements

Fair value is determined based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the asset or liability's principal market, or in the absence of a principal market, the most advantageous market for the asset or liability in an orderly transaction between market participants. TVA uses market or observable inputs as the preferred source of values, followed by assumptions based on hypothetical transactions in the absence of market inputs.

Valuation Techniques

The measurement of fair value results in classification into a hierarchy by the inputs used to determine the fair value as follows:

Level 1	Unadjusted quoted prices in active markets accessible by the reporting entity for identical assets or liabilities. Active markets are those in which transactions for the asset or liability occur with sufficient frequency and volume to provide pricing.
Level 2	Pricing inputs other than quoted market prices included in Level 1 that are based on observable market data and that are directly or indirectly observable for substantially the full term of the asset or liability. These include quoted market prices for similar assets or liabilities, quoted market prices for identical or similar assets in markets that are not active, adjusted quoted market prices, inputs from observable data such as interest rate and yield curves, volatilities and default rates observable at commonly quoted intervals, and inputs derived from observable market data by correlation or other means.
Level 3	Pricing inputs that are unobservable, or less observable, from objective sources. Unobservable inputs are only to be used to the extent observable inputs are not available. These inputs maintain the concept of an exit price from the perspective of a market participant and should reflect assumptions of other market participants. An entity should consider all market participant assumptions that are available without unreasonable cost and effort. These are given the lowest priority and are generally used in internally developed methodologies to

generate management's best estimate of the fair value when no observable market data is available.

A financial instrument's level within the fair value hierarchy (where Level 1 is the highest and Level 3 is the lowest) is based on the lowest level of input significant to the fair value measurement.

The following sections describe the valuation methodologies TVA uses to measure different financial instruments at fair value. Except for gains and losses on SERP and LTDCP assets, all changes in fair value of these assets and liabilities have been recorded as changes in regulatory assets, regulatory liabilities, or AOCI on TVA's consolidated balance sheets and consolidated statements of comprehensive income (loss). Except for gains and losses on SERP and LTDCP assets, there has been no impact to the consolidated statements of operations or the consolidated statements of cash flows related to these fair value measurements.

Table of Contents

Investments Funds

At September 30, 2016, Investment funds were composed of $2.3 billion of securities classified as trading and measured at fair value and less than $1 million of equity investments not required to be measured at fair value. Trading securities are held in the NDT, ART, SERP, and LTDCP. The NDT holds funds for the ultimate decommissioning of TVA's nuclear power plants. The ART holds funds primarily for the costs related to the future closure and retirement of TVA's other long-lived assets. The balances in the NDT and ART were $1.6 billion and $519 million, respectively, at September 30, 2016.

TVA established a SERP for certain executives in critical positions to provide supplemental pension benefits tied to compensation that exceeds limits set by Internal Revenue Service ("IRS") rules applicable to the qualified defined benefit pension plan. The LTDCP is designed to provide long-term incentives to executives to encourage them to stay with TVA and to provide competitive levels of total compensation to such executives. NDT and SERP funds are invested in portfolios of securities generally designed to achieve a return in line with overall equity market performance, and ART and LTDCP funds are invested in portfolios of securities generally designed to achieve a return in line with overall debt and equity market performance.

The NDT, ART, SERP, and LTDCP are composed of multiple types of investments and are managed by external institutional managers. Most U.S. and international equities, Treasury inflation-protected securities, real estate investment trust securities, and cash securities and certain derivative instruments are measured based on quoted exchange prices in active markets and are classified as Level 1 valuations. Fixed-income investments, high-yield fixed-income investments, currencies, and most derivative instruments are non-exchange traded and are classified as Level 2 valuations. These measurements are based on market and income approaches with observable market inputs.

Private equity limited partnerships and private real estate investments may include holdings of investments in private real estate, venture capital, buyout, mezzanine or subordinated debt, restructuring or distressed debt, and special situations through funds managed by third-party investment managers. These investments generally involve a three-to-four-year period where the investor contributes capital, followed by a period of distribution, typically over several years. The investment period is generally, at a minimum, ten years or longer. The NDT had unfunded commitments related to private equity limited partnerships of $67 million and unfunded commitments related to private real estate of $5 million at September 30, 2016. These investments have no redemption or limited redemption options and may also impose restrictions on the NDT’s ability to liquidate its investments. There are no readily available quoted exchange prices for these investments. The fair value of the investments is based on TVA’s ownership percentage of the fair value of the underlying investments as provided by the investment managers. These investments are typically valued on a quarterly basis. TVA’s private equity limited partnerships and private real estate investments are valued at net asset values ("NAV") as a practical expedient for fair value. TVA classifies its interest in these types of investments as investments measured at net asset value in the fair value hierarchy.

Commingled funds represent investment funds comprising multiple individual financial instruments. The commingled funds held by the NDT, ART, SERP, and LTDCP consist of either a single class of securities, such as equity, debt, or foreign currency securities, or multiple classes of securities. All underlying positions in these commingled funds are either exchange traded or measured using observable inputs for similar instruments. The fair value of commingled funds is based on NAV per fund share (the unit of account), derived from the prices of the underlying securities in the funds. These commingled funds can be redeemed at the measurement date NAV and are classified as Commingled funds measured at net asset value in the fair value hierarchy.

Realized and unrealized gains and losses on trading securities are recognized in current earnings and are based on average cost. The gains and losses of the NDT and ART are subsequently reclassified to a regulatory liability or asset account in accordance with TVA's regulatory accounting policy. See Note 1 — Cost-Based Regulation. TVA recorded

unrealized gains and losses related to its trading securities held as of the end of each period as follows:

		Unrealized Investment Gains (Losses) At September 30	
	Financial Statement Presentation	2016	2015
SERP	Other income (expense)	$ 2	$(4)
LTDCP	Other income (expense)	1	(2)
NDT	Regulatory asset	89	(47)
ART	Regulatory asset	29	(17)

Table of Contents

Currency and Interest Rate Derivatives

See Note 14 — Cash Flow Hedging Strategy for Currency Swaps and Derivatives Not Receiving Hedge Accounting Treatment for a discussion of the nature, purpose, and contingent features of TVA's currency swaps and interest rate swaps. These swaps are classified as Level 2 valuations and are valued based on income approaches using observable market inputs for similar instruments.

Commodity Contract Derivatives and Commodity Derivatives Under FTP

Commodity Contract Derivatives. Most of these contracts are valued based on market approaches which utilize short- and mid-term market-quoted prices from an external industry brokerage service. A small number of these contracts are valued based on a pricing model using long-term price estimates from TVA's coal price forecast. To value the volume option component of applicable coal contracts, TVA uses a Black-Scholes pricing model which includes inputs from the forecast, contract-specific terms, and other market inputs. These contracts are classified as Level 3 valuations.

Commodity Derivatives Under FTP. These contracts are valued based on market approaches which utilize Chicago Mercantile Exchange ("CME") quoted prices and other observable inputs. Swap contracts are valued using a pricing model based on CME inputs and are subject to nonperformance risk outside of the exit price. These contracts are classified as Level 2 valuations.

See Note 14 — Derivatives Not Receiving Hedge Accounting Treatment — Commodity Derivatives and — Derivatives Under FTP for a discussion of the nature and purpose of coal contracts and derivatives under TVA's FTP.

Nonperformance Risk

The assessment of nonperformance risk, which includes credit risk, considers changes in current market conditions, readily available information on nonperformance risk, letters of credit, collateral, other arrangements available, and the nature of master netting arrangements. TVA is a counterparty to currency swaps, interest rate swaps, commodity contracts, and other derivatives which subject TVA to nonperformance risk. Nonperformance risk on the majority of investments and certain exchange-traded instruments held by TVA is incorporated into the exit price that is derived from quoted market data that is used to mark the investment to market.

Nonperformance risk for most of TVA's derivative instruments is an adjustment to the initial asset/liability fair value. TVA adjusts for nonperformance risk, both for TVA (for liabilities) and the counterparty (for assets), by applying credit valuation adjustments ("CVAs"). TVA determines an appropriate CVA for each applicable financial instrument based on the term of the instrument and TVA's or the counterparty's credit rating as obtained from Moody's. For companies that do not have an observable credit rating, TVA uses internal analysis to assign a comparable rating to the company. TVA discounts each financial instrument using the historical default rate (as reported by Moody’s for CY 1983 to CY 2015) for companies with a similar credit rating over a time period consistent with the remaining term of the contract. The application of CVAs resulted in a $2 million decrease in the fair value of assets and a $1 million decrease in the fair value of liabilities at September 30, 2016.

Table of Contents

Fair Value Measurements

The following tables set forth by level, within the fair value hierarchy, TVA's financial assets and liabilities that were measured at fair value on a recurring basis at September 30, 2016, and September 30, 2015. Financial assets and liabilities have been classified in their entirety based on the lowest level of input that is significant to the fair value measurement. TVA's assessment of the significance of a particular input to the fair value measurement requires judgment and may affect the determination of the fair value of the assets and liabilities and their classification in the fair value hierarchy levels.

Fair Value Measurements
At September 30, 2016

Assets	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Investments				
Equity securities	$ 196	$ —	$ —	$196
Government debt securities	88	36	—	124
Corporate debt securities	—	393	—	393
Mortgage and asset-backed securities	—	50	—	50
Institutional mutual funds	92	—	—	92
Forward debt securities contracts	—	15	—	15
Private equity funds measured at net asset value[1]	—	—	—	132
Private real estate funds measured at net asset value[1]	—	—	—	113
Commingled funds measured at net asset value[1]	—	—	—	1,142
Total investments	376	494	—	2,257
Currency swap(s)[2]	—	—	—	—
Commodity contract derivatives	—	5	4	9
Commodity derivatives under FTP[2]				
Swap contracts	—	—	—	—
Total	$ 376	$ 499	$ 4	$2,266

Liabilities	Quoted Prices in Active Markets for Identical Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Currency swap(s)[2]	$ —	$ 162	$ —	$162

Interest rate swaps	—	1,938	—	1,938
Commodity contract derivatives	—	3	131	134
Commodity derivatives under FTP[(2)]				
Swap contracts	—	9	—	9
Total	$ —	$ 2,112	$ 131	$2,243

Notes
(1) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheets.
(2) Due to the right of setoff and method of settlement, TVA elects to record commodity derivatives under the FTP based on its net commodity position with the counterparty or FCM. Deposits are made to TVA's margin cash accounts held with each FCM to offset any net liability positions in full for derivatives that are transacted with FCMs. TVA records currency swaps net of cash collateral received from or paid to the counterparty, to the extent such amount is not recorded in Accounts payable and accrued liabilities. See Note 14 — Offsetting of Derivative Assets and Liabilities.

Table of Contents

Fair Value Measurements
At September 30, 2015

Assets	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Investments				
Equity securities	$ 166	$ —	$ —	$166
Government debt securities	203	31	—	234
Corporate debt securities	—	225	—	225
Mortgage and asset-backed securities	—	53	—	53
Institutional mutual funds	91	—	—	91
Forward debt securities contracts	—	(59)	—	(59)
Private equity funds measured at net asset value[1]	—	—	—	125
Private real estate funds measured at net asset value[1]	—	—	—	115
Commingled funds measured at net asset value[1]	—	—	—	1,061
Total investments	460	250	—	2,011
Currency swap(s)[2]	—	25	—	25
Commodity contract derivatives	—	1	—	1
Commodity derivatives under FTP[2]				
Swap contracts	—	—	—	—
Total	$ 460	$ 276	$ —	$2,037

Liabilities	Quoted Prices in Active Markets for Identical Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Currency swap(s)[2]	$ —	$ 47	$ —	$47
Interest rate swaps	—	1,627	—	1,627
Commodity contract derivatives	—	—	98	98
Commodity derivatives under FTP[2]				
Swap contracts	—	27	—	27
Total	$ —	$ 1,701	$ 98	$1,799

Notes
(1) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy. The fair value amounts presented in this table are

intended to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheets.

(2) Due to the right of setoff and method of settlement, TVA elects to record commodity derivatives under the FTP based on its net commodity position with the counterparty or FCM. Deposits are made to TVA's margin cash accounts held with each FCM to offset any net liability positions in full for derivatives that are transacted with FCMs. TVA records currency swaps net of any cash collateral received from or paid to the counterparty, to the extent such amount is not recorded in Accounts payable and accrued liabilities. See Note 14 — Offsetting of Derivative Assets and Liabilities.

Table of Contents

TVA uses internal valuation specialists for the calculation of its commodity contract derivatives fair value measurements classified as Level 3. Analytical testing is performed on the change in fair value measurements each period to ensure the valuation is reasonable based on changes in general market assumptions. Significant changes to the estimated data used for unobservable inputs, in isolation or combination, may result in significant variations to the fair value measurement reported.

The following table presents a reconciliation of all commodity contract derivatives measured at fair value on a recurring basis using significant unobservable inputs (Level 3):

Fair Value Measurements Using Significant Unobservable Inputs

	Commodity Contract Derivatives
Balance at October 1, 2014	$ (85)
Purchases	—
Issuances	—
Sales	—
Settlements	—
Net unrealized gains (losses) deferred as regulatory assets and liabilities	(13)
Balance at September 30, 2015	(98)
Purchases	—
Issuances	—
Sales	—
Settlements	—
Net unrealized gains (losses) deferred as regulatory assets and liabilities	(29)
Balance at September 30, 2016	$ (127)

The following table presents quantitative information related to the significant unobservable inputs used in the measurement of fair value of TVA's assets and liabilities classified as Level 3 in the fair value hierarchy:

Quantitative Information about Level 3 Fair Value Measurements

	Fair Value at September 30 2016	Valuation Technique(s)	Unobservable Inputs	Range
Assets				
Commodity contract derivatives	$ 4	Pricing model	Coal supply and demand	0.7 - 0.8 billion tons/year
			Long-term market prices	$11.80 - $85.02/ton
Liabilities				
Commodity contract derivatives	$ 131	Pricing model	Coal supply and demand	0.7 - 0.8 billion tons/year
			Long-term market prices	$11.80 - $85.02/ton

Quantitative Information about Level 3 Fair Value Measurements

	Fair Value at September 30 2015	Valuation Technique(s)	Unobservable Inputs	Range
Assets				
Commodity contract derivatives	$ —	Pricing model	Coal supply and demand	0.8 - 1.0 billion tons/year
			Long-term market prices	$10.64 - $103.41/ton
Liabilities				
Commodity contract derivatives	$ 98	Pricing model	Coal supply and demand	0.8 - 1.0 billion tons/year
			Long-term market prices	$10.64 - $103.41/ton

Table of Contents

Other Financial Instruments Not Recorded at Fair Value

TVA uses the methods and assumptions described below to estimate the fair value of each significant class of financial instrument. The fair value of the financial instruments held at September 30, 2016, and September 30, 2015, may not be representative of the actual gains or losses that will be recorded when these instruments mature or are called or presented for early redemption. The estimated values of TVA's financial instruments not recorded at fair value at September 30, 2016, and September 30, 2015, were as follows:

Estimated Values of Financial Instruments Not Recorded at Fair Value

		At September 30, 2016		At September 30, 2015	
	Valuation Classification	Carrying Amount	Fair Value	Carrying Amount	Fair Value
EnergyRight® receivables (including current portion)	Level 2	$141	$144	$156	$162
Loans and other long-term receivables, net (including current portion)	Level 2	$141	$130	$129	$117
EnergyRight® purchase obligation (including current portion)	Level 2	$163	$183	$185	$208
Unfunded loan commitments	Level 2	$—	$17	$—	$9
Membership interests of variable interest entity subject to mandatory redemption (including current portion)	Level 2	$35	$46	$37	$47
Long-term outstanding power bonds (including current maturities), net	Level 2	$22,456	$28,620	$22,649	$25,468
Long-term debt of variable interest entities (including current maturities), net	Level 2	$1,234	$1,468	$1,266	$1,407
Long-term notes payable (including current maturities)	Level 2	$75	$75	$—	$—

Due to the short-term maturity of Cash and cash equivalents, Restricted cash and investments, and Short-term debt, net (each considered a Level 1 valuation classification), the carrying amounts of these instruments approximate their fair values.

The fair value for loans and other long-term receivables is estimated by determining the present value of future cash flows using a discount rate equal to lending rates for similar loans made to borrowers with similar credit ratings and for similar remaining maturities, where applicable.

The fair value of long-term debt traded in the public market is determined by multiplying the par value of the debt by the indicative market price at the balance sheet date. The fair value of other long-term debt and membership interests of variable interest entity subject to mandatory redemption is estimated by determining the present value of future cash flows using current market rates for similar obligations, giving effect to credit ratings and remaining maturities.

16. Proprietary Capital

Appropriation Investment

TVA's power program and stewardship (nonpower) programs were originally funded primarily by appropriations from Congress. In 1959, Congress passed an amendment to the TVA Act that required TVA's power program to be self-financing from power revenues and proceeds from power program financings. While TVA's power program did not directly receive appropriated funds after it became self-financing, TVA continued to receive appropriations for certain multipurpose and other nonpower mission-related activities as well as for its stewardship activities. TVA has not received any appropriations from Congress for any activities since 1999, and since that time, TVA has funded stewardship program activities primarily with power revenues.

Table of Contents

The 1959 amendment to the TVA Act also required TVA, beginning in 1961, to make annual payments to the U.S. Treasury from net power proceeds as a repayment of and as a return on the Power Program Appropriation Investment until a total of $1.0 billion of the Power Program Appropriation Investment has been repaid in accordance with the 1959 amendment. TVA paid $10 million for 2014 as a repayment of the Power Program Appropriation Investment. With the 2014 payment, TVA fulfilled its requirement to repay $1.0 billion of the Power Program Appropriation Investment. The TVA Act requires TVA to continue making payments to the U.S. Treasury as a return on the remaining $258 million of the Power Program Appropriation Investment.

The table below summarizes TVA's activities related to appropriated funds.

Summary of Proprietary Capital Activity
At or for the years ended September 30

Appropriation Investment	2016 Power Program	2016 Nonpower Programs	2015 Power Program	2015 Nonpower Programs
Balance at beginning of year	$258	$ 4,351	$258	$ 4,351
Return of power program appropriation investment	—	—	—	—
Balance at end of year	258	4,351	258	4,351
Retained Earnings				
Balance at beginning of year	6,357	(3,761)	5,240	(3,750)
Net income (expense) for year	1,243	(10)	1,122	(11)
Return on power program appropriation investment	(6)	—	(5)	—
Balance at end of year	7,594	(3,771)	6,357	(3,761)
Net proprietary capital at September 30	$7,852	$ 580	$6,615	$ 590

Payments to the U.S. Treasury

TVA paid the U.S. Treasury $6 million in 2016, $5 million in 2015, and $4 million in 2014 as a return on the Power Program Appropriation Investment. The amount of the return on the Power Program Appropriation Investment is based on the Power Program Appropriation Investment balance at the beginning of that year and the computed average interest rate payable by the U.S. Treasury on its total marketable public obligations at the same date. The interest rates payable by TVA on the Power Program Appropriation Investment were 2.04 percent, 2.04 percent, and 1.97 percent for 2016, 2015, and 2014, respectively.

Accumulated Other Comprehensive Income (Loss)

The items included in Accumulated other comprehensive income (loss) consist of market valuation adjustments for certain derivative instruments. See Note 14.

TVA records exchange rate gains and losses on debt in net income and marks its currency swap assets and liabilities to market through other comprehensive income. TVA had unrealized gains (losses) of $(139) million and $(72) million in 2016 and 2015, respectively, on the mark-to-market of currency swaps. TVA then reclassifies an amount out of accumulated other comprehensive income into net income, offsetting the gain/loss from recording the exchange gain/loss on the debt. The amounts reclassified from other comprehensive income into net income resulted in increases (decreases) to net income of $(129) million, $(65) million, and $2 million in 2016, 2015, and 2014, respectively. These reclassifications, coupled with the recording of the exchange gain/loss on the debt, did not have an impact on net income in 2016, 2015, and 2014. Based on forecasted foreign currency exchange rates, TVA expects to reclassify approximately $19 million of gains from accumulated other comprehensive income to interest expense within the next twelve months to offset amounts anticipated to be recorded in interest expense related to exchange gain on the debt.

123

Table of Contents

17. Other Income (Expense), Net

Income and expenses not related to TVA's operating activities are summarized in the following table:

Other Income (Expense), Net
For the years ended September 30

	2016	2015	2014
Interest income	$ 24	$ 24	$ 23
External services	12	12	19
Gains (losses) on investments	7	(1)	6
Miscellaneous	—	(6)	1
Total other income (expense), net	$ 43	$ 29	$ 49

18. Supplemental Cash Flow Information

Interest paid was $1.3 billion for 2016, 2015 and 2014. These amounts differ from interest expense due to the timing of payments and interest capitalized of $235 million in 2016, $214 million in 2015, and $175 million in 2014 as a part of major capital expenditures.

Construction in progress and Nuclear fuel expenditures included in Accounts payable and accrued liabilities at September 30, 2016, 2015, and 2014 were $526 million, $530 million, and $391 million, respectively, and are excluded from the Statements of Consolidated Cash Flows for the years ended September 30, 2016, 2015, and 2014 as non-cash investing activities.

Excluded from the Statement of Consolidated Cash Flows for the years ended September 30, 2016, 2015, and 2014 as non-cash financing activities, were capital lease obligations incurred related to purchase power assets of $81 million, less than $1 million, and $70 million, respectively. Also excluded from the Statement of Consolidated Cash Flows for the year ended September 30, 2016, were $78 million of notes payable related to TVA's recent acquisition of equity interests in certain SPEs. See Note 8.

Cash flows from futures contracts, forward contracts, option contracts, and swap contracts that are accounted for as hedges are classified in the same category as the item being hedged or on a basis consistent with the nature of the instrument.

19. Benefit Plans

TVA sponsors a qualified defined benefit plan ("pension plan") that covers most of its full-time employees hired prior to July 1, 2014, a qualified defined contribution plan ("401(k) plan") that covers most of its full-time employees, two unfunded post-retirement health care plans that provide for non-vested contributions toward the cost of eligible retirees' medical coverage, other postemployment benefits such as workers' compensation, and the SERP. The pension plan and the 401(k) plan are administered by a separate legal entity, the TVA Retirement System ("TVARS"), which is governed by its own board of directors (the "TVARS Board").

Overview of Plans and Benefits

Retirement Plans. The participants in the pension plan receive either a traditional final average pay pension or a cash balance pension. The traditional pension benefit is based on the participant's creditable service, average monthly salary for their highest three consecutive years of eligible compensation, and a pension factor based on the participant's age and years of service, less a Social Security offset. The cash balance pension benefit is based on pay and interest

credits accumulated in the participant’s account and the participant’s age.

Participants in the pension plan are also eligible to receive 401(k) plan matching contributions and may also be eligible to make after-tax contributions of up to $10,000 per year to TVARS, which at the election of the participant are invested in either the fixed fund, which receives a fixed interest rate set forth in the plan, or the variable fund, which receives a rate of return based on an S&P 500 index fund. Participants in the pension plan may also become eligible for a supplemental pension benefit based on age and years of service at retirement, which is provided to help offset the cost of retiree medical insurance. Employees first hired on or after July 1, 2014, are participants in the 401(k) plan only and receive both nonelective and matching contributions to their accounts in the 401(k) plan.

On August 8, 2016, the TVARS Board approved amendments to the pension plan and the 401(k) plan, and these amendments were also approved by the TVA Board on August 25, 2016. The amendments, which became effective on October 1, 2016, change future retirement benefits for employees and retirees and make certain other changes regarding TVA's minimum

Table of Contents

funding requirements to the pension plan and plan governance. With respect to current cash balance participants in the pension plan, these amendments shift future benefit accruals from the cash balance pension to the 401(k) plan based on hire date and years of service as of October 1, 2016. For cash balance participants first hired on or after January 1, 1996, and having more than 10 years of service as of October 1, 2016, participants will begin receiving nonelective contributions to their accounts in the 401(k) plan and reduced pay credits to their cash balance accounts in the pension plan. For cash balance participants first hired on or after January 1, 1996, and having less than 10 years of service as of October 1, 2016, participants will begin receiving nonelective contributions and higher matching contributions to their accounts in the 401(k) plan and will no longer receive pay credits to their cash balance accounts; however, their cash balance accounts will continue to receive interest credits.

The amendments also made the following additional benefit changes: reducing the future cash balance interest crediting rate and the fixed fund interest rate with a floor and ceiling based on the assumed rate of investment return on TVARS assets; closing the fixed and variable funds to new contributions from pension plan participants first hired on or after January 1, 1996; reducing the rate of future cost-of-living-adjustments ("COLAs") while increasing the maximum eligible COLA; vesting COLAs; increasing the eligibility age for COLAs for pension plan participants under age 50; restricting COLAs to pension amounts based on compensation up to Executive Level IV; eliminating future COLAs to SERP participants with less than 10 years of service; and capping the maximum supplemental benefit amounts.

The amendments also changed the annual minimum contribution required by TVA to the pension plan to the greater of (a) the minimum contribution calculated by TVARS's actuary according to the TVARS Rules and Regulations, or (b) $300 million, for a period of 20 years (from 2017 through 2036) or, if earlier, through the fiscal year in which the plan reaches and remains at a 100 percent funded status under the actuarial rules applicable to TVARS.

401(k) Plan Contributions. TVA made non-elective and matching contributions to the 401(k) plan of approximately $38 million during 2016, $36 million during 2015, and $35 million during 2014.

Supplemental Executive Retirement Plan. TVA has established a SERP for certain executives in critical positions to provide supplemental pension benefits tied to compensation that exceeds limits imposed by IRS rules applicable to the qualified defined benefit pension plan. TVA has historically funded the annual calculated expense.

Other Post-Retirement Benefits. TVA sponsors two unfunded post-retirement benefit plans that provide for non-vested contributions toward the cost of certain eligible retirees' medical coverage. The first plan covers only certain retirees and surviving dependents who do not qualify for TVARS benefits, including the supplemental pension benefit. The second plan is designed to place a limit on the out-of-pocket amount certain eligible retirees pay for medical coverage and provides a credit based on years of TVA service and monthly base pension amount, reduced by any TVARS supplemental pension benefits or any TVA contribution from the first plan, described above. Effective January 2017, all Medicare-eligible retirees and spouses will be provided Medicare coverage through a private exchange. Transition to the exchange does not affect any supplemental benefits for eligible retirees, and the credit will continue to be calculated in the same manner as before.

Other Post-Employment Benefits. TVA employees injured in work-related incidents are covered by the workers' compensation program for federal employees administered through the Department of Labor by the Office of Workers' Compensation Programs in accordance with the provisions of FECA. FECA provides compensation and medical benefits to federal employees for permanent and temporary disability due to employment-related injury or disease.

Accounting Mechanisms

Regulatory Accounting. TVA has classified all amounts related to unrecognized prior service costs, net actuarial gains or losses, and the funded status as regulatory assets as such amounts are probable of collection in future rates. Additionally, on October 1, 2014, TVA began recognizing pension costs as regulatory assets to the extent that the amount calculated under GAAP as pension expense differs from the amount TVA contributes to the pension plan.

Cost Method. TVA uses the projected unit credit cost method to determine the service cost and the projected benefit obligation for retirement, termination, and ancillary benefits. Under this method, a "projected accrued benefit" is calculated at the beginning of the year and at the end of the year for each benefit that may be payable in the future. The "projected accrued benefit" is based on the plan's accrual formula and upon service at the beginning or end of the year, but it uses final average compensation, social security benefits, and other relevant factors projected to the age at which the employee is assumed to leave active service. The projected benefit obligation is the actuarial present value of the "projected accrued benefits" at the beginning of the year for employed participants and is the actuarial present value of all benefits for other participants. The service cost is the actuarial present value of the difference between the "projected accrued benefits" at the beginning and end of the year.

Amortization of Net Gain or Loss. TVA utilizes the corridor approach for gain/loss amortization. Differences between actuarial assumptions and actual plan results are deferred and amortized into periodic cost only when the accumulated differences exceed 10 percent of the greater of the projected benefit obligation or the market-related value of plan assets. If necessary, the excess is amortized over the average remaining service period of active employees.

Table of Contents

Asset Method. TVA recognizes the impact of asset performance on pension expense over a three-year phase-in period through a "market-related" value of assets calculation. Since the "market-related" value of assets recognizes investment gains and losses over a three-year period, the future value of assets will be impacted as previously deferred gains or losses are recognized. The "market-related" value is used in calculating expected return on plan assets and net gain or loss for pension cost determination.

Obligations and Funded Status

The changes in plan obligations, assets, and funded status for the years ended September 30, 2016 and 2015, were as follows:

Obligations and Funded Status
For the years ended September 30

	Pension Benefits		Other Post-Retirement Benefits	
	2016	2015	2016	2015
Change in benefit obligation				
Benefit obligation at beginning of year	$12,824	$12,265	$657	$652
Service cost	133	130	16	16
Interest cost	564	540	29	29
Plan participants' contributions	25	25	—	—
Collections[1]	—	—	92	94
Actuarial loss (gain)	1,188	556	68	3
Plan change	(960)	—	(158)	—
Net transfers from variable fund/401(k) plan	7	11	—	—
Expenses paid	(6)	(6)	—	—
Benefits paid	(692)	(697)	(133)	(137)
Benefit obligation at end of year	13,083	12,824	571	657
Change in plan assets				
Fair value of net plan assets at beginning of year	6,797	7,507	—	—
Actual return on plan assets	733	(325)	—	—
Plan participants' contributions	25	25	—	—
Collections[1]	—	—	92	94
Net transfers from variable fund/401(k) plan	7	11	—	—
Employer contributions[2]	281	282	41	43
Expenses paid	(6)	(6)	—	—
Benefits paid	(692)	(697)	(133)	(137)
Fair value of net plan assets at end of year	7,145	6,797	—	—
Funded status	$(5,938)	$(6,027)	$(571)	$(657)

Notes
(1) Collections include retiree contributions as well as federal reinsurance payments and provider discounts and rebates.
(2) Other Post-Retirement Benefits Employer contributions are reduced by federal reinsurance payments and provider discounts and rebates.

The pension plan change is a result of the amendments to the TVA qualified defined benefit pension plan, which reduced the projected benefit obligation by $960 million and established an additional unrecognized prior service

credit at September 30, 2016 to be amortized for approximately 11 years as a component of net periodic pension benefit cost.

The post-retirement plan change is a result of transitioning all Medicare eligible retirees and spouses to a private exchange effective January 2017, which reduced the projected benefit obligation by $158 million.

The $1.2 billion pension actuarial loss for 2016 is primarily due to the decrease in the discount rate from 4.50 percent to 3.65 percent, which increased the projected benefit obligation by $1.4 billion. This loss was partially offset by assumption changes for the COLA of $168 million and for mortality of $133 million to better reflect anticipated future plan experience.

Table of Contents

The $556 million pension actuarial loss for 2015 was primarily due to the change in the mortality assumption, which increased the projected benefit obligation by $518 million. Additional losses of $349 million were due to demographic experience from the impact of TVA’s organizational restructuring in 2014 and 2015 and assumptions on the forms of benefit payment elections. These losses were partially offset by assumption changes for the COLA of $232 million reflecting a slower than anticipated economic recovery and an increase in the discount rate from 4.45 percent to 4.50 percent, which decreased the liability by $79 million. The discount rate increased primarily due to the longer expected duration as a result of the new mortality assumption.

The other post-retirement actuarial loss for 2016 was primarily due to the decrease in the discount rate from 4.65 percent to 3.70 percent, which increased the liability by $91 million. The loss was partially offset by a gain of $17 million due to demographic experience related to updated per capita costs and retiree contributions and a gain of $7 million related to assumption changes for mortality to better reflect anticipated future plan experience.

The other post-retirement actuarial loss for 2015 was primarily due to an updated mortality assumption resulting in a longer expected duration of benefit payments which increased the liability by $21 million and actuarial losses of $20 million due to demographic experience, including assumption changes. These losses were partially offset by assumption changes for updated per capita claims costs and retiree contributions of $30 million to reflect observed and anticipated plan experience. Additionally, the discount rate increased from 4.50 percent to 4.65 percent, decreasing the liability by $13 million. The discount rate increased primarily due to the longer expected duration as a result of the new mortality assumption.

Amounts related to these benefit plans recognized on TVA's consolidated balance sheets consist of regulatory assets that have not been recognized as components of net periodic benefit cost at September 30, 2016 and 2015, and the funded status of TVA’s benefit plans, which are included in Accounts payable and accrued liabilities and Post-retirement and post-employment benefit obligations:

Amounts Recognized on TVA's Consolidated Balance Sheets
At September 30

	Pension Benefits		Other Post-Retirement Benefits	
	2016	2015	2016	2015
Regulatory assets	$5,336	$5,425	$ 49	$ 140
Accounts payable and accrued liabilities	(5)	(6)	(35)	(37)
Pension and post-retirement benefit obligations[1]	(5,933)	(6,021)	(536)	(620)

Note
(1) The table above excludes $460 million and $465 million of post-employment benefit costs that are recorded in Post-retirement and post-employment benefit obligations on the Consolidated Balance Sheets at September 30, 2016 and 2015, respectively.

Unrecognized amounts included in regulatory assets yet to be recognized as components of accrued benefit cost at September 30 consisted of:

Post-Retirement Benefit Costs Deferred as Regulatory Assets
At September 30

	Pension Benefits		Other Post-Retirement Benefits	
	2016	2015	2016	2015
Unrecognized prior service credit	$(1,017)	$(158)	$(185)	$(33)

Unrecognized net loss	5,946	5,355	234	173
Amount capitalized due to actions of regulator	407	228	—	—
Total regulatory assets	$5,336	$5,425	$ 49	$ 140

The projected benefit obligation, accumulated benefit obligation, and fair value of plan assets for the pension plan at September 30, 2016, and 2015, were as follows:

Projected Benefit Obligations and Accumulated Benefit Obligations in Excess of Plan Assets
At September 30

	2016	2015
Projected benefit obligation	$13,083	$12,824
Accumulated benefit obligation	12,912	12,626
Fair value of net plan assets	7,145	6,797

Table of Contents

The components of net periodic benefit cost and other amounts recognized as changes in regulatory assets for the years ended September 30, 2016, and 2015, were as follows:

Components of Net Periodic Benefit Cost
For the years ended September 30

	Pension Benefits			Other Post-Retirement Benefits		
	2016	2015	2014	2016	2015	2014
Service cost	$133	$130	$130	$16	$16	$18
Interest cost	564	540	558	29	29	32
Expected return on plan assets	(446)	(437)	(435)	—	—	—
Amortization of prior service credit	(23)	(21)	(21)	(6)	(6)	(6)
Recognized net actuarial loss	310	299	285	7	9	11
Curtailment	(78)	—	—	—	—	—
Total net periodic benefit cost as actuarially determined	460	511	517	46	48	55
Amount capitalized due to actions of regulator	(179)	(228)	—	—	—	—
Total net period benefit cost	$281	$283	$517	$46	$48	$55

The amounts in the regulatory asset that are expected to be recognized as components of net periodic benefit cost during the next fiscal year are as follows:

Expected Amortization of Regulatory Assets in 2017
At September 30, 2016

	Pension Benefits	Other Post-Retirement Benefits	Total
Prior service credit	$ (99)	$ (22)	$(121)
Net actuarial loss	466	13	479

The amount in the components of net periodic benefit cost expected to be capitalized due to actions of regulator in the next fiscal year is $136 million.

Plan Assumptions

TVA’s reported costs of providing the plan benefits are impacted by numerous factors including the provisions of the plans, changing employee demographics, and various assumptions, the most significant of which are noted below.

Table of Contents

Actuarial Assumptions

	Pension Benefits		Other Post-Retirement Benefits	
	2016	2015	2016	2015
Assumptions utilized to determine benefit obligations at September 30				
Discount rate	3.65%	4.50%	3.70 %	4.65 %
Rate of compensation increase	5.55%	5.70%	N/A	N/A
Pre-Medicare eligible				
Initial health care cost trend rate	N/A	N/A	6.50 %	7.00 %
Ultimate health care cost trend rate	N/A	N/A	5.00 %	5.00 %
Ultimate trend rate is reached in year beginning	N/A	N/A	2019	2019
Post-Medicare eligible				
Initial health care cost trend rate	N/A	N/A	— %	7.00 %
Ultimate health care cost trend rate	N/A	N/A	4.00 %	5.00 %
Ultimate trend rate is reached in year beginning	N/A	N/A	2021	2019
Assumptions utilized to determine net periodic benefit cost for the years ended September 30				
Discount rate	4.50%	4.45%	4.65 %	4.50 %
Expected return on plan assets	7.00%	7.00%	N/A	N/A
Rate of compensation increase	5.70%	5.70%	N/A	N/A
Pre-Medicare eligible				
Initial health care cost trend rate	N/A	N/A	7.00 %	7.50 %
Ultimate health care cost trend rate	N/A	N/A	5.00 %	5.00 %
Ultimate trend rate is reached in year beginning	N/A	N/A	2019	2019
Post-Medicare eligible				
Initial health care cost trend rate	N/A	N/A	7.00 %	7.50 %
Ultimate health care cost trend rate	N/A	N/A	5.00 %	5.00 %
Ultimate trend rate is reached in year beginning	N/A	N/A	2019	2019

Discount Rate. In selecting the assumed discount rate, TVA reviews market yields on high-quality corporate debt and long-term obligations of the U.S. Treasury and endeavors to match, through the use of a hypothetical bond portfolio, instrument maturities with the maturities of its pension obligations in accordance with the prevailing accounting standards. The selected bond portfolio is derived from a universe of high quality corporate bonds of Aa-rated quality or higher. After the bond portfolio is selected, a single interest rate is determined that equates the present value of the plan's projected benefit payments discounted at this rate with the market value of the bonds selected. Based on recent market trends and economic conditions, TVA decreased its discount rate used to determine the pension benefit obligation and other post-retirement benefit obligation. At September 30, 2016, the discount rates used to determine the pension and other post-retirement benefit obligations for 2016 were 3.65 percent and 3.70 percent, respectively. At September 30, 2015, the discount rates used to determine the pension and other post-retirement benefit obligations were 4.50 percent and 4.65 percent, respectively. The discount rate assumptions used to determine the obligations at year-end are used to determine the net periodic benefit costs for the following year.

Rate of Return. The qualified defined benefit pension plan is the only plan that is funded with qualified plan assets. In determining the expected long-term rate of return on pension plan assets, TVA uses a process that incorporates actual historical asset class returns and an assessment of expected future performance and takes into consideration external actuarial advice and asset class factors. Asset allocations are periodically updated using the

pension plan asset/liability studies, and are part of the determination of the estimates of long-term rates of return. The current asset allocation policy approved by the TVARS Board diversifies plan assets across multiple asset classes so as to minimize the risk of large losses. The asset allocation policy is designed to be dynamic in nature and responsive to change in the funded status of TVARS. Changes in the expected return rates are based on annual studies performed by third party professional investment consultants. Upon review of TVARS's asset allocation policy effective in 2017, the 2016 annual study, and the current outlook on capital markets, TVA management decided to maintain the expected return on assets at 7.00 percent, which will be used to measure 2017 net periodic benefit cost. TVA used an expected rate of return of 7.00 percent to measure benefit costs in 2016 and 2015 and used 7.25 percent to measure benefit costs in 2014.

Compensation Increases. Assumptions related to compensation increases are based on the results obtained from an actual company experience study performed during the most recent five years for plan participants. TVA obtained an updated

Table of Contents

study in 2013 and determined that future compensation would likely increase at rates between 3.50 percent and 13.00 percent per year, depending upon the employee's age. Based upon the current active participants, the average assumed compensation increase used to determine benefit obligations for 2016 and 2015 was 5.55 percent and 5.70 percent, respectively. The average assumed compensation increases used to determine net periodic pension benefit costs for 2016, 2015, and 2014 were 5.70 percent, 5.70 percent, and 5.72 percent, respectively.

Mortality. Mortality assumptions are based upon actuarial projections in combination with actuarial studies of the actual mortality experience of TVA's pension and post-retirement plan participants. In 2014 and 2013, TVA had used the Society of Actuaries ("SOA") RP-2000 base table with a modified improvement scale of Scale AA to 2022. In 2015, TVA adopted an adjusted version of the SOA's RP-2014 mortality tables and a modified MP-2014 improvement scale for purposes of measuring its pension and other post-retirement benefit obligations at September 30, 2015. In 2016, TVA maintained its mortality table assumption adopted in 2015 but updated the improvement scale assumption to a modified version of the SOA's RP-2015 scale for purposes of measuring its pension and other post-retirement benefit obligations at September 30, 2016. The mortality rate assumption used to determine the obligations at year-end are used to determine the net periodic benefit costs for the following year.

Health Care Cost Trends. TVA reviews actual recent cost trends and projected future trends in establishing health care cost trend rates. The assumed health care trend rates used to determine pre-Medicare eligible post-retirement benefit obligations for 2016 and 2015 were 6.50 percent and 7.00 percent, respectively. The 2016 health care cost trend rate of 6.50 percent used to determine the pre-Medicare eligible post-retirement benefit obligations is assumed to gradually decrease each successive year until it reaches a 5.00 percent annual increase in health care costs in the years beginning October 1, 2019, and beyond. The assumed health care trend rates used to determine post-Medicare eligible post-retirement benefit obligations for 2016 and 2015 were 0.00 percent and 7.00 percent, respectively. The 2016 health care cost trend rate of 0.00 percent used to determine the post-Medicare eligible post-retirement benefit obligations is assumed to remain at 0.00 percent through 2020 at which point it rises to 4.00 percent in the years beginning October 1, 2021, and beyond as a result of the move of Medicare eligible retirees to a private exchange. The assumed health care cost trend rates used to determine the net periodic post-retirement cost were 7.00 percent for 2016, 7.50 percent for 2015, and 8.00 percent for 2014. TVA plans to use 6.50 percent and 0.00 percent in the determination of 2017 net periodic post-retirement cost for pre-Medicare eligible and post-Medicare eligible, respectively. The current trend rate assumption reflects review of TVA medical claims, more participants moving to the high deductible plan, and TVA moving to a private exchange.

Cost of Living Adjustment. COLAs are an increase in the benefits for eligible retirees to help maintain the purchasing power of benefits as consumer prices increase. Eligible retirees receive a COLA on the base pension portion of the monthly pension benefit equal to the percentage change in the Consumer Price Index for All Urban Consumers ("CPI-U") in January following any year in which the 12-month average CPI-U exceeded by as much as one percent the 12-month average of the CPI-U for the preceding year in which a COLA was given. Prior to October 1, 2016, the minimum COLA was one percent and the maximum was five percent. Effective October 1, 2016, the calculation of the COLA benefit will be equal to the percentage change in the CPI-U minus 0.25 percent with a minimum of one percent and the maximum increased to six percent.

TVA's 2016 COLA assumption was changed to be 1.25 percent in 2017 and 2.00 percent in 2018 and thereafter to better reflect anticipated future plan experience and the plan amendments to the COLA. Prior to 2013, TVA had maintained a 2.50 percent COLA, but TVA determined that a more accurate estimate would be to lower the COLA for the short-term with a gradual increase that would trend back up to the long-term expectations based upon the economic forecast and the Federal Reserve policy. The 2015 and 2014 COLA assumptions assumed that the COLA would trend to the ultimate rate of 2.40 percent in 2021 and to the ultimate rate of 2.50 percent in 2020, respectively.

Sensitivity of Costs to Changes in Assumptions. The following chart reflects the sensitivity of pension cost to changes in certain actuarial assumptions:

Sensitivity to Certain Changes in Pension Assumptions
At September 30, 2016

Actuarial Assumption	Change in Assumption	Impact on 2016 Pension Cost	Impact on 2016 Projected Benefit Obligation
Discount rate	(0.25)	$ 22	$ 388
Rate of return on plan assets	(0.25)	16	N/A

Each fluctuation above assumes that the other components of the calculation are held constant and excludes any impact for unamortized actuarial gains or losses.

Table of Contents

The following chart reflects the sensitivity of post-retirement benefit cost to changes in the health care trend rate:

Sensitivity to Changes in Assumed Health Care Cost Trend Rates
At September 30, 2016

	1% Increase	1% Decrease
Effect on total of service and interest cost components for the year	$ 6	$ (6)
Effect on end-of-year accumulated post-retirement benefit obligation	105	(88)

Each fluctuation above assumes that the other components of the calculation are held constant and excludes any impact for unamortized actuarial gains or losses.

Plan Investments

The qualified defined benefit pension plan (the "Plan"), which includes the Original Benefit Structure and the Cash Balance Benefit Structure, is the only plan that includes qualified plan assets.

The TVARS Board’s current asset allocation policy for the investment of qualified pension plan assets has targets of 47 percent equity including global public and private equity investments, 30 percent fixed income securities, and 23 percent real assets including Treasury Inflation-Protected Securities ("TIPS"), commodities, Master Limited Partnerships ("MLPs"), real estate investment trusts ("REITS"), and private real assets. TVARS has a long-term investment plan that contains a dynamic de-risking strategy which will allocate investments to assets that better match the liability, such as long duration fixed income securities, over time as improved funding status targets are met. Pursuant to the TVARS Rules and Regulations, any proposed changes in asset allocation that would change the system’s assumed rate of investment return are subject to TVA’s review and veto.

As set forth above, the qualified pension plan assets are invested across global public equity, private equity, safety oriented fixed income, opportunistic fixed income, public real assets, and private real assets. The TVARS asset allocation policy includes permissible deviations from these target allocations. The TVARS Board can take action, as appropriate, to rebalance the system’s assets consistent with the asset allocation policy. At September 30, 2016 and 2015, the asset holdings of the system included the following:

Asset Holdings of TVARS
At September 30

		Plan Assets at September 30	
Asset Category	Target Allocation	2016	2015
Global public equity	39 %	44 %	43 %
Private equity	8 %	4 %	5 %
Safety oriented fixed income	15 %	18 %	19 %
Opportunistic fixed income	15 %	10 %	10 %
Public real assets	15 %	15 %	14 %
Private real assets	8 %	9 %	9 %
Total	100 %	100%	100%

Table of Contents

Fair Value Measurements

The following table provides the fair value measurement amounts for assets held by TVARS at September 30, 2016:

TVA Retirement System
At September 30, 2016

	Total[1][2]	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Equity securities	$1,847	$ 1,846	$ —	$ 1
Preferred securities	20	3	17	—
Debt securities				
Corporate debt securities	1,145	—	1,135	10
Residential mortgage-backed securities	181	—	165	16
Debt securities issued by U.S. Treasury and other U.S. government agencies	113	113	—	—
Debt securities issued by foreign governments	332	—	299	33
Asset-backed securities	118	—	87	31
Debt securities issued by state/local governments	16	—	16	—
Commercial mortgage-backed securities	44	—	38	6
Commingled funds measured at net asset value[3]				
Equity	682	—	—	—
Debt	653	—	—	—
Commodities	302	—	—	—
Blended	225	—	—	—
Institutional mutual funds	10	10	—	—
Cash equivalents and other short-term investments	612	41	571	—
Certificates of deposit	16	—	16	—
Private equity measured at net asset value[3]	385	—	—	—
Private real estate measured at net asset value[3]	568	—	—	—
Treasury bills, U.S. Government notes, and securities held as futures and other derivative collateral	13	4	9	—
Securities lending commingled funds measured at net asset value [3]	3	—	—	—
Derivatives				
Futures	2	2	—	—
Swaps	1	—	1	—
Foreign currency forward receivable	5	—	5	—
Total Assets	$7,293	$ 2,019	$ 2,359	$ 97

Liabilities				
Futures	$2	$ 2	$ —	$ —
Foreign currency forward payable	9	—	9	—
Total return swaps	1	—	1	—
Interest rate swaps	3	—	3	—
Credit default swaps	1	—	1	—
Total Liabilities	$16	$ 2	$ 14	$ —

Notes

(1) Excludes approximately $129 million in net payables associated with security purchases and sales and various other payables.

(2) Excludes a $3 million payable for collateral on loaned securities in connection with TVARS's participation in securities lending programs.

(3) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

Table of Contents

The following table provides the fair value measurement amounts for assets held by TVARS at September 30, 2015:

TVA Retirement System
At September 30, 2015

	Total[1][2]	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Equity securities	$1,650	$ 1,649	$ —	$ 1
Preferred securities	36	2	34	—
Debt securities				
Corporate debt securities	1,161	—	1,149	12
Residential mortgage-backed securities	151	—	138	13
Debt securities issued by U.S. Treasury and other U.S. government agencies	362	362	—	—
Debt securities issued by foreign governments	294	—	281	13
Asset-backed securities	156	—	116	40
Debt securities issued by state/local governments	25	—	25	—
Commercial mortgage-backed securities	43	—	32	11
Commingled funds measured at net asset value[3]				
Equity	642	—	—	—
Debt	654	—	—	—
Commodities	244	—	—	—
Blended	206	—	—	—
Institutional mutual funds	26	26	—	—
Cash equivalents and other short-term investments	318	—	318	—
Certificates of deposit	6	—	6	—
Private equity measured at net asset value[3]	389	—	—	—
Private real estate measured at net asset value[3]	556	—	—	—
Treasury bills, U.S. Government notes, and securities held as futures and other derivative collateral	34	21	13	—
Securities lending commingled funds measured at net asset value[3]	3	—	—	—
Derivatives				
Purchased options	2	—	1	1
Foreign currency forward receivable	6	—	6	—
Total Assets	$6,964	$ 2,060	$ 2,119	$ 91
Liabilities				
Futures	$17	$ 17	$ —	$ —

Foreign currency forward payable	4	—	4	—
Written options	2	—	2	—
Interest rate swaps	10	—	10	—
Credit default swaps	1	—	1	—
Total Liabilities	$34	$ 17	$ 17	$ —

Notes

(1) Excludes approximately $130 million in net payables associated with security purchases and sales and various other payables.

(2) Excludes a $3 million payable for collateral on loaned securities in connection with TVARS's participation in securities lending programs.

(3) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

Table of Contents

The following table provides a reconciliation of beginning and ending balances of pension plan assets measured at fair value on a recurring basis where the determination of fair value includes significant unobservable inputs (Level 3):

Fair Value Measurements Using Significant Unobservable Inputs

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at October 1, 2014	$ 66
Net realized/unrealized gains (losses)	(2)
Purchases, sales, issuances, and settlements (net)	33
Transfers in and/or out of Level 3	(6)
Balance at September 30, 2015	91
Net realized/unrealized gains (losses)	18
Purchases, sales, issuances, and settlements (net)	(12)
Transfers in and/or out of Level 3	—
Balance at September 30, 2016	$ 97

The following descriptions of the valuation methods and assumptions used by the Plan to estimate the fair value of investments apply to investments held directly by the Plan. Third-party pricing vendors provide valuations for investments held by the Plan in most instances, except for commingled, private equity, and private real estate funds which are priced at net asset values established by the investment managers. In instances where pricing is determined to be based on unobservable inputs a Level 3 classification has been assigned.

Equity and preferred securities. Investments listed on either a national or foreign securities exchange or traded in the over-the-counter National Market System are generally valued each business day at the official closing price (typically the last reported sale price) on the exchange on which the security is primarily traded and are classified as Level 1. Equity securities, including common stocks and preferred securities, classified as Level 2 may have been priced by dealer quote or using assumptions based on observable market data, such as yields on bonds from the same issuer or industry.

Corporate debt securities. Corporate bonds are valued based upon recent bid prices or the average of recent bid and asked prices when available (Level 2 inputs) and, if not available, they are valued through matrix pricing models. Matrix pricing, which is a mathematical technique commonly used to price debt securities that are not actively traded, values debt securities without relying exclusively on quoted prices for the specific securities but rather by relying on the securities' relationship to other benchmark quoted securities (Level 2 inputs).

Mortgage and asset-backed securities. Residential mortgage-backed securities consist of collateralized mortgage obligations ("CMOs") and U.S. pass-through security pools related to government-sponsored enterprises ("GSEs"). CMO pricing is typically based on either a volatility-driven, multidimensional, single-cash-flow stream model or an option-adjusted spread model. These models incorporate available market data such as trade information, dealer quotes, market color, spreads, bids, and offers. Pricing for GSE securities, including the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association, and the Government National Mortgage Association, is typically based on quotes from the To Be Announced ("TBA") market, which is highly liquid with multiple electronic

platforms that facilitate the execution of trading between investors and broker/dealers. Prices from the TBA market are then compared against other live data feeds as well as input obtained directly from the dealer community. Most residential mortgage-backed securities are considered to be priced using Level 2 inputs because of the nature of their market-data-based pricing models.

Commercial mortgage-backed and asset-backed securities are typically priced based on a single-cash-flow stream model, which incorporates available market data such as trade information, dealer quotes, market color, spreads, bids, and offers. Because of the market-data-based nature of such pricing models, these securities are typically classified as Level 2.

Debt securities issued by U.S. Treasury and other U.S. government agencies. For U.S. Treasury securities, fair values reflect the closing price reported in the active market in which the security is traded (Level 1 inputs). Agency securities are typically priced using evaluated pricing applications and models incorporating U.S. Treasury yield curves. Agency securities are classified as Level 2 because of the nature of their market-data-based pricing models.

Table of Contents

Debt securities issued by state and local governments. Debt securities issued by state and local governments are typically priced using market-data-based pricing models, and are therefore classified as Level 2. These pricing models incorporate market data such as quotes, trading levels, spread relationships, and yield curves, as applicable.

Debt securities issued by foreign governments. Foreign government bonds and foreign government inflation-linked securities are typically priced based on proprietary discounted cash flow models, incorporating option-adjusted spread features as appropriate. Debt securities issued by foreign governments are classified as Level 2 because of the nature of their market-data-based pricing models.

Private equity funds. Private equity limited partnerships are reported at net asset values provided by the fund managers. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The private equity limited partnerships typically make longer-term investments in private companies and seek to obtain financial returns through long-term appreciation based on corporate stewardship, improved operating processes, and financial restructuring, which may involve a merger or acquisition. Significant investment strategies include venture capital; buyout; mezzanine, or subordinated debt; restructuring, or distressed debt; and special situations. Venture capital partnerships consist of two main groupings. Early-stage venture capital partnerships invest in businesses still in the conceptual stage where products may not be fully developed and where revenues and/or profits may be several years away. Later-stage venture capital partnerships invest in more mature companies in need of growth or expansion capital. Buyout partnerships provide the equity capital for acquisition transactions either from a private seller or the public, which may represent the purchase of the entire company or a refinancing or recapitalization transaction where equity is invested. Mezzanine or subordinated debt partnerships provide the intermediate capital between equity and senior debt in a buyout or refinancing transaction and typically own a security in the company that carries current interest payments as well as a potential equity interest in the company. Restructuring or distressed debt partnerships purchase opportunities generated by overleveraged or poorly managed companies. Special situation partnerships include organizations with a specific industry focus not covered by the other private equity subclasses or unique opportunities that fall outside the regular subclasses.

The private equity funds have no investment withdrawal provisions prior to the termination of the partnership. Partnerships generally continue 10 to 12 years after the inception of the fund. The partnerships are subject to two to three one-year extensions at the discretion of the General Partner. Partnerships can generally be dissolved by an 80 percent vote in interest by all limited partners, with some funds requiring the occurrence of a specific event.

Private real estate investments. The Plan’s ownership in private real estate investments consists of a pro rata share and not a direct ownership of the underlying investments. The fair values of the Plan’s private real estate investments are estimated utilizing net asset values provided by the investment managers. These investments have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015. The investment strategies and methodologies utilized by the investment managers to calculate their net asset values are summarized as follows:

The Plan is invested in limited partnerships that invest in real estate securities, real estate partnerships, and direct real estate properties. This includes investments in office, multifamily, industrial, and retail investment properties in the U.S. and international markets. The investment strategy focuses on distressed, opportunistic, and value-added opportunities. Partnership investments also include mortgage and/or real estate-related fixed-income instruments and related securities. Investments are diversified by property type and geographic location.

The Plan is invested in a commingled fund that develops, renovates, and re-leases real estate properties to create value. Investments are predominantly in top tier real estate markets that offer deep liquidity. Property types include residential, office, industrial, hotel, retail, and land. Properties are diversified by geographic region within the U.S.

domestic market. The Plan is invested in a second commingled fund that invests primarily in core, well-leased, operating real estate properties with a focus on income generation. Investments are diversified by property type with a focus on office, industrial, apartment, and retail. Properties are diversified within the U.S. with an overweight to major market and coastal regions.

Fair value estimates of the underlying investments in these limited partnerships and commingled fund investments are primarily based upon property appraisal reports prepared by independent real estate appraisers within a reasonable amount of time following acquisition of the real estate and no less frequently than annually thereafter. The appraisals are based on one or a combination of three methodologies: cost of reproduction analysis, discounted cash flow analysis, and sales comparison analysis. Pricing for certain investments in mortgage-backed and asset-backed securities is typically based on models that incorporate observable inputs.

The Plan is invested in a private real estate investment trust formed to make direct or indirect investments in commercial timberland properties. Pricing for these types of investments is based on comprehensive appraisals that are conducted shortly after initial purchase of properties and at three-year intervals thereafter. All appraisals are conducted by third-party timberland appraisal firms. Appraisals are based on either a sales comparison analysis or a discounted cash flow analysis.

Table of Contents

Derivatives. The Plan invests in a variety of derivative instruments. The valuation methodologies for these instruments are as follows:

Futures. The Plan enters into futures. The futures contracts are listed on either a national or foreign securities exchange and are generally valued each business day at the official closing price (typically the last reported sales price) on the exchange on which the security is primarily traded. The pricing is performed by third-party vendors. Since futures are priced by an exchange in an active market, they are classified as Level 1.

Options. The Plan enters into purchased and written options. Options that are listed on either a national or foreign securities exchange are generally valued each business day at the official closing price (typically the last reported sales price) on the exchange on which the security is primarily traded. These options are classified as Level 1. Options traded over the counter and not on exchanges are priced by third-party vendors and are classified as Level 2.

Swaps. The Plan enters into various types of swaps. Credit default swaps are priced at market using models that consider cash flows, credit curves, recovery rates, and other factors. The pricing is performed by third-party vendors, and in some cases by clearing exchanges. Interest rate swap contracts are priced at market using forward rates derived from the swap curve, and the pricing is also performed by third-party vendors, and in some cases by clearing exchanges. Other swaps such as equity index swaps and variance swaps are priced by third-party vendors using market inputs such as spot rates, yield curves, and volatility. The Plan's swaps are generally classified as Level 2 based on the observable nature of their pricing inputs.

Foreign currency forwards. The Plan enters into foreign currency forwards. All commitments are marked to market daily at the applicable translation rates, and any resulting unrealized gains or losses are recorded. Foreign currency forwards are priced by third-party vendors and are classified as Level 2.

Commingled funds. The Plan invests in commingled funds, which include collective trusts, unit investment trusts, and similar investment funds that predominantly hold debt and/or equity securities as underlying assets. The Plan’s ownership consists of a pro rata share and not a direct ownership of an underlying investment. These commingled funds are valued at their closing net asset values (or unit value) per share as reported by the managers of the commingled funds and as supported by the unit prices of actual purchases and sale transactions occurring as of or close to the financial statement date. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The Plan is invested in equity commingled funds, which can be categorized as either passively managed index funds or actively managed funds. The equity index funds seek to track the performance of a particular index by replicating its capitalization and characteristics. Passive fund benchmark indices include the Russell 1000 index, the S&P 500 index, and the Morgan Stanley Capital International All Country World Index ex-U.S. The actively managed equity funds seek to outperform certain equity benchmarks through a combination of fundamental and technical analysis. Active funds select portfolio positions based upon their research.

The Plan is invested in debt commingled funds, which can be categorized as either passively managed index funds or actively managed funds. The plan’s debt index fund invests in a diversified portfolio of fixed-income securities and derivatives of varying maturities to replicate the characteristics of the Barclays Capital U.S. Aggregate Bond Index. The fund seeks to track the total return of the Barclays Capital U.S. Aggregate Bond Index. The actively managed debt funds seek to outperform certain fixed-income benchmarks through fundamental research and analysis. The funds invest in a diversified portfolio of fixed income securities and derivatives of varying maturities. The objective is to achieve a positive relative total return through active credit selection.

The Plan is invested in commodity commingled funds, which can be categorized as actively managed funds. The funds seek to outperform certain commodity benchmarks through fundamental research and analysis. The funds invest in a diversified portfolio of commodity securities and derivatives of varying maturities. The objective is to achieve a positive relative return through active security selection.

The Plan is invested in commingled funds, which invest across multiple asset classes that can be categorized as blended. These funds seek to outperform a passive benchmark through active security selection. The funds invest in securities across equity, fixed income, currency, and commodities. The portfolios employ fundamental, quantitative, and technical analysis.

The Plan’s investments in equity, debt, blended, and commodity commingled funds can generally be redeemed upon notification of the investment managers, with required notice periods varying from same-day to monthly. These investments do not have unfunded commitments.

Collateral held under securities lending arrangements is invested in commingled funds which are valued at their closing net asset values (or unit value) per share as reported by the managers of the commingled funds and as supported by the unit prices of actual purchases and sale transactions occurring as of or close to the financial statement date.

Cash equivalents and other short-term investments and certificates of deposit. Cash equivalents and other short -term investments are highly liquid securities with maturities of less than three months and 12 months, respectively. These

Table of Contents

consist primarily of discount securities such as commercial paper, repurchase agreements, U.S. Treasury bills, and certain agency securities. These securities, as well as certificates of deposit, may be priced at cost, which approximates fair value due to the short-term nature of the instruments. Model based pricing which incorporates observable inputs may also be utilized. These securities are classified as Level 2. Active market pricing may be utilized for U.S. Treasury bills, which are classified as Level 1.

The valuation methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Reclassification. In the September 30, 2015 fair value measurement table, securities lending commingled funds have been reclassified out of Level 2. In accordance with Accounting Standards Codification Subtopic 820-10, these funds are measured at fair value using the net asset value per share (or its equivalent) practical expedient, and as such have not been classified in the fair value hierarchy.

Cash Flows

Estimated Future Benefit Payments. The following table sets forth the estimated future benefit payments under the benefit plans.

Estimated Future Benefits Payments
At September 30, 2016

	Pension Benefits[1]	Other Post-Retirement Benefits
2017	$ 770	$ 35
2018	771	35
2019	774	33
2020	778	32
2021	780	30
2022 - 2026	$ 3,876	$ 132

Note
(1) Participants are assumed to receive the Fixed Fund in a lump sum in lieu of available annuity options allowed for certain grandfathered participants resulting in higher estimated pension benefits payments.

Contributions. The minimum contribution for 2016 was $209 million; however, TVA made a $275 million contribution to TVARS. The 2015 minimum contribution was $215 million; however, TVA made a $275 million contribution to TVARS. In 2016, TVA made contributions of $6 million to the SERP and $47 million to the other post-retirement benefit plans. In 2015, TVA made contributions of $7 million to the SERP and $44 million to the other post-retirement benefit plans. TVA expects to contribute $300 million to TVARS, $5 million to the SERP, and $35 million to the other post-retirement benefit plans in 2017.

Other Post-Employment Benefits

Post-employment benefit cost estimates are revised to properly reflect changes in actuarial assumptions made at the end of each year. TVA utilizes a discount rate determined by reference to the U.S. Treasury Constant Maturities corresponding to calculated average durations of TVA’s future estimated post-employment claims payments. The use of a 1.60 percent discount rate resulted in the recognition of approximately $35 million in expenses in 2016 and an

unpaid benefit obligation of $501 million at September 30, 2016. The 2016 current portion of the obligation is $41 million and is recorded in Accounts payable and accrued liabilities. The 2016 long-term portion of $460 million is recorded in post-retirement and post-employment benefit obligations. The amounts in the current portion of the obligation represent the total unpaid losses and administrative fees for each year that are due one month following TVA’s fiscal year-end.

The use of a 2.05 percent discount rate resulted in the recognition of approximately $39 million in expenses in 2015 and an unpaid benefit obligation of $511 million at September 30, 2015. The 2015 current portion of the obligation is $46
million and is recorded in Accounts payable and accrued liabilities. The 2015 long-term portion of $465 million is recorded in post-retirement and post-employment benefit obligations. The use of a 2.52 percent discount rate resulted in the recognition of approximately $34 million in expenses in 2014 and an unpaid benefit obligation of $520 million at September 30, 2014.

The decrease in the unpaid benefit obligation when comparing 2016 to 2015 is due primarily to demographic experience gains from a decrease in loss experience and fewer claimants. These gains were partially offset by the decrease of the discount rate from 2.05 percent percent in 2015 to 1.60 percent in 2016. The decrease in the unpaid benefit obligation when comparing 2015 to 2014 was due primarily to demographic experience gains from a decrease in loss experience and fewer

Table of Contents

claimants. These gains were partially offset by the decrease of the discount rate from 2.52 percent in 2014 to 2.05 percent in 2015.

20. Commitments and Contingencies

Commitments

At September 30, 2016, the amounts of contractual cash commitments maturing in each of the next five years and beyond are shown below:

Commitments and Contingencies
Payments due in the years ending September 30

	2017	2018	2019	2020	2021	Thereafter	Total
Membership interests of variable interest entity subject to mandatory redemption	$2	$2	$2	$3	$3	$ 23	$35
Lease obligations							
Capital[1]	51	51	50	50	50	564	816
Non-cancelable operating[2]	43	32	25	25	25	13	163
Purchase obligations							
Power[3]	254	265	266	246	244	1,541	2,816
Fuel[4]	1,312	917	569	324	327	1,006	4,455
Other[5]	88	65	58	47	34	604	896
Unfunded loan commitments	9	4	—	—	—	—	13
Payments on other financings	76	76	75	73	207	26	533
Total	$1,835	$1,412	$1,045	$768	$890	$ 3,777	$9,727

Notes
(1) Includes the interest component of capital leases based on the interest rates stated in the lease agreements and excludes certain related executory costs. Minimum commitments related to executory costs are included in purchase obligations.
(2) Does not include purchased power agreements that are accounted for as operating leases and included in power purchase obligations.
(3) Includes commitments for energy and/or capacity under power purchase agreements from coal-fired, hydroelectric, diesel, and gas-fired facilities, as well as transmission service agreements to support purchases of power from the market and wind power purchase agreements.
(4) Includes commitments to purchase nuclear fuel, coal, and natural gas, as well as related transportation and storage services.
(5) Primarily includes long-term service contracts, contracts that contain minimum purchase levels for the purchase of limestone along with related storage and transportation, and contractual obligations related to load control programs.

In addition to the cash requirements, above, TVA has contractual obligations in the form of revenue discounts related to energy prepayments. See Note 1 — Energy Prepayment Obligations.

Energy Prepayment Obligations
Payments due in the years ending September 30

	2017	2018	2019	2020	2021	Thereafter	Total
Energy prepayment obligations	$100	$100	$ 10	$ —	$ —	$ —	$210

Interest payments relating to energy prepayment obligations	46	46	4	—	—	—	96
Total	$146	$146	$ 14	$ —	$ —	$ —	$306

Membership Interests of VIE Subject to Mandatory Redemption. At September 30, 2016, TVA had outstanding membership interests subject to mandatory redemption (including current portion) of $35 million issued by one of its VIEs of which it is the primary beneficiary. See Note 9.

Leases. TVA leases certain property, plant, and equipment under agreements with terms ranging from one to 38 years. Of the total obligations for TVA's capital leases, $634 million represents the cost of financing. TVA's rental expense for

Table of Contents

operating leases, excluding power purchase agreement operating leases, was $44 million in 2016, $44 million in 2015, and $41 million in 2014.

Power Purchase Obligations. TVA has contracted with various independent power producers and LPCs for additional capability to be made available to TVA. Several of these agreements have contractual minimum payments and are accounted for as either capital or operating leases. In total, these agreements provide 2,227 MW of summer net capability. The remaining terms of the agreements range up to 16 years. Additionally, TVA has contracted with regional transmission organizations to reserve 1,450 MW of transmission service to support purchases from the market and wind power purchase agreements. The remaining terms of these agreements range up to five years. TVA incurred $261 million, $262 million, and $264 million of expense under these power purchase and transmission service agreements during 2016, 2015, and 2014, respectively. Lease-related costs under TVA’s power purchase agreements not accounted for as capital leases are included in TVA's consolidated statements of operations as purchased power expense and are expensed as incurred.

Under federal law, TVA is obligated to purchase power from qualifying facilities, cogenerators, and small power producers. As of September 30, 2016, there was a combined qualifying capacity of 259 MW from 25 different generation sources, from which TVA purchased power under this law. TVA’s obligations to purchase power from these qualifying facilities are not included in the Commitments and Contingencies table.

Fuel Purchase Obligations. TVA has approximately $900 million in long-term fuel purchase commitments ranging in terms of up to 4 years for the purchase and transportation of coal and approximately $1.3 billion ranging in terms of up to 20 years for the purchase, transportation, and storage of natural gas. TVA also has approximately $2.3 billion of long-term commitments ranging in terms of up to 14 years for the purchase of enriched uranium and fabrication of nuclear fuel assemblies. TVA purchased $1.5 billion, $973 million, and $718 million under these fuel purchase obligations during 2016, 2015, and 2014, respectively.

Other Obligations. Other obligations of $896 million consist of contracts at September 30, 2016, for goods and services primarily related to capital projects as well as other major recurring operating costs. TVA incurred $174 million, $93 million, and $91 million of expense under these other obligations during 2016, 2015, and 2014, respectively.

Leasebacks. At September 30, 2016, and September 30, 2015, the outstanding leaseback obligations related to CTs and QTE were $467 million and $616 million, respectively. See Note 12 — Lease/Leasebacks.

Contingencies

Nuclear Insurance. The Price-Anderson Act provides a layered framework of protection to compensate for losses arising from a nuclear event in the United States. For the first layer, all of the NRC nuclear plant licensees, including TVA, purchase $375 million of nuclear liability insurance from American Nuclear Insurers for each plant with an operating license. Funds for the second layer, the Secondary Financial Program, would come from an assessment of up to $127 million from the licensees of each of the 102 NRC licensed reactors in the United States. The assessment for any nuclear accident would be limited to $19 million per year per unit. American Nuclear Insurers, under a contract with the NRC, administers the Secondary Financial Program. With its seven licensed units, TVA could be required to pay a maximum of $891 million per nuclear incident, but it would have to pay no more than $133 million per incident in any one year. When the contributions of the nuclear plant licensees are added to the insurance proceeds of $375 million, over $13.0 billion, including a five percent surcharge for legal expenses, would be available. Under the Price-Anderson Act, if the first two layers are exhausted, the U.S. Congress is required to take action to provide additional funds to cover the additional losses.

TVA carries property, decommissioning, and decontamination insurance of $5.1 billion for its licensed nuclear plants, with up to $2.1 billion available for a loss at any one site, to cover the cost of stabilizing or shutting down a reactor after an accident. Some of this insurance, which is purchased from Nuclear Electric Insurance Limited ("NEIL"), may require the payment of retrospective premiums up to a maximum of approximately $132 million.

TVA purchases accidental outage (business interruption) insurance for TVA's nuclear sites from NEIL. In the event that an accident covered by this policy takes a nuclear unit offline or keeps a nuclear unit offline, NEIL will pay TVA, after a waiting period, an indemnity (a set dollar amount per week) up to a maximum indemnity of $490 million per unit. This insurance policy may require the payment of retrospective premiums up to a maximum of approximately $37 million.

Decommissioning Costs. TVA recognizes legal obligations associated with the future retirement of certain tangible long-lived assets related primarily to coal-fired generating plants and nuclear generating plants, hydroelectric generating plants/dams, transmission structures, and other property-related assets.

Nuclear Decommissioning. Provision for decommissioning costs of nuclear generating units is based on options prescribed by the NRC procedures to dismantle and decontaminate the facilities to meet the NRC criteria for license termination. At September 30, 2016, the estimated future decommissioning cost of $2.5 billion was included in AROs. The actual decommissioning costs may vary from the derived estimates because of, among other things, changes in current assumptions, such as the assumed dates of decommissioning, changes in regulatory requirements, changes in technology, and changes in

Table of Contents

the cost of labor, materials, and equipment. Utilities that own and operate nuclear plants are required to use different procedures in calculating nuclear decommissioning costs under GAAP than those that are used in calculating nuclear decommissioning costs when reporting to the NRC. The two sets of procedures produce different estimates for the costs of decommissioning primarily because of differences in the underlying assumptions.

TVA maintains a NDT to provide funding for the ultimate decommissioning of its nuclear power plants. See Note 15. TVA monitors the value of its NDT and believes that, over the long term and before cessation of nuclear plant operations and commencement of decommissioning activities, adequate funds from investments and additional contributions, if necessary, will be available to support decommissioning. TVA's operating nuclear power units are licensed through 2033 - 2055, depending on the unit. It may be possible to extend the operating life of some of the units with approval from the NRC. See Note 7 — Nuclear Decommissioning Costs and Note 11.

Non-Nuclear Decommissioning. The estimated future non-nuclear decommissioning ARO was $1.6 billion at September 30, 2016. This decommissioning cost estimate involves estimating the amount and timing of future expenditures and making judgments concerning whether or not such costs are considered a legal obligation. Estimating the amount and timing of future expenditures includes, among other things, making projections of the timing and duration of the asset retirement process and how costs will escalate with inflation. The actual decommissioning costs may vary from the derived estimates because of changes in current assumptions, such as the assumed dates of decommissioning, changes in regulatory requirements, changes in technology, and changes in the cost of labor, materials, and equipment.

TVA maintains an ART to help fund the ultimate decommissioning of its power assets. See Note 15. Estimates involved in determining if additional funding will be made to the ART include inflation rate and rate of return projections on the fund investments. See Note 7 — Non-Nuclear Decommissioning Costs and Note 11.

Environmental Matters. TVA's power generation activities, like those across the utility industry and in other industrial sectors, are subject to most federal, state, and local environmental laws and regulations. Major areas of regulation affecting TVA's activities include air quality control, water quality control, and management and disposal of solid and hazardous wastes. In the future, regulations in all of these areas are expected to become more stringent. Regulations are also expected to apply to new emissions and sources, with a particular emphasis on climate change, renewable generation, and energy efficiency.

TVA has incurred, and expects to continue to incur, substantial capital and operating and maintenance costs to comply with evolving environmental requirements primarily associated with, but not limited to, the operation of TVA's coal-fired generating units. It is virtually certain that environmental requirements placed on the operation of TVA's coal-fired and other generating units will continue to become more restrictive and potentially also apply to new emissions and sources. Litigation over emissions or discharges from coal-fired generating units is also occurring, including litigation against TVA. Failure to comply with environmental laws can result in TVA being subject to enforcement actions, which can lead to the imposition of significant civil liability, including fines and penalties, criminal sanctions, and/or the shutting down of non-compliant facilities.

From the 1970s to 2016, TVA spent approximately $6.5 billion to reduce emissions from its power plants, including $259 million, $315 million, and $378 million in 2016, 2015, and 2014, respectively, on clean air controls. TVA estimates that compliance with future Clean Air Act ("CAA") requirements (excluding greenhouse gas ("GHG") requirements) could lead to additional costs of $375 million from 2017 to 2021 for additional clean air controls. There could be additional material costs if reductions of GHGs, including carbon dioxide ("CO_2"), are mandated under the CAA or by legislation or regulation, or if future legislative, regulatory, or judicial actions lead to more stringent emission reduction requirements for conventional pollutants. These costs cannot reasonably be predicted at this time because of the uncertainty of such potential actions. TVA also estimates additional expenditures

of $1.2 billion from 2017 to 2022 relating to TVA's coal combustion residual conversion program as well as expenditures of $400 million from 2017 to 2023 relating to compliance with Clean Water Act requirements such as effluent limitation guidelines.

Liability for releases and cleanup of hazardous substances is primarily regulated by the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), and other federal and parallel state statutes. In a manner similar to many other industries and power systems, TVA has generated or used hazardous substances over the years.

TVA is aware of alleged hazardous-substance releases at certain non-TVA areas in connection with which other potentially responsible parties may seek monetary damages from TVA. There is information indicating that TVA sent a small amount of equipment to Ward Transformer ("Ward"), a non-TVA site in Raleigh, North Carolina. The site is contaminated by PCBs from electrical equipment due to Ward's practice of draining such equipment. A working group of potentially responsible parties is cleaning up on-site contamination in accordance with an agreement with the EPA. The cleanup effort has been divided into multiple phases, including on-site and downstream cleanup activities, two phases of soil cleanup, supplemental groundwater remediation, and cleanup of off-site contamination in the downstream drainage basin. TVA settled its potential liability for the on-site removal action for $300 thousand and has agreed to pay approximately $8 thousand to settle its potential liability in connection with the EPA study of the site. On September 22, 2016, the Department of Justice lodged a consent decree with the United States District Court for the Eastern District of North Carolina. Under the consent decree, TVA agreed to pay $10 thousand to settle all of its potential remaining liability associated with the site.

Table of Contents

TVA operations at some TVA facilities have resulted in contamination that TVA is addressing. At both September 30, 2016 and September 30, 2015, TVA's estimated liability for cleanup and similar environmental work for those sites for which sufficient information is available to develop a cost estimate (primarily the TVA sites) was approximately $23 million on a non-discounted basis and was included in Accounts payable and accrued liabilities and Other long-term liabilities on the Consolidated Balance Sheets.

Legal Proceedings

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting TVA's activities, as a result of a catastrophic event or otherwise.

General. At September 30, 2016, TVA had accrued $61 million of probable losses with respect to Legal Proceedings. Of the accrued amount, $18 million is included in Other long-term liabilities and $43 million is included in Accounts payable and accrued liabilities. TVA is currently unable to estimate any amount or any range of amounts of reasonably possible losses, and no assurance can be given that TVA will not be subject to significant additional claims and liabilities. If actual liabilities significantly exceed the estimates made, TVA's results of operations, liquidity, and financial condition could be materially adversely affected.

Environmental Agreements. In April 2011, TVA entered into two substantively similar agreements, one with the EPA and the other with Alabama, Kentucky, North Carolina, Tennessee, and three environmental advocacy groups: the Sierra Club, the National Parks Conservation Association, and Our Children's Earth Foundation (collectively, the "Environmental Agreements"). They became effective in June 2011. Under the Environmental Agreements, TVA committed to (1) retire on a phased schedule 18 coal-fired units with a combined summer net dependable capability of 2,200 MW, (2) control, convert, or retire additional coal-fired units with a combined summer net dependable capability of 3,500 MW, (3) comply with annual, declining emission caps for SO_2 and NO_x, (4) invest $290 million in certain TVA environmental projects, (5) provide $60 million to Alabama, Kentucky, North Carolina, and Tennessee to fund environmental projects, and (6) pay civil penalties of $10 million. In exchange for these commitments, most past claims against TVA based on alleged New Source Review and associated violations were waived and cannot be brought against TVA. Future claims including those for sulfuric acid mist and GHG emissions can still be brought against TVA, and claims for increases in particulates can also be pursued at many of TVA's coal-fired units. Additionally, the Environmental Agreements do not address compliance with new laws and regulations or the cost associated with such compliance.

The liabilities related to the Environmental Agreements are included in Accounts payable and accrued liabilities and Other long-term liabilities on the September 30, 2016 Consolidated Balance Sheet. In conjunction with the approval of the Environmental Agreements, the TVA Board determined that it was appropriate to record TVA's obligations under the Environmental Agreements as regulatory assets, and they are included as such on the September 30, 2016 Consolidated Balance Sheet and will be recovered in rates in future periods.

Case Involving Tennessee Valley Authority Retirement System. In March 2010, eight current and former participants in and beneficiaries of TVARS filed suit in the United States District Court for the Middle District of Tennessee challenging the TVARS Board's 2009 decision to amend the TVARS Rules and Regulations ("Rules") in exchange for a $1 billion contribution from TVA. The changes approved by the TVARS Board (1) suspended the TVA contribution requirements for 2010 through 2013, (2) reduced the calculation for cost-of-living adjustments ("COLAs") for CY 2010 through CY 2013, (3) reduced the interest crediting rate for the fixed fund accounts, and (4) increased the eligibility age to receive COLAs from age 55 to 60. The plaintiffs alleged that these changes violated their constitutional rights (due process, equal protection, and property rights), violated the Administrative Procedure Act,

and violated the substantive and procedural components of an anti-cutback provision in the Rules. TVA and the plaintiffs filed cross motions for summary judgment. In August 2015, the court granted TVA's motion for summary judgment and dismissed the case with prejudice. In September 2015, the plaintiffs appealed this decision to the United States Court of Appeals for the Sixth Circuit (the "Sixth Circuit"). On August 12, 2016, the Sixth Circuit held that the plaintiffs' rights were not violated because COLAs are not vested benefits. A few other issues were remanded to the district court for further proceedings.

Cases Involving Gallatin Fossil Plant CCR Facilities. In January 2015, the State of Tennessee filed a lawsuit against TVA in the Chancery Court for Davidson County, Tennessee. The lawsuit alleges that waste materials have been released into waters of the state from coal combustion residual ("CCR") facilities at Gallatin Fossil Plant ("Gallatin") in violation of the Tennessee Water Quality Control Act and the Tennessee Solid Waste Disposal Act. TDEC is seeking injunctive relief as well as civil penalties of up to $17,000 per day for each day TVA is found to have violated the statutes. In February 2015, the court issued an order allowing the Tennessee Scenic Rivers Association ("TSRA") and the Tennessee Clean Water Network ("TCWN") to intervene in the case. In January 2016, the court issued an agreed temporary injunction proposed by the State of Tennessee and TVA requiring TVA to conduct further environmental studies at Gallatin to determine the extent of soil, surface water, and groundwater contamination by CCR material at the site and to support the development of any necessary corrective action plan in cooperation with the other parties. Pursuant to the injunction, TVA submitted an Environmental Investigation Plan ("EIP") to the State of Tennessee on March 18, 2016. Following State comments on the draft EIP, TVA submitted a revised EIP to the

Table of Contents

State on June 20, 2016. On June 30, 2016, the State provided conditional approval to proceed with a portion of the investigation. In September and October 2016, the State provided additional approvals to proceed with other portions of the investigation. Trial in this action is scheduled to begin in October 2017.

In April 2015, TSRA and TCWN filed a separate lawsuit against TVA in the United States District Court for the Middle District of Tennessee alleging that waste materials have been released into the Cumberland River from CCR facilities at Gallatin in violation of the Clean Water Act. The plaintiffs are seeking injunctive relief and civil penalties of up to $37,500 per violation per day. In June 2015, TVA filed a motion to dismiss the majority of the claims in the federal case based on the State of Tennessee’s diligent prosecution of substantially overlapping claims in its state court action. Since then, TVA has filed several other motions seeking to dismiss all claims in the case on other bases as well. In September 2016, the court ruled on all pending motions. The court held, among other things, that the lawsuit could proceed to trial but that the court could consider issues only to the extent that they are not being considered in the state court action. Trial is currently scheduled for January 30, 2017.

Case Involving the NRC Waste Confidence Decision on Spent Nuclear Fuel Storage. In June 2012, the U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") vacated the NRC's updated Waste Confidence Decision ("WCD"). The WCD is a generic determination by the NRC that spent nuclear fuel can be safely managed until a permanent off-site repository is established; this determination has been a key component of NRC licensing activities since 1984. In August 2014, the NRC issued its final rule on continued storage of spent nuclear fuel (the "Continued Storage Rule"), which replaced the WCD. Several petitions for review challenging the Continued Storage Rule were filed in October 2014 in the D.C. Circuit. In June 2016, the D.C. Circuit upheld the Continued Storage Rule. In July 2016, the petitioners filed a petition for rehearing en banc, and in August 2016, the petition for rehearing was denied.

Administrative Proceeding Regarding Renewal of Operating License for Sequoyah Nuclear Plant. In May 2013, the Blue Ridge Environmental Defense League ("BREDL"), the Bellefonte Efficiency and Sustainability Team ("BEST"), and Mothers Against Tennessee River Radiation filed a petition with the NRC opposing the renewal of the operating license for Sequoyah Units 1 and 2. The petition contained eight specific contentions challenging the adequacy of the license renewal application that TVA submitted to the NRC in January 2013. TVA filed a response with the Atomic Safety and Licensing Board ("ASLB") opposing the admission of all eight of the petitioners' contentions. In July 2013, the ASLB concluded that BREDL was the only one of the three petitioners that had standing to intervene in this proceeding. The ASLB also held that seven of the contentions were inadmissible, and held one portion of the remaining contention related to the WCD in abeyance pending further direction from the NRC. In September 2014, the ASLB denied BREDL's contention related to the WCD. Following the publication of the Continued Storage Rule, BREDL filed a petition with the NRC seeking suspension of the issuance of a final decision in the Sequoyah proceeding and a motion with the ASLB seeking leave to file a new, late-filed contention related to the Continued Storage Rule. The NRC rejected this petition in February 2015. See Case Involving the NRC Waste Confidence Decision on Spent Nuclear Fuel Storage. With the NRC’s rejection of the final pending contention, the ASLB issued an order terminating the administrative proceeding in March 2015. In April 2015, BREDL filed motions with the NRC to reopen the record and to admit a new contention arguing that the environmental impact statement for Sequoyah must incorporate by reference the generic environmental impact statement released in connection with the Continued Storage Rule. The NRC rejected these motions in June 2015. In August 2015, BREDL asked the D.C. Circuit to review the NRC's decision after the court issues a decision on BREDL's petition for review challenging the Continued Storage Rule. The NRC issued the license renewal of the facility operating licenses for both units effective September 28, 2015. The petition for review was dismissed on September 21, 2016.

Administrative Proceedings Regarding Bellefonte Units 3 and 4. TVA submitted its combined construction and operating license ("COL") application for two Advanced Passive 1000 reactors at Bellefonte Nuclear Plant ("Bellefonte") Units 3 and 4 to the NRC in October 2007. In June 2008, BEST, BREDL, and Southern Alliance for Clean Energy ("SACE") submitted a joint petition for intervention and a request for a hearing. The ASLB denied

standing to BEST and admitted four of the 20 contentions submitted by BREDL and SACE. The NRC reversed the ASLB's decision to admit two of the four contentions, leaving only two contentions (concerning the estimated costs of the new nuclear plant and the impact of the facility's operations on aquatic ecology) to be litigated in a future hearing. In January 2012, TVA notified the ASLB that the NRC had placed the COL in “suspended” status indefinitely at TVA's request, and TVA requested that the ASLB hold the proceeding in abeyance pending a decision by TVA regarding the best path forward with regards to the COL. In April 2012, the ASLB issued an order maintaining the proceeding in "active" status, but amending the disclosure schedule. The ASLB again modified the disclosure schedule in December 2015. In February 2016, TVA filed a motion with the ASLB to withdraw its COL application for Bellefonte Units 3 and 4. On February 29, 2016, the ASLB granted TVA’s motion and terminated the proceeding. On March 28, 2016, TVA requested that the NRC remove the COL application from the docket, and the request was subsequently granted.

Case Involving Watts Bar Unit 2 Operating License. In October 2015, the NRC issued the operating license for Watts Bar Unit 2. In November 2015, SACE filed a petition in the D.C. Circuit seeking review of the issuance of the operating license for Watts Bar Unit 2. TVA moved to intervene in the proceeding in December 2015, and the motion was subsequently granted. The case was held in abeyance while the D.C. Circuit resolved the ongoing challenge to the Continued Storage Rule. See Case Involving the NRC Waste Confidence Decision on Spent Nuclear Fuel Storage above. The petition for review was dismissed on September 21, 2016.

Administrative Proceeding Regarding Browns Ferry Nuclear Plant Extended Power Uprate. In September 2016, the BEST and Mothers Against Tennessee River Radiation requested a hearing and sought to intervene in TVA’s license amendment

Table of Contents

request for extended power uprates at Browns Ferry Nuclear Plant. The petitioners contend that TVA's application did not correctly report the potential risk from operating at increased power levels. TVA and the NRC staff filed answers opposing the petition to intervene in October 2016. The ASLB rejected the petition to intervene in November 2016.

Bull Run Fossil Plant Clean Air Act Permit. In September 2015, the Sierra Club and Environmental Integrity Project filed a petition with the EPA requesting that the EPA object to the CAA renewal permit issued by TDEC to TVA for operations at Bull Run. The petitioners alleged that the permit contained impermissibly lax monitoring requirements for opacity. In February 2016, the petitioners sued the EPA for not responding to the petition in a timely manner. In August 2016, the United States District Court for the District of Columbia entered a consent decree requiring the EPA to respond to the petition by November 10, 2016. On November 10, 2016, the EPA granted the petition and ordered TDEC to revise the permit to assure compliance with the opacity limits. The permit remains in effect during this process.

Gallatin Fossil Plant Clean Air Act Permit. In August 2016, the Sierra Club filed a petition with the EPA requesting that the EPA object to the CAA renewal permit issued by TDEC to TVA for operations at Gallatin. The petition alleges that the permit (1) contains compliance evaluation requirements for opacity, particulate matter, and fugitive dust that are impermissibly lax, (2) includes allowances for startup, shutdown, and malfunctions that are inconsistent with the CAA, (3) fails to include reporting requirements to ensure compliance with the Environmental Agreements, and (4) contains impermissibly high SO_2 emission limits. While the EPA has 60 days under the CAA to respond, the EPA has not yet acted on the petition.

21. Related Parties

TVA is a wholly-owned corporate agency of the federal government, and because of this relationship, TVA’s revenues and expenses are included as part of the federal budget as a revolving fund. TVA’s purpose and responsibilities as an agency are described under the “Other Agencies” section of the federal budget.

TVA currently receives no appropriations from Congress and funds its business using power system revenues, power financings, and other revenues. TVA is a source of cash to the federal government. With its payment of $10 million during 2014, TVA fulfilled its requirement under the 1959 amendment to the TVA Act to repay $1.0 billion of its Power Program Appropriation Investment. TVA will continue to pay a return on the outstanding balance of this investment indefinitely. See Note 16 — Appropriation Investment.

TVA also has access to a financing arrangement with the U.S. Treasury pursuant to the TVA Act. TVA and the U.S. Treasury entered into a memorandum of understanding under which the U.S. Treasury provides TVA with a $150 million credit facility. This credit facility was renewed and has a maturity date of September 30, 2017. Access to this credit facility or other similar financing arrangements has been available to TVA since the 1960s. See Note 12 — Credit Facility Agreements.

In the normal course of business, TVA contracts with other federal agencies for sales of electricity and other services. Transactions with agencies of the federal government were as follows:

Related Party Transactions
For the years ended, or at, September 30

	2016	2015	2014
Revenue from sales of electricity	$126	$130	$128
Other income	161	167	137
Expenditures			
Operating expenses	216	227	267
Additions to property, plant, and equipment	32	37	19

Cash and cash equivalents	54	45	35
Accounts receivable, net	129	106	85
Accounts payable and accrued liabilities	77	98	146
Long-term power bonds, net	4	5	3
Return on Power Program Appropriation Investment	6	5	4
Return of Power Program Appropriation Investment	—	—	10

Table of Contents

22. Unaudited Quarterly Financial Information

A summary of the unaudited quarterly results of operations for the years 2016 and 2015 follows. This summary should be read in conjunction with the audited consolidated financial statements appearing herein. Results for interim periods may fluctuate as a result of seasonal weather conditions, changes in rates, and other factors.

Unaudited Quarterly Financial Information

2016

	First	Second	Third	Fourth	Total
Operating revenues	$2,280	$2,571	$2,479	$3,286	$10,616
Operating expenses	2,052	1,982	1,913	2,343	8,290
Operating income	228	589	566	943	2,326
Net income (loss)	(37)	318	291	661	1,233

Unaudited Quarterly Financial Information

2015

	First	Second	Third	Fourth	Total
Operating revenues	$2,411	$2,863	$2,558	$3,171	$11,003
Operating expenses	2,047	2,087	2,252	2,402	8,788
Operating income	364	776	306	769	2,215
Net income (loss)	81	496	32	502	1,111

Table of Contents

Report of Independent Registered Public Accounting Firm

The Board of Directors of Tennessee Valley Authority

We have audited the accompanying consolidated balance sheets of Tennessee Valley Authority as of September 30, 2016 and 2015, and the related consolidated statements of operations, comprehensive income (loss), changes in proprietary capital, and cash flows for each of the three years in the period ended September 30, 2016. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Tennessee Valley Authority at September 30, 2016 and 2015, and the consolidated results of its operations and its cash flows for each of the three years in the period ended September 30, 2016, in conformity with U.S. generally accepted accounting principles.
We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Tennessee Valley Authority's internal control over financial reporting as of September 30, 2016, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated November 14, 2016 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Chattanooga, Tennessee
November 14, 2016

Table of Contents

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

TVA's management, including the President and Chief Executive Officer, the Executive Vice President and Chief Financial Officer, and members of the Disclosure Control Committee, including the Vice President and Controller (Principal Accounting Officer), evaluated the effectiveness of TVA's disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act")) as of September 30, 2016. Based on this evaluation, TVA's management, including the President and Chief Executive Officer, the Executive Vice President and Chief Financial Officer, and members of the Disclosure Control Committee, including the Vice President and Controller (Principal Accounting Officer), concluded that TVA's disclosure controls and procedures were effective as of September 30, 2016, to ensure that information required to be disclosed by TVA in reports that it files or submits under the Exchange Act, is recorded, processed, summarized, and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms, and include controls and procedures designed to ensure that information required to be disclosed by TVA in such reports is accumulated and communicated to TVA's management, including the President and Chief Executive Officer, the Executive Vice President and Chief Financial Officer, and members of the Disclosure Control Committee, including the Vice President and Controller (Principal Accounting Officer), as appropriate, to allow timely decisions regarding required disclosure.

Internal Control over Financial Reporting

(a)Management's Annual Report on Internal Control over Financial Reporting

TVA's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Exchange Act Rule 13a-15(f) and required by Section 404 of the Sarbanes-Oxley Act. TVA's internal control over financial reporting is designed to provide reasonable, but not absolute, assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles. Because of the inherent limitations in all control systems, internal controls over financial reporting and systems may not prevent or detect misstatements.

TVA's management, including the President and Chief Executive Officer, the Executive Vice President and Chief Financial Officer, and members of the Disclosure Control Committee, including the Vice President and Controller (Principal Accounting Officer), evaluated the design and effectiveness of TVA's internal control over financial reporting as of September 30, 2016, based on the framework in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, TVA's management concluded that TVA's internal control over financial reporting was effective as of September 30, 2016.

Although the effectiveness of internal control over financial reporting was not required to be subject to attestation by TVA's independent registered public accounting firm, TVA has chosen to obtain such a report. Ernst & Young LLP, the independent registered public accounting firm that audited the financial statements included in this Annual Report, has issued an attestation report on TVA's internal control over financial reporting.

(b)Changes in Internal Control over Financial Reporting

During the quarter ended September 30, 2016, there were no changes in TVA's internal control over financial reporting that materially affected, or are reasonably likely to materially affect, TVA's internal control over financial reporting.

Table of Contents

Report of Independent Registered Public Accounting Firm

The Board of Directors of Tennessee Valley Authority

We have audited Tennessee Valley Authority's internal control over financial reporting as of September 30, 2016, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). Tennessee Valley Authority's management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Tennessee Valley Authority maintained, in all material respects, effective internal control over financial reporting as of September 30, 2016, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Tennessee Valley Authority as of September 30, 2016 and 2015, and the related consolidated statements of operations, comprehensive income (loss), changes in proprietary capital, and cash flows for each of the three years in the period ended September 30, 2016, and our report dated November 14, 2016 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Chattanooga, Tennessee
November 14, 2016

Table of Contents

ITEM 9B. OTHER INFORMATION

On November 10, 2016, the TVA Board of Directors approved adjustments to the compensation of Chief Executive Officer William D. Johnson for 2017. Mr. Johnson's base salary will remain at $995,000, and his Executive Annual Incentive Plan ("EAIP") target opportunity will remain at 150 percent of his base salary. Mr. Johnson was awarded a performance grant ("LTP") of $2,427,800 under TVA's Long-Term Incentive Plan ("LTIP") effective October 1, 2016, which will vest on September 30, 2019. Mr. Johnson was also awarded a retention grant ("LTR") of $606,950 under TVA's LTIP effective October 1, 2016, which will vest in three equal increments on September 30, 2017, September 30, 2018, and September 30, 2019, subject to his being employed through such dates.

On November 10, 2016, Mr. Johnson approved compensation adjustments for the following Named Executive Officers for 2017:

- No adjustments to Mr. Pardee's compensation were made as he has communicated his intent to retire at the end of the calendar year.

- The salary for Mr. Thomas will increase from $592,250 to $610,018. Additionally, Mr. Thomas was awarded a LTP grant of $750,000 effective October 1, 2016, which will vest on September 30, 2019. Mr. Thomas also received a LTR grant of $250,000 effective October 1, 2016, which will vest in three equal increments on September 30, 2017, September 30, 2018, and September 30, 2019, subject to his being employed through such dates.

- The salary for Mr. Grimes will increase from $600,000 to $650,000. Additionally, Mr. Grimes was awarded a LTP grant of $750,000 effective October 1, 2016, which will vest on September 30, 2019. Mr. Grimes also received a LTR grant of $260,000 effective October 1, 2016, which will vest in three equal increments on September 30, 2017, September 30, 2018, and September 30, 2019, subject to his being employed through such dates.

- The salary for Mr. Skaggs will increase from $471,700 to $495,285. Additionally, Mr. Skaggs was awarded a LTP grant of $750,000 effective October 1, 2016, which will vest on September 30, 2019. Mr. Skaggs also received a LTR grant of $250,000 effective October 1, 2016, which will vest in three equal increments on September 30, 2017, September 30, 2018, and September 30, 2019, subject to his being employed through such dates.

The salary adjustments described above became effective as of October 1, 2016. No adjustments were made to any other existing elements of compensation for these Named Executive Officers for 2017.

Table of Contents

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Directors

TVA is administered by a board of nine part-time members appointed by the President of the United States with the advice and consent of the U.S. Senate. The Chair of the TVA Board is selected by the members of the TVA Board. Under the TVA Act, to be eligible to be appointed as a member of the TVA Board, an individual (i) must be a United States citizen; (ii) must have management expertise relative to a large for-profit or nonprofit corporate, government, or academic structure; (iii) cannot be a TVA employee; (iv) must make a full disclosure to Congress of any investment or other financial interest that the individual holds in the energy industry; and (v) must affirm support for the objectives and missions of TVA, including being a national leader in technological innovation, low-cost power, and environmental stewardship. In addition, the President of the United States, in appointing members of the TVA Board, must (i) consider recommendations from other public officials such as the Governors of the states in TVA's service area; individual citizens; business, industrial, labor, electric power distribution, environmental, civic, and service organizations; and the congressional delegations of the states in TVA's service area; and (ii) seek qualified members from among persons who reflect the diversity, including geographical diversity, and needs of TVA's service area. At least seven of the nine TVA Board members must be legal residents of the TVA service area.

TVA Board members serve five-year terms, and at least one member's term ends each year. After a member's term ends, the member is permitted under the TVA Act to remain in office until the earlier of the end of the then-current session of Congress or the date a successor takes office. The TVA Board, among other things, establishes broad goals, objectives, and policies for TVA; develops long-range plans to guide TVA in achieving these goals, objectives, and policies; approves annual budgets; and establishes a compensation plan for employees.

The TVA Board as of November 14, 2016, consisted of the following nine individuals with their ages and terms of office provided:

Directors	Age	Year Current Term Began	Year Term Expires
Joe H. Ritch, Chair	66	2013	2016[1]
Marilyn A. Brown	67	2013	2017
V. Lynn Evans	63	2013	2017
Richard C. Howorth	65	2015	2020
C. Peter Mahurin	78	2013	2016[1]
Michael R. McWherter	60	2013	2016[1]
Virginia T. Lodge	66	2014	2019
Ronald A. Walter	67	2014	2019
Eric M. Satz	47	2015	2018

Note

(1) Although the terms of Chair Ritch, Director Mahurin, and Director McWherter expired in May 2016, each director is permitted under the TVA Act to remain in office until the earlier of the end of the current session of Congress or the date a successor takes office.

Mr. Ritch of Huntsville, Alabama, joined the TVA Board in January 2013, and began serving as Chair of the TVA Board in May 2014. He has been an attorney at the Sirote & Permutt, PC law firm in Huntsville, Alabama, since 1982. He has been a director of Axometrics, which designs and manufactures Mueller Matrix polarization testing for LCD panels, since 2004. He has also served as Chair of the Tennessee Valley Base Realignment and Closure Committee

since 1994, as Co-Chair of the Tennessee Valley Growth Coordination Group since 2008, and as a board member of the Von Braun Center for Innovative Science since 2006. He was a member of the University of Alabama System Board of Trustees from 2005 to 2011.

Dr. Brown of Atlanta, Georgia, served on the TVA Board from October 2010 to January 2013 and began a second term on the TVA Board in September 2013. Dr. Brown has been a Professor in the School of Public Policy at Georgia Institute of Technology in Atlanta, Georgia, since August 2006. From 1984 to August 2006, Dr. Brown worked at the Oak Ridge National Laboratory ("ORNL") in Oak Ridge, Tennessee. At ORNL, she was Deputy Director and Acting Director of the Engineering Science and Technology Division (from 2005 to 2006) and Program Director of the Energy Efficiency and Renewable Energy Program (from 2000 to 2005). Dr. Brown served from 2006 until 2009 as a member of the Board of Directors of the Southeast Energy Efficiency Alliance, serving as Board Chair from 2006 until 2008. She served as a member of the Board of Directors of the American Council for an Energy-Efficient Economy from 2002 until 2009. From 2002 until 2009, Dr. Brown was a commissioner on the National Commission on Energy Policy. She served as a member of the Board of Directors of the Alliance to Save Energy from 2000 through 2009.

Ms. Evans of Memphis, Tennessee, joined the TVA Board in January 2013. She has been the owner of V. Lynn Evans, CPA, a certified public accounting and consulting firm in Memphis, Tennessee, since 1983. Ms. Evans was a board member of

Table of Contents

Memphis Light, Gas and Water Division, a TVA local power company customer, from 2004 to January 2013, and served as Chair from January 2008 to December 2009. She has been a director of community-based First Alliance Bank in Memphis, Tennessee, since its inception in 1998, holding various positions, including Chair of the audit committee and loan committee member. Ms. Evans has also served in leadership positions in a number of community organizations, including as a board member of ArtsMemphis from 1995 to 2008, Community Foundation of Greater Memphis from 1995 to 2004 and from 2006 to present, the RISE Foundation from 1997 to 2007, and the Women's Foundation for a Greater Memphis from 1999 to 2001. Ms. Evans is a member of the American Institute of Certified Public Accountants and the Tennessee Society of Certified Public Accountants (Memphis Chapter).

Mr. Howorth of Oxford, Mississippi, joined the TVA Board in July 2011 and began a second term on the TVA Board in December 2015. He is the owner of Square Books, an Oxford independent bookstore he founded in 1979. Mr. Howorth served two terms as the mayor of Oxford, from 2001 to 2009, during which time he was chair of the authority overseeing the Oxford Electric Department. From 2001 to 2009, he also served as a director and officer of the North Mississippi Industrial Development Association, an economic development consortium made up of power association directors and mayors of cities in 29 Mississippi counties in the TVA service area.

Mr. Mahurin of Bowling Green, Kentucky, joined the TVA Board in January 2013. He has been Chair of Hilliard Lyons Financial Services, a financial services firm based in Louisville, Kentucky, since 2008. Mr. Mahurin has worked for Hilliard Lyons in various capacities since 1968. Mr. Mahurin has been a director of Houchens Industries, Inc., a diversified conglomerate based in Bowling Green, Kentucky, since 1992; Gray Construction, an engineering, design and construction company based in Lexington, Kentucky, since 2007; Albany Bancorp, Inc., a bank holding company based in Albany, Kentucky, since 1992; First Cecilian Bancorp, a bank holding company based in Cecilia, Kentucky, since 1997; and Jackson Financial, a bank holding company based in Mayfield, Kentucky, since 2007. He is also a board member of the Governor's Scholars of Kentucky.

Mr. McWherter of Jackson, Tennessee, joined the TVA Board in January 2013. He has been the owner and president of Central Distributors, Inc., and Volunteer Distributing Company Inc., both Tennessee-based beverage distribution companies, since 1989 and 1986, respectively. He has been a director of First State Bank, a bank holding company in Union City, Tennessee, since 2002, and served as Chair from 2007 to 2009. He also served as Chair of the First State Bank Audit Committee from 2007 to 2009. He served as a director·of the Jackson Energy Authority, a TVA local power company customer, from 2007 to January 2013. Mr. McWherter has also served in leadership positions in a number of community organizations, including as a board member of the Tennessee Performing Arts Center from 1988 to 1995, a director of the Jackson Chamber of Commerce from 1990 to 1996, a director of the Nashville Arts Council from 1982 to 1985, and a member of the Tennessee Executive Residence Preservation Foundation Board from 2002 to 2010.

Ms. Lodge of Nashville, Tennessee, joined the TVA Board in December 2014. She has served as the CEO of FSI Inc., a fulfillment and supply chain company based in Nashville, Tennessee, since March 2012. She served as Commissioner of the Tennessee Department of Human Services from 2003 to 2011. From 2002 to 2003, she worked on Tennessee Governor Phil Bredesen’s campaign and transition team. Ms. Lodge was National Director of GoreCorps for the Gore for President Campaign in 2000 and served as Executive Director for Kids Voting of Middle Tennessee from 1994 to 1999.

Mr. Walter of Memphis, Tennessee, joined the TVA Board in December 2014. He is currently the President and General Manager of WREG-TV, a Memphis-based television station. Mr. Walter has been employed by WREG-TV since 1987, and assumed his current position in 2004. Mr. Walter was Vice President of Customer Relations for the Memphis Light, Gas and Water Division from 1982 to 1987. From 1980 to 1982, he served as Assistant to the President at Memphis Light, Gas and Water Division.

Mr. Satz of Nashville, Tennessee, joined the TVA Board in August 2015. He is a Managing Member of the Tennessee Community Ventures Fund, LLC ("TNCV"), a company he co-founded in 2009, and is Executive Chairman of one of the TNCV portfolio companies. From 2010 to 2014, he served as Investor, Advisor, and Vice President of Business Development for Panopto, Inc., a software company based in Seattle, Washington. Mr. Satz co-founded and was Chief Executive Officer of Plumgood Food, LLC from 2004 to 2008. Earlier in his career, Mr. Satz served in various investment banking roles, including as Vice President in the Technology Investment Banking Groups at Credit Suisse First Boston and Donaldson, Lufkin & Jenrette. In 1999, Mr. Satz co-founded Currenex, an online global foreign currency exchange company.

Table of Contents

Executive Officers

TVA’s executive officers as of November 14, 2016, their titles, their ages, and the date their employment with TVA commenced are as follows:

Executive Officers	Title	Age	Employment Commenced
William D. Johnson	President and Chief Executive Officer	62	2013
Joseph P. Grimes, Jr.	Executive Vice President, Generation and Chief Nuclear Officer	60	2013
Charles G. Pardee	Executive Vice President and Chief Operating Officer	56	2013
Michael D. Skaggs	Executive Vice President, Operations	56	1994
Sherry A. Quirk	Executive Vice President and General Counsel	62	2015
John M. Thomas, III	Executive Vice President and Chief Financial Officer	52	2005
Van M. Wardlaw	Executive Vice President and Chief External Relations Officer	56	1982
Janet J. Brewer	Senior Vice President and Chief Communications and Marketing Officer	57	2012
Susan E. Collins	Senior Vice President and Chief Human Resource Officer	50	2014
Diane T. Wear	Vice President and Controller (Principal Accounting Officer)	48	2008

Mr. Johnson has served as TVA's President and Chief Executive Officer since January 2013. Mr. Johnson served as Chair, President and Chief Executive Officer of Progress Energy, Inc. ("Progress Energy"), an electric utility based in Raleigh, North Carolina, from October 2007 to July 2012. During this time, Mr. Johnson also served as the Chair of Progress Energy Carolinas, Inc., and Progress Energy Florida, Inc., both of which are subsidiaries of Progress Energy. Mr. Johnson held a number of other positions before he became Chair and CEO of Progress Energy, including President and Chief Operating Officer of Progress Energy; Group President for Energy Delivery; President and Chief Executive Officer for Progress Energy Service Company, LLC; and General Counsel and Corporate Secretary for Progress Energy. Mr. Johnson joined Carolina Power & Light Company ("CP&L"), a predecessor to Progress Energy, in 1992. Before joining CP&L, Mr. Johnson was a partner with the Raleigh, North Carolina, law office of Hunton & Williams LLP, where he specialized in the representation of utilities.

Mr. Grimes joined TVA in July 2013 as Executive Vice President and Chief Nuclear Officer, and he was named Executive Vice President, Generation, and Chief Nuclear Officer effective October 2016. Before joining TVA, Mr. Grimes worked at Exelon Nuclear and held a variety of positions there, including Senior Vice President, Engineering and Technical Services, Exelon Nuclear Fleet (from 2011 to 2013), Senior Vice President, Mid-Atlantic Operations (from 2009 to 2011), and Site Vice President at Peach Bottom Nuclear Station (from 2007 to 2008). Mr. Grimes joined Exelon Nuclear in 1979.

Mr. Pardee joined TVA in April 2013 as Executive Vice President and Chief Generation Officer, and he was named Executive Vice President and Chief Operating Officer in September 2013. Mr. Pardee worked at Exelon Corporation, an energy company, and its subsidiaries from February 2000 to November 2012. He served as Chief Operating Officer, Exelon Generation from April 2010 to November 2012, as Chief Nuclear Officer, Exelon Nuclear from October 2007 to April 2010, as Chief Operating Officer, Exelon Nuclear from June 2005 to October 2007, as Senior Vice President, Nuclear Fleet Services from August 2003 to June 2005, as Senior Vice President, Mid-Atlantic Operations from January 2002 to August 2003, and as Site Vice President, LaSalle County Generation Station from February 2000 to January 2002. In August 2016, Mr. Pardee announced his intention to retire by the end of the calendar year.

Mr. Skaggs was named Executive Vice President, Operations effective October 2016. Since joining TVA in 1994 as Manager of Projects at Watts Bar Nuclear Plant, Mr. Skaggs has held several management positions, including Senior

Vice President, Watts Bar Operations and Construction (September 2013 to October 2016), Senior Vice President, Nuclear Construction (February 2012 to September 2013), Senior Vice President of Nuclear Generation Development and Construction (October 2011 to February 2012), Site Vice President of Sequoyah Nuclear Plant (November 2010 to October 2011), Vice President of Nuclear Operations Support (December 2009 to November 2010), Site Vice President at Watts Bar Nuclear Plant (July 2005 to December 2009), and Site Vice President at Browns Ferry Nuclear Plant (July 2004 to July 2005).

Ms. Quirk has served as TVA’s Executive Vice President and General Counsel since February 2015. From October 2010 to February 2015, Ms. Quirk was an equity partner in the law firm of Schiff Hardin LLP, which specializes in federal energy regulation, legislation, and power supply transactions. Prior to joining Schiff Hardin, Ms. Quirk was a partner in the Energy Group of Sullivan & Worcester LLP, and a partner in the Energy Group of Verner, Liipfert, Bernhard, McPherson and Hand, specializing in federal energy regulation, legislation, power supply transactions, and state proceedings.

Mr. Thomas has served as TVA's Chief Financial Officer since June 2010 and was also named Executive Vice President in February 2012. He served as Executive Vice President of People and Performance from January 2010 to June 2010, as Senior Vice President, Corporate Governance and Compliance from July 2009 to January 2010, as Controller and Chief Accounting Officer from January 2008 to September 2009, and as the General Manager, Operations Business Services from November 2005 to January 2008. Prior to joining TVA, Mr. Thomas was Chief Financial Officer during 2005 for Benson

Table of Contents

Security Systems. He was also the Controller of Progress Fuels Corporation (from 2003 to 2005) and Controller of Progress Ventures, Inc. (from 2001 to 2002), both subsidiaries of Progress Energy.

Mr. Wardlaw was named Executive Vice President and Chief External Relations Officer in July 2014. Mr. Wardlaw served as Senior Vice President, Customer Relations, from September 2013 to July 2014, as Executive Vice President, Customer Relations, from June 2011 to September 2013, as Executive Vice President, Enterprise Relations, from October 2010 to June 2011, as Acting Executive Vice President of Strategy and Planning from January 2010 until September 2010, as Executive Vice President of Power Supply and Fuels from July 2008 to August 2010, as Senior Vice President, Commercial Operations and Fuels from January 2007 to June 2008, as Vice President, Bulk Power Trading from September 2006 to December 2006, and as Vice President of Transmission and Reliability from December 2000 to September 2006. Mr. Wardlaw began his career with TVA in January 1982 as an electrical engineer, and has also worked in customer service, marketing, and field services.

Ms. Brewer joined TVA in 2012 as Vice President of Communications, and she was named Senior Vice President and Chief Communications and Marketing Officer in May 2016. Before joining TVA, Ms. Brewer worked at NCR Corporation, a global technology company based in Duluth, Georgia, and held a number of positions there, including Vice President of Corporate Communications (from 2010 to 2012 and from 2006 to 2008), Vice President of Change Management and Communications for Continuous Improvement (from 2008 to 2010), and Director of Community Relations (from 2005 to 2006).

Ms. Collins joined TVA in May 2014 as Vice President of Human Resources, and she was named Senior Vice President and Chief Human Resources Officer in February 2016. Before joining TVA, Ms. Collins served as Senior Vice President of Human Resources for Constellation Energy Nuclear Group, LLC (from 2009 to 2014) and as Vice President of Human Resources for Constellation Energy (from 2008 to 2009).

Ms. Wear has served as TVA's Vice President and Controller since March 2012. Ms. Wear was the Assistant Controller from February 2010 to March 2012. Between April 2008, when she joined TVA, and February 2010, Ms. Wear was the General Manager, External Reporting/Accounting Policy and Research. Prior to joining TVA, Ms. Wear was a Managing Director at PricewaterhouseCoopers LLP. Ms. Wear joined a predecessor firm to PricewaterhouseCoopers LLP in January 1992.

Disclosure and Financial Code of Ethics

TVA has a Disclosure and Financial Ethics Code ("Financial Ethics Code") that applies to all executive officers (including the Chief Executive Officer, Chief Financial Officer, and Controller) and directors of TVA as well as to all employees who certify information contained in quarterly reports or annual reports or who have responsibility for internal control self-assessments. The Financial Ethics Code includes provisions covering conflicts of interest, ethical conduct, compliance with applicable laws, rules, and regulations, responsibility for full, fair, accurate, timely, and understandable disclosures, and accountability for adherence to the Financial Ethics Code. TVA will provide a current copy of the Financial Ethics Code to any person, without charge, upon request. Requests may be made by calling 888-882-4975 or by sending an e-mail to: investor@tva.com. Any waivers of or changes to provisions of the Financial Ethics Code that require disclosure pursuant to applicable Securities and Exchange Commission requirements will be promptly disclosed to the public, subject to limitations imposed by law, on TVA’s website at: www.tva.gov. Information contained on TVA’s website shall not be deemed incorporated into, or to be a part of, this Annual Report.

Committees of the TVA Board

The TVA Board has an Audit, Risk, and Regulation Committee established in accordance with the TVA Act. TVA's Audit, Risk, and Regulation Committee consists of V. Lynn Evans, Richard Howorth, Virginia Lodge, and Joe Ritch.

TVA is exempted by Section 37 of the Exchange Act from complying with Section 10A(m)(3) of the Exchange Act, which requires each member of a listed issuer's audit committee to be an independent member of the board of directors of the issuer. The TVA Act contains certain provisions that are similar to the considerations for independence under Section 10A(m)(3) of the Exchange Act, including that to be eligible for appointment to the TVA Board, an individual shall not be an employee of TVA and shall make full disclosure to Congress of any investment or other financial interest that the individual holds in the energy industry.

Under Section 10A(m)(2) of the Exchange Act, which applies to TVA, the audit committee is directly responsible for the appointment, compensation, and oversight of the external auditor; however, the TVA Act assigns the responsibility for engaging the services of the external auditor to the TVA Board.

The TVA Board has also established the following committees in addition to the Audit, Risk, and Regulation Committee:

- Finance, Rates, and Portfolio Committee
- External Relations Committee
- People and Performance Committee

Table of Contents

- Nuclear Oversight Committee

ITEM 11. EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

The purpose of the Compensation Discussion and Analysis is to describe TVA's compensation philosophy and the policies and decisions that guided compensation for TVA’s Named Executive Officers in 2016. The 2016 Named Executive Officers are as follows:

- William D. Johnson, President and Chief Executive Officer ("CEO");
- Charles G. Pardee, Executive Vice President and Chief Operating Officer ("COO");
- John M. Thomas, III, Executive Vice President and Chief Financial Officer ("CFO");
- Joseph P. Grimes, Jr., Executive Vice President and Chief Nuclear Officer ("CNO"); and
- Michael D. Skaggs, Senior Vice President, Watts Bar Operations and Construction.

Detailed compensation information for these executives is contained in the Summary Compensation Table. In August 2016, Mr. Pardee announced his intent to retire at the end of the calendar year 2016. In addition, effective October 2016, Mr. Skaggs was named Executive Vice President, Operations, and Mr. Grimes was named Executive Vice President, Generation and Chief Nuclear Officer.

Executive Summary

2016 Compensation Plan Changes. Effective October 1, 2015, TVA adopted a new Long-Term Incentive Plan ("LTIP"). The LTIP combines and replaces both the Executive Long-Term Incentive Plan ("ELTIP"), which provides for performance-based awards, and the Long-Term Retention Incentive Plan ("LTRIP"), which provides for time-based retention awards. The purpose of the LTIP is to provide a cohesive total long-term compensation opportunity through the granting of (1) variable, at-risk long-term performance-based ("LTP") awards and (2) long-term retention ("LTR") awards. Performance awards granted under the ELTIP with respect to the three-year performance periods ended on September 30, 2016 and ending on September 30, 2017 will remain subject to their terms. Similarly, although no new grants will be made under the LTRIP after the effective date of the LTIP, certain existing retention awards under the LTRIP are scheduled to vest on December 31, 2016, and December 31, 2017, subject in each case to the participants being employed through such dates.

2016 At-Risk Compensation. Based on its annual performance and productivity, TVA rewards employees through its Winning Performance Team Incentive Plan ("WPTIP") and Executive Annual Incentive Plan ("EAIP"). In addition, certain executives in critical positions, including the Named Executive Officers, participate in long-term compensation plans (the ELTIP and LTIP). Similar to incentive programs at other utilities, awards under the WPTIP, EAIP, ELTIP, and the performance-based component of the LTIP are not part of base pay but are “at risk” requiring employees to reach or exceed specific performance targets in order for payments to be earned.

For 2016, adjusted scorecard results for the EAIP ranged from 97 percent to 105 percent of the target opportunity, and actual awards to TVA's Named Executive Officers ranged from 92 percent to 126 percent of the target opportunity. The following factors contributed to overall performance:

- Improved rate competitiveness;
- Held operating and maintenance ("O&M") expense flat;
- Improved performance of TVA's coal-fired and gas-fired generation units; and
- Helped to retain and attract over 72,100 jobs and over $8.3 billion in capital investment to the TVA service area.

In addition, for the three-year period ended September 30, 2016, awards to TVA's Named Executive Officers under the ELTIP were 110 percent of the target opportunity primarily because of overall good performance and financial discipline. Throughout the 2014 - 2016 performance period, TVA accomplished the following objectives:

- Eliminated $1.0 billion in annual expense over the performance period;
- Improved reliability; and
- Improved customer satisfaction and loyalty, stakeholder perception, and media tone.

2016 Compensation Adjustments. On November 20, 2015, the TVA Board approved adjustments to the compensation of CEO William Johnson for 2016. Mr. Johnson's EAIP target increased from 110 percent of his base salary to 150 percent of his base salary. This increase in incentive opportunity was partially offset by the elimination of the $325,000 performance incentive award for which Mr. Johnson was eligible on an annual basis prior to 2016. In addition, Mr. Johnson received a $2,268,600 LTP grant which will vest on September 30, 2018 (subject to performance conditions) and a $567,150 LTR grant which vests in three equal increments on September 30, 2016, 2017, and 2018, subject to his being employed through such dates.

Table of Contents

On November 20, 2015, Mr. Johnson approved compensation adjustments for the following Named Executive Officers for 2016:

- The salary for Mr. Pardee increased from $645,000 to $664,350. Additionally, Mr. Pardee was awarded a LTP grant of $835,000 effective October 1, 2015, which will vest on September 30, 2018, provided certain performance targets are achieved and he is still employed on this date. Mr. Pardee also received a LTR grant of $200,000 effective October 1, 2015, which will vest in three equal increments on September 30, 2016, 2017, and 2018, subject to his being employed through such dates.

- The salary for Mr. Thomas increased from $575,000 to $592,250. Additionally, Mr. Thomas was awarded a LTP grant of $715,000 effective October 1, 2015, which will vest on September 30, 2018, provided certain performance targets are achieved and he is still employed on this date. Mr. Thomas also received a LTR grant of $200,000 effective October 1, 2015, which will vest in three equal increments on September 30, 2016, 2017, and 2018, subject to his being employed through such dates.

- The salary for Mr. Grimes increased from $555,000 to $600,000. Additionally, Mr. Grimes was awarded a LTP grant of $750,000 effective October 1, 2015, which will vest on September 30, 2018, provided certain performance targets are achieved and he is still employed on this date. Mr. Grimes also received a LTR grant of $260,000 effective October 1, 2015, which will vest in three equal increments on September 30, 2016, 2017, and 2018, subject to his being employed through such dates.

- The salary for Mr. Skaggs increased from $445,000 to $471,700. Additionally, Mr. Skaggs was awarded a LTP grant of $600,000 effective October 1, 2015, which will vest on September 30, 2018, provided certain performance targets are achieved and he is still employed on this date. Mr. Skaggs also received a LTR grant of $150,000 effective October 1, 2015, which will vest in three equal increments on September 30, 2016, 2017, and 2018, subject to his being employed through such dates.

The compensation adjustments described above became effective for the Named Executive Officers as of October 1, 2015. No adjustments were made to any other existing elements of compensation for the Named Executive Officers for 2016.

Philosophy

TVA aims to achieve its mission by attracting, retaining, and motivating highly qualified and committed executives to guide the organization’s strategy and performance. TVA follows a compensation plan ("Compensation Plan") as adopted by the TVA Board in accordance with guidance of the TVA Act. The Compensation Plan is designed to:

- Provide market-based, competitive compensation levels so TVA can attract, retain, and motivate highly competent employees. Total direct compensation generally targets the 50th percentile of the relevant labor market, although some positions are targeted up to the 75th percentile based on labor market scarcity and other issues.

- Reward employees for performance. A substantial portion of executive pay, including pay for the Named Executive Officers, is tied to performance improvement. As illustrated in the charts below, at least half of each Named Executive Officer’s direct compensation opportunity is delivered through performance-based incentive programs.

70 % of CEO Compensation Is At Risk

55 % of NEO* Compensation Is At Risk

* Named Executive Officers, excluding CEO

154

Table of Contents

- Align the organization’s short- and long-term goals and objectives with compensation opportunity by providing a mix of salary and performance-based short and long-term incentives.

- Align performance and productivity improvement at all levels by setting consistent performance goals and objectives for all levels of the organization.

The TVA Board follows these requirements of the TVA Act in designing and implementing its Compensation Plan:

- Compensation will be based on an annual survey of prevailing compensation for similar positions in private industry, including engineering and electric utility companies, publicly-owned electric utilities, and federal, state, and local governments; and

- Compensation will take into account education, experience, level of responsibility, geographic differences, and retention and recruitment needs.

Authority for the Executive Compensation Program

The TVA Board, under the authority of the TVA Act, has responsibility for establishing compensation for TVA employees, including the Named Executive Officers. The TVA Board is directed under Section 2 of the TVA Act to establish a plan that specifies all compensation (such as salary and any other pay, benefits, incentives, or other form of remuneration) for the CEO and TVA employees.

The TVA Act also provides that:

- The TVA Board will annually approve all compensation (such as salary and any other pay, benefits, incentives, or other form of remuneration) for all managers and technical personnel who report directly to the CEO (including any adjustment(s) to compensation);

- On the recommendation of the CEO, the TVA Board will approve the salaries of employees whose salaries would be in excess of Level IV of the Executive Schedule of the United States Government ($160,300 in 2016); and

- The CEO will determine the salary and benefits of employees whose annual salary is not greater than Level IV of the Executive Schedule ($160,300 in 2016).

Under the authority of the TVA Act, the TVA Board, its People and Performance Committee (the “Committee”), and individual TVA Board members are involved in compensation matters. The TVA Board has delegated to the CEO the authority to approve, or delegate to others the authority to approve, all personnel and compensation actions for which the TVA Board is responsible but has not reserved for itself. The TVA Board has taken additional action to delegate authority with respect to executive compensation, as follows:

- The TVA Board has authorized the CEO to set or adjust compensation for present or future direct reports within compensation ranges of 80 percent to 110 percent of the targeted total direct compensation for comparable positions, as well as to approve the parameters under which such executives may participate in certain supplemental benefit plans such as TVA’s Supplemental Executive Retirement Plan ("SERP"), provided that the CEO may not finally set or adjust such compensation until the TVA Board members have been notified of the proposed compensation and given the opportunity to ask the Committee, or the full TVA Board, to review the proposed compensation before it becomes effective.

-

The TVA Board has delegated to the Chair of the TVA Board, in consultation with the Committee and with input from individual members of the TVA Board, the authority to evaluate and rate the CEO’s performance during the year, and the authority to approve any payout to the CEO under the EAIP, based on, among other things, the CEO's evaluated performance during the year.

- The TVA Board has delegated to the CEO, in consultation with the Committee and with input from individual members of the TVA Board, the authority to approve the individual performance goals for the CEO's direct reports and the authority to evaluate and rate the performance of the CEO's direct reports during the year.

TVA Board Committee Oversight

The Committee was responsible for oversight of executive compensation pursuant to the Compensation Plan, review of this Compensation Discussion and Analysis, and review of performance goal achievement for 2016. As delegated by the TVA Board, the Committee also (1) reviewed proposed CEO actions to set or adjust compensation for his direct reports, (2) consulted with the Chair of the TVA Board about the Chair's proposed evaluation and rating of the CEO’s performance during the year and about the proposed payout to the CEO under the EAIP, and (3) consulted with the CEO on the proposed individual performance goals and evaluation and performance ratings for the CEO's direct reports for the year. The Committee used the independent

Table of Contents

consulting firm Frederic W. Cook & Co., Inc. (“Frederic W. Cook”) in 2016 to help evaluate competitive compensation. The Committee assessed certain independence factors and determined the firm’s work raised no potential conflict of interest.

Assessment of Risk

TVA’s Enterprise Risk Management Organization, in coordination with other members of TVA’s management, including Human Resources and Compensation and Benefits, conducts an annual assessment of enterprise level risks that considers risks arising from TVA's compensation policies and practices, in order to identify any risks that are reasonably likely to have a material adverse effect on the organization and its achievement of its strategic goals and objectives.

Based on the results of this assessment, no risks were identified with the compensation policies and practices that are reasonably likely to have a material adverse effect on TVA’s achievement of its strategic goals and objectives.

Use of Market Data and Benchmarking

TVA generally targets total direct compensation for executives at a competitive level based on the relevant labor market. After compiling market compensation for the positions at the beginning of 2016, the Committee, with assistance from Frederic W. Cook, used the information to:

- Test target compensation level and incentive opportunity competitiveness; and
- Determine appropriate target compensation levels and incentive opportunities to maintain the desired degree of market competitiveness.

The relevant labor market for most of TVA's executives, including the Named Executive Officers, consisted of both private and publicly-owned companies in the energy services industry of similar revenue and scope to TVA. TVA's peer group is reviewed by the Board on an annual basis. For the survey-based analysis, TVA used the 2015 Towers Watson Energy Services Executive Compensation Database to look at the following energy-services companies with annual revenues greater than $6.0 billion:

AES Corp.	DTE Energy Co.	NRG Energy, Inc.
American Electric Power Co., Inc.	Duke Energy Corp.	Pacific Gas and Electric Co.
Calpine Corp.	Edison International	PPL Corp.
CenterPoint Energy, Inc.	Entergy Corp.	Public Service Enterprise Group Inc.
CMS Energy Corp.	Exelon Corp.	Sempra Energy
Consolidated Edison, Inc.	FirstEnergy Corp.	Southern Company
Dominion Resources, Inc.	NextEra Energy, Inc.	Xcel Energy Inc.

For the analysis of proxy statements and annual reports on Form 10-K, TVA looked at all companies in the peer group above, as well as three additional companies in the energy services industry, as recommended by Frederic W. Cook. Ameren Corporation, Eversource Energy, and NiSource, Inc., were considered in the analysis because they are energy services firms with annual revenue between approximately one-half and two times TVA's revenue, but they did not participate in the 2015 Towers Watson Energy Services Executive Compensation Survey.

The following government entities that participated in the 2015 Towers Watson Energy Services Executive Compensation Survey were also considered by the Committee on the basis of industry similarity: Colorado Springs Utilities; Energy Northwest; JEA; New York Power Authority; Omaha Public Power District; and Salt River Project. Each of these government entities has annual revenue of less than $3.0 billion.

156

Table of Contents

Executive Compensation Program Components

The primary compensation program components for 2016 for the Named Executive Officers are summarized in the diagram below and are briefly described in the table and the narrative that follow the diagram.

Table of Contents

Primary Compensation Program Components for Named Executive Officers in 2016

Compensation Component	Objective	Key Features
Annual Salary	Provides fixed base level of compensation to executives to encourage hiring and retention of qualified individuals	- Annual salary is targeted at the median (50th percentile) for similar positions at other companies in TVA's peer group or above the median (50th to 75