Tennessee Valley Authority
Form 10-Q
February 02, 2018
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

(MARK ONE)
x QUARTERLY REPORT PURSUANT TO SECTION 13, 15(d), OR 37 OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended December 31, 2017
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	62-0474417
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification No.)

400 W. Summit Hill Drive Knoxville, Tennessee	37902
(Address of principal executive offices)	(Zip Code)

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

None
(Former name, former address and former fiscal year, if changed since last report)

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 whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

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

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GLOSSARY OF COMMON ACRONYMS

Following are definitions of terms or acronyms that may be used in this Quarterly Report on Form 10-Q for the quarter ended December 31, 2017 (the "Quarterly 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
BLEU	Blended low-enriched uranium
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CCR	Coal combustion residuals
CME	Chicago Mercantile Exchange
CO_2	Carbon dioxide
COL	Combined construction and operating license
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
DOE	Department of Energy
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESPA	Early Site Permit Application
FASB	Financial Accounting Standards Board
FCM	Futures Commission Merchant
FERC	Federal Energy Regulatory Commission
FTP	Financial Trading Program
GAAP	Accounting principles generally accepted in the United States of America
GHG	Greenhouse gas
GWh	Gigawatt hour(s)
IRP	Integrated Resource Plan
JSCCG	John Sevier Combined Cycle Generation LLC
kWh	Kilowatt hour(s)
LPC	Local power company customer of TVA
MATS	Mercury and Air Toxics Standards
MD&A	Management's Discussion and Analysis of Financial Condition and Results of Operations
mmBtu	Million British thermal unit(s)
MtM	Mark-to-market
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NAV	Net asset value
NDT	Nuclear Decommissioning Trust
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NO_x	Nitrogen oxide

NPDES	National Pollutant Discharge Elimination System

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NRC	Nuclear Regulatory Commission
NSR	New Source Review
OCI	Other comprehensive income (loss)
PARRS	Putable Automatic Rate Reset Securities
PM	Particulate matter
QER	Quadrennial Energy Review
QTE	Qualified technological equipment and software
REIT	Real Estate Investment Trust
SCCG	Southaven Combined Cycle Generation LLC
SCRs	Selective catalytic reduction systems
SEC	Securities and Exchange Commission
SERP	Supplemental Executive Retirement Plan
SHLLC	Southaven Holdco LLC
SMR	Small modular reactor(s)
SO_2	Sulfur dioxide
TCWN	Tennessee Clean Water Network
TDEC	Tennessee Department of Environment & Conservation
TOU	Time-of-use
TVA Act	The Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee
TVARS	Tennessee Valley Authority Retirement System
U.S. Treasury	United States Department of the Treasury
VIE	Variable interest entity
XBRL	eXtensible Business Reporting Language

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FORWARD-LOOKING INFORMATION

This Quarterly 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," 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, or administrative orders;
- The cost of complying with known, anticipated, or 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;
- 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 microgrids, and improvements in alternative generation and energy storage technologies;
- Changes in customer preferences for energy produced from cleaner generation sources;
- Changes in technology;
- 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, environmental clean-up activities, or fines or penalties associated with unexpected events such as failures of a facility or infrastructure;
- Addition or loss of customers by TVA or the local power company customers of TVA ("LPCs");
- Significant delays, cost increases, or cost overruns associated with the construction and maintenance of generation, transmission, navigation, flood control, or related 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;
- Risks associated with the operation of nuclear facilities or coal combustion residual ("CCR") facilities;
- Physical attacks on TVA's assets;
- Cyber attacks on TVA's assets or the assets of third parties upon which TVA relies;
- The outcome of legal or administrative proceedings, including the CCR proceedings involving the Gallatin Fossil Plant as well as any other CCR proceedings that may be brought in the future;
- The failure of TVA's generation, transmission, navigation, flood control, and related assets and infrastructure, including 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;
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- 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”);

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- 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;
- 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 controls 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;
- Inability to respond quickly enough to current or potential customer demands or needs;
- 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 (the "TVA Board");
- Changes in the membership of the TVA Board or TVA senior management; 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 in TVA's Annual Report on Form 10-K for the year ended September 30, 2017 (the "Annual Report"), and
Part I, Item 2, Management's Discussion and Analysis of Financial Condition and Results of Operations in this Quarterly Report for a discussion of factors that could cause actual results to differ materially from those in a forward-looking statement. New factors emerge from time to time, and it is not possible for TVA 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 (2018, 2017, etc.) in this Quarterly Report are to TVA's fiscal years ending September 30. Years that are preceded by "CY" are references to calendar years.

Notes

References to "Notes" are to the Notes to Consolidated Financial Statements contained in Part I, Item 1, Financial Statements in this Quarterly Report.

Available Information

TVA's Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, as well as all amendments to those reports, are available on TVA's website, free of charge, as soon as reasonably practicable after such reports are electronically filed with or furnished to the Securities and Exchange Commission

("SEC"). TVA's website is www.tva.gov. Information contained on TVA’s website shall not be deemed to be incorporated into, or to be a part of, this Quarterly Report. All TVA SEC reports are available to the public without charge from the website maintained by the SEC at www.sec.gov.

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PART I - FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF OPERATIONS (Unaudited)
Three Months Ended December 31
(in millions)

	2017	2016
Operating revenues		
Revenue from sales of electricity	$2,509	$2,508
Other revenue	40	38
Total operating revenues	2,549	2,546
Operating expenses		
Fuel	475	568
Purchased power	220	242
Operating and maintenance	709	741
Depreciation and amortization	423	437
Tax equivalents	124	129
Total operating expenses	1,951	2,117
Operating income	598	429
Other income (expense), net	12	12
Interest expense	322	339
Net income (loss)	$288	$102

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

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS) (Unaudited)
Three Months Ended December 31
(in millions)

	2017	2016
Net income (loss)	$288	$102
Other comprehensive income (loss)		
Net unrealized gain (loss) on cash flow hedges	39	(8)
Reclassification to earnings from cash flow hedges	(3)	38
Total other comprehensive income (loss)	36	30
Total comprehensive income (loss)	$324	$132

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

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TENNESSEE VALLEY AUTHORITY
CONSOLIDATED BALANCE SHEETS (Unaudited)
(in millions)
ASSETS

	December 31, 2017	September 30, 2017
Current assets		
Cash and cash equivalents	$ 300	$ 300
Restricted cash	13	—
Accounts receivable, net	1,500	1,569
Inventories, net	1,047	1,065
Regulatory assets	455	447
Other current assets	95	65
Total current assets	3,410	3,446
Property, plant, and equipment		
Completed plant	59,631	58,947
Less accumulated depreciation	(28,587)	(28,404)
Net completed plant	31,044	30,543
Construction in progress	2,459	2,842
Nuclear fuel	1,370	1,401
Capital leases	158	161
Total property, plant, and equipment, net	35,031	34,947
Investment funds	2,714	2,603
Regulatory and other long-term assets		
Regulatory assets	8,492	8,698
Other long-term assets	330	323
Total regulatory and other long-term assets	8,822	9,021
Total assets	$ 49,977	$ 50,017

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

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TENNESSEE VALLEY AUTHORITY
CONSOLIDATED BALANCE SHEETS (Unaudited)
(in millions)
LIABILITIES AND PROPRIETARY CAPITAL

	December 31, 2017	September 30, 2017
Current liabilities		
Accounts payable and accrued liabilities	$ 1,772	$ 1,940
Accrued interest	317	346
Current portion of leaseback obligations	37	37
Current portion of energy prepayment obligations	85	100
Regulatory liabilities	159	163
Short-term debt, net	2,721	1,998
Current maturities of power bonds	2,031	1,728
Current maturities of long-term debt of variable interest entities	36	36
Current maturities of notes payable	52	53
Total current liabilities	7,210	6,401
Other liabilities		
Post-retirement and post-employment benefit obligations	5,372	5,477
Asset retirement obligations	4,206	4,176
Other long-term liabilities	2,961	3,055
Leaseback obligations	301	302
Energy prepayment obligations	—	10
Regulatory liabilities	25	25
Total other liabilities	12,865	13,045
Long-term debt, net		
Long-term power bonds, net	19,214	20,205
Long-term debt of variable interest entities, net	1,164	1,164
Long-term notes payable	68	69
Total long-term debt, net	20,446	21,438
Total liabilities	40,521	40,884
Commitments and contingencies		
Proprietary capital		
Power program appropriation investment	258	258
Power program retained earnings	8,571	8,282
Total power program proprietary capital	8,829	8,540
Nonpower programs appropriation investment, net	570	572
Accumulated other comprehensive income (loss)	57	21
Total proprietary capital	9,456	9,133
Total liabilities and proprietary capital	$ 49,977	$ 50,017

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

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TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF CASH FLOWS (Unaudited)
For the Three Months Ended December 31
(in millions)

	2017	2016
Cash flows from operating activities		
Net income (loss)	$288	$102
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)	433	449
Amortization of nuclear fuel cost	94	85
Non-cash retirement benefit expense	82	84
Prepayment credits applied to revenue	(25)	(25)
Fuel cost adjustment deferral	(12)	57
Fuel cost tax equivalents	(5)	2
Changes in current assets and liabilities		
Accounts receivable, net	70	299
Inventories and other current assets, net	7	(61)
Accounts payable and accrued liabilities	(179)	(209)
Accrued interest	(24)	(24)
Regulatory assets costs	(11)	(16)
Pension contributions	(75)	(75)
Other, net	(30)	(51)
Net cash provided by operating activities	613	617
Cash flows from investing activities		
Construction expenditures	(551)	(625)
Nuclear fuel expenditures	(71)	(100)
Loans and other receivables		
Advances	(6)	(3)
Repayments	1	1
Other, net	(1)	20
Net cash used in investing activities	(628)	(707)
Cash flows from financing activities		
Long-term debt		
Redemptions and repurchases of power bonds	(698)	(527)
Redemptions of notes payable	(2)	—
Short-term debt issues (redemptions), net	717	619
Payments on leases and leasebacks	(1)	(1)
Payments to U.S. Treasury	(1)	(1)
Net cash provided by (used in) financing activities	15	90
Net change in cash and cash equivalents	—	—
Cash and cash equivalents at beginning of period	300	300
Cash and cash equivalents at end of period	$300	$300
Supplemental disclosures		
Significant non-cash transactions		
Accrued capital and nuclear fuel expenditures	$294	$336

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

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TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF CHANGES IN PROPRIETARY CAPITAL (Unaudited)
For the Three Months Ended December 31, 2017 and 2016
(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, 2016	$ 258	$ 7,594	$ 580	$ (12)	$ 8,420
Net income (loss)	—	104	(2)	—	102
Total other comprehensive income (loss)	—	—	—	30	30
Return on power program appropriation investment	—	(1)	—	—	(1)
Balance at December 31, 2016	$ 258	$ 7,697	$ 578	$ 18	$ 8,551
Balance at September 30, 2017	$ 258	$ 8,282	$ 572	$ 21	$ 9,133
Net income (loss)	—	290	(2)	—	288
Total other comprehensive income (loss)	—	—	—	36	36
Return on power program appropriation investment	—	(1)	—	—	(1)
Balance at December 31, 2017	$ 258	$ 8,571	$ 570	$ 57	$ 9,456

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

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

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1. Nature of Operations and Summary of Significant Accounting Policies

General

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 U.S., 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 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 (2018, 2017, 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 future 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

TVA prepares its consolidated interim financial statements in conformity with GAAP for consolidated interim financial information. Accordingly, TVA's consolidated interim financial statements do not include all of the information and notes required by GAAP for annual financial statements. As such, they should be read in conjunction with the audited financial statements for the year ended September 30, 2017, and the notes thereto, which are contained in TVA's Annual Report on Form 10-K for the year ended September 30, 2017 (the "Annual Report"). In the opinion of management, all adjustments (consisting of items of a normal recurring nature) considered necessary for fair presentation are included in the consolidated interim financial statements.

The accompanying consolidated interim financial statements, which have been prepared in accordance with GAAP, include the accounts of TVA, wholly-owned direct subsidiaries, and variable interest entities ("VIE") of which TVA is the primary beneficiary. See Note 7. 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.

Restricted Cash

Restricted cash reflects amounts to be used primarily for certain TVA environmental programs in accordance with agreements related to compliance with certain environmental regulations. See Note 17 — Legal Proceedings — Environmental Agreements.

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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 less than $1 million at both December 31, 2017, and September 30, 2017. TVA had loans receivable of $127 million and $118 million at December 31, 2017, and September 30, 2017, respectively, and these amounts are reported net of allowances for uncollectible accounts of $1 million at both December 31, 2017, and September 30, 2017. The current portion of loans receivable was $3 million at both December 31, 2017, and September 30, 2017 and is included in Accounts receivable, net. The long-term portions of loans receivable are included in Other long-term assets.

Pre-Commercial Plant Operations

As part of the process of completing the construction of a generating unit, the electricity produced is used to serve the demands of the electric system. TVA estimates revenue from such pre-commercial generation based on the guidance provided by Federal Energy Regulatory Commission ("FERC") regulations. Watts Bar Nuclear Plant ("Watts Bar") Unit 2 commenced pre-commercial plant operations on June 3, 2016, and commercial operations began on October 19, 2016. In addition, the Paradise Combined Cycle Plant commenced pre-commercial plant operations on October 10, 2016, and commercial operations began on April 7, 2017. Furthermore, the Allen Combined Cycle Plant began pre-commercial operations on September 9, 2017. Estimated revenue of $1 million and $14 million primarily related to these projects was capitalized to offset project costs for the three months ended December 31, 2017 and 2016, respectively. TVA also capitalized related fuel costs for these construction projects of approximately $2 million and $5 million during the three months ended December 31, 2017 and 2016, respectively. In addition to the projects above, Johnsonville Combustion Turbine Unit 20 commenced pre-commercial plant operations in September 2017, and was placed in service during the first quarter of 2018.

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. TVA concluded and implemented a new depreciation study effective October 1, 2016. This study will be updated at least every five years. Depreciation expense was $319 million and $336 million for the three months ended December 31, 2017 and 2016, respectively.

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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 the first quarter of 2018.

Derivatives and Hedging - Contingent Put and Call Options in Debt Instruments

Description	This guidance clarifies the requirements for assessing whether contingent call or put options that can accelerate the payment of principal on debt instruments are clearly and closely related to their debt hosts. An entity performing the assessment under the amendments in this update is required to assess the embedded call or put options solely in accordance with a four-step decision sequence. The standard includes interim periods within the fiscal year of adoption and requires a modified retrospective transition.
Effective Date for TVA	October 1, 2017
Effect on the Financial Statements or Other Significant Matters	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. If the coupon rate is going to be reset, holders may request, for a limited period of time, redemption of the PARRS at par value, with repayment of principal on the reset date. This put option is otherwise not available. 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 PARRS. TVA has determined under the new guidance that contingent put options that can accelerate the payment of principal on the PARRS are clearly and closely related to their debt hosts. The adoption of this standard did not have a material impact on TVA's financial condition, results of operations, or cash flows.

Inventory Valuation

Description	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. The standard includes interim periods within the fiscal year of adoption and requires a prospective transition.
Effective Date for TVA	October 1, 2017
Effect on the Financial Statements or Other Significant Matters	The adoption of this standard did not have a material impact on TVA's financial condition, results of operations, or cash flows.

The following accounting standards have been issued but as of December 31, 2017, were not effective and had not been adopted by TVA.

Defined Benefit Costs

Description	This guidance changes how information about defined benefit costs for pension plans and other post-retirement benefit plans is presented in employer financial statements. The guidance requires employers that present a measure of operating income in their statement of income to include only the service cost component of net periodic pension cost and net periodic postretirement benefit cost in operating expenses (together with other employee

	compensation costs). The other components of net benefit cost, including amortization of prior service cost/credit and settlement and curtailment effects, are to be included in nonoperating expenses. Additionally, the guidance stipulates that only the service cost component of net benefit cost is eligible for capitalization in assets.
Effective Date for TVA	The new standard is effective for TVA's interim and annual reporting periods beginning October 1, 2018. While early adoption is permitted, TVA does not currently plan to adopt the standard early.
Effect on the Financial Statements or Other Significant Matters	TVA has evaluated the impact of adopting this guidance, and if the guidance had been effective for TVA for the three months ended December 31, 2017 and 2016, TVA would have reclassified $63 million and $62 million, respectively, of net periodic benefit costs from Operating and maintenance expense to Other income (expense), net on the consolidated statements of operations. There will be no impact on the consolidated balance sheets because TVA has historically capitalized the service cost component which is consistent with the new guidance.
Financial Instruments	
Description	This guidance applies to the recognition and measurement of financial assets and liabilities. The standard requires all equity investments to be measured at fair value with changes in the fair value recognized through net income (other than those accounted for under the equity method of accounting or those that result in consolidation of the investee). The standard also amends presentation requirements related to certain changes in the fair value of a liability and eliminates certain disclosure requirements of significant assumptions for financial instruments measured at amortized cost on the balance sheet. Public entities must apply the amendments by means of a cumulative-effect adjustment to the balance sheet as of the beginning of the fiscal year of adoption.
Effective Date for TVA	The new standard is effective for TVA's interim and annual reporting periods beginning October 1, 2018. Early adoption is not permitted unless specific early adoption guidance is applied. TVA does not currently plan to adopt the standard early.

Effect on the Financial Statements or Other Significant Matters	TVA currently measures all of its equity investments (other than those that result in the consolidation of the investee) at fair value, with changes in the fair value recognized through net income. The TVA Board has authorized the use of regulatory accounting for changes in fair value of certain equity investments, and as a result, those changes in fair value are deferred as regulatory assets or liabilities. TVA currently discloses significant assumptions around its estimates of fair value for financial instruments carried at amortized cost on its consolidated balance sheet. The adoption of this standard is not expected to have a material impact on TVA's financial condition, results of operations or cash flows because TVA holds no available-for-sale securities.

Revenue Recognition

Description	This guidance related to revenue from contracts with customers, including subsequent amendments, replaces the existing accounting standard and industry specific guidance for revenue recognition with a five-step model for recognizing and measuring revenue from contracts with customers. The underlying principle of the guidance is to recognize revenue related to the transfer of goods or services to customers at the amount expected to be collected. The objective of the new standard is to provide a single, comprehensive revenue recognition model for all contracts with customers to improve comparability within and across industries. The new standard also requires enhanced disclosures regarding the nature, amount, timing, and uncertainty of revenue and the related cash flows arising from contracts with customers. At adoption, companies must also select a transition method to be applied either retrospectively to each prior reporting period presented or retrospectively with a cumulative effect adjustment to retained earnings at the date of initial adoption.
Effective Date for TVA	The new standard is effective for TVA's interim and annual reporting periods beginning October 1, 2018. While early adoption is permitted, TVA will not adopt the standard early.
Effect on the Financial Statements or Other Significant Matters	While TVA expects most of its revenue to be included in the scope of the new guidance, it has not completed its evaluation of all contracts with customers. TVA's efforts to date have focused on the scoping of revenue streams and evaluation of contracts with LPCs, which represent the majority of TVA's revenues. TVA is also conducting ongoing evaluations of sales to directly served industrial customers, sales to federal agencies, purchase power agreements, fuel cost adjustments, other revenue streams and the effectiveness of internal control related to revenue recognition. In addition, the power and utilities industry is currently addressing certain industry-specific issues which have not yet been finalized. As the ultimate impact of the new standard has not yet been determined, TVA has not yet elected its transition method.

Statement of Cash Flows - Classification of Certain Cash Receipts and Cash Payments

Description	This standard adds or clarifies guidance on the classification of certain cash receipts and payments on the statement of cash flows as follows: debt prepayment or extinguishment costs, settlement of zero-coupon bonds, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims, proceeds from the settlement of corporate-owned life insurance policies and bank-owned life insurance policies, distributions received from equity method investees, beneficial interest in securitization transactions, and the application of the predominance principle to separately identifiable cash flows.
Effective Date for TVA	This standard is effective for TVA's interim and annual reporting periods beginning October 1, 2018. While early adoption is permitted, TVA does not currently plan to adopt the standard early. TVA will apply the standard using a retrospective transition method to each period presented.
Effect on the Financial Statements or Other Significant	TVA's previous treatment of the classification of certain cash receipts and cash payments is consistent with the new standard and will have no impact on TVA's financial condition, results of operations, or presentation or disclosure of cash flows.

Matters

Statement of Cash Flows - Restricted Cash

Description	This guidance requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. This guidance does not provide a definition of restricted cash or restricted cash equivalents.
Effective Date for TVA	The new standard is effective for TVA’s interim and annual reporting periods beginning October 1, 2018. While early adoption is permitted, TVA does not currently plan to adopt the standard early. TVA will apply the standard using a retrospective transition method to each period presented.
Effect on the Financial Statements or Other Significant Matters	Adoption of this standard will result in a change to the amount of cash and cash equivalents and restricted cash explained when reconciling the beginning-of-period and end-of-period total amounts shown on the consolidated statement of cash flows. For the three months ended December 31, 2017, TVA is reflecting $13 million in transfers of cash and cash equivalents to restricted cash within cash flows from operating activities in the consolidated statement of cash flows.

Derivatives and Hedging - Improvements to Accounting for Hedging Activities

Description	This guidance better aligns an entity's risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. To meet that objective, the amendments expand and refine hedge accounting for both nonfinancial and financial risk components and align the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements.
Effective Date for TVA	The new standard is effective for TVA’s interim and annual reporting periods beginning October 1, 2019. While early adoption is permitted, TVA does not currently plan to adopt the standard early.
Effect on the Financial Statements or Other Significant Matters	TVA does not expect the adoption of this standard to have a material impact on TVA’s financial condition, results of operations, or cash flows.

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Lease Accounting	
Description	This guidance changes the provisions of recognition in both the lessee and lessor accounting models. The standard requires entities that lease assets ("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 recognition of interest on the lease liability separate from amortization expense. The accounting for the owner of the assets leased by the lessee ("lessor accounting") will remain largely unchanged from current lease accounting rules. The standard allows for certain practical expedients to be elected related to lease term determination, separation of lease and non-lease elements, reassessment of existing leases, and short-term leases. 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.
Effective Date for TVA	The new standard is effective for TVA’s interim and annual reporting periods beginning October 1, 2019. While early adoption is permitted, TVA does not currently plan to adopt the standard early.
Effect on the Financial Statements or Other Significant Matters	TVA is currently evaluating the potential impact of these changes on its consolidated financial statements and related disclosures. TVA expects the new standard to impact financial position as adoption is expected to increase the amount of assets and liabilities recognized on TVA’s consolidated balance sheets. TVA expects the new standard to have no material impact on results of operations or cash flows. TVA plans to elect certain of the practical expedients included in the new standard. Efforts to date have consisted of evaluating the completeness of TVA’s lease population, the effectiveness of internal control related to leases, appropriate financial statement disclosure, and selection of a lease system solution. TVA is also continuing to monitor unresolved industry implementation issues, including items related to renewables and purchased power agreements, easements, and rights-of-way, and will analyze the related impacts to lease accounting.

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 December 31, 2017	At September 30, 2017
Power receivables	$ 1,373	$ 1,441
Other receivables	128	129
Allowance for uncollectible accounts	(1)	(1)
Accounts receivable, net	$ 1,500	$ 1,569

4. Inventories, Net

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

Inventories, Net

	At December 31, 2017	At September 30, 2017

Materials and supplies inventory	$ 758	$ 734
Fuel inventory	322	355
Renewable energy certificates/emission allowance inventory, net	12	15
Allowance for inventory obsolescence	(45)	(39)
Inventories, net	$ 1,047	$ 1,065

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5. Other Long-Term Assets

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

	At December 31, 2017	At September 30, 2017
Loans and other long-term receivables, net	$ 124	$ 115
EnergyRight® receivables	98	100
Prepaid capacity payments	32	34
Commodity contract derivative assets	6	2
Currency swap asset, net	5	—
Other	65	72
Other long-term assets	$ 330	$ 323

In association with the EnergyRight® Solutions program, local power company customers of TVA ("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 December 31, 2017, and September 30, 2017, the carrying amount of the loans receivable, net of discount, reported in Accounts receivable, net was approximately $24 million and $25 million, respectively. See Note 9 for information regarding the associated financing obligation.

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6. 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 deferrals 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 December 31, 2017	At September 30, 2017
Current regulatory assets		
Deferred nuclear generating units	$ 237	$ 237
Unrealized losses on interest rate derivatives	89	93
Unrealized losses on commodity derivatives	57	68
Fuel cost adjustment receivable	12	1
Environmental agreements	3	2
Environmental cleanup costs - Kingston ash spill	44	44
Gallatin coal combustion residual facilities	10	—
Other current regulatory assets	3	2
Total current regulatory assets	455	447
Non-current regulatory assets		
Deferred pension costs and other post-retirement benefits costs	3,945	4,009
Unrealized losses on interest rate derivatives	957	982
Gallatin coal combustion residual facilities	889	899
Nuclear decommissioning costs	771	823
Deferred nuclear generating units	703	759
Non-nuclear decommissioning costs	692	703
Environmental cleanup costs - Kingston ash spill	253	263
Unrealized losses on commodity derivatives	35	9
Environmental agreements	12	13
Other non-current regulatory assets	235	238
Total non-current regulatory assets	8,492	8,698
Total regulatory assets	$ 8,947	$ 9,145
Current regulatory liabilities		
Fuel cost adjustment tax equivalents	$ 149	$ 153
Fuel cost adjustment	—	2
Unrealized gains on commodity derivatives	10	8
Total current regulatory liabilities	159	163
Non-current regulatory liabilities		
Deferred other post-retirement benefits cost	19	23
Unrealized gains on commodity derivatives	6	2
Total non-current regulatory liabilities	25	25
Total regulatory liabilities	$ 184	$ 188

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7. 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 VIE, 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 certain entities and as such is
required to account for the VIEs on a consolidated basis.

John Sevier VIEs

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 are 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 a schedule of 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 $400 million 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 in 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 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,

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(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 December 31, 2017, and September 30, 2017, as reflected in the Consolidated Balance Sheets are as follows:
Summary of Impact of VIEs on Consolidated Balance Sheets

	At December 31, 2017	At September 30, 2017
Current liabilities		
Accrued interest	$ 26	$ 11
Accounts payable and accrued liabilities	2	2
Current maturities of long-term debt of variable interest entities	36	36
Total current liabilities	64	49
Other liabilities		
Other long-term liabilities	30	30
Long-term debt, net		
Long-term debt of variable interest entities, net	1,164	1,164
Total liabilities	$ 1,258	$ 1,243

Interest expense of $15 million related to debt of VIEs and membership interests of variable interest entity subject to mandatory redemption is included in the Consolidated Statements of Operations for the three months ended both December 31, 2017 and 2016.

Creditors of the VIEs have no 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.

8. Gallatin Coal Combustion Residual Facilities

Background

TVA is planning to close wet CCR impoundments in accordance with federal and applicable state requirements when (1) coal-fired plants are converted to dry CCR processes and dry storage landfills become operational or (2) the related plant operations cease. Closure project schedules and costs are driven by the selected closure technology. The impoundments at Gallatin are pending additional studies to determine the final closure methodology and schedule. While plans are currently being formulated for the CCR closure methodology for Gallatin, TVA is involved in two lawsuits relating to alleged discharges of pollutants from the CCR facilities at Gallatin.

Lawsuit Brought by TDEC. In January 2015, the Tennessee Department of Environment and Conservation ("TDEC") filed a lawsuit against TVA in the Chancery Court for Davidson County, Tennessee. The lawsuit alleges that pollutants have been discharged into waters of the State from CCR facilities at Gallatin in violation of the Tennessee Water Quality Control Act and the Tennessee Solid Waste Disposal Act. TDEC seeks injunctive relief, which could include an order requiring TVA to relocate the CCR facilities. TDEC also requested 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 Tennessee Scenic Rivers Association ("TSRA") and Tennessee Clean Water Network ("TCWN") to intervene in the case, and in January 2016, the court ordered TVA, among other things, to develop and submit to TDEC an environmental investigation plan and an environmental assessment report. On August 4, 2017, TDEC filed an amended complaint adding new facts, claims, and causes of action. Consequently, on August 10, 2017, TVA removed the case from state court to federal court. The case is now in the United States District Court for the

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Middle District of Tennessee. The plaintiffs have filed motions requesting that the case be remanded to state court and briefing on the motions has been completed.

Lawsuit Brought by TSRA and TCWN. In April 2015, TSRA and the TCWN filed a lawsuit against TVA in the United States District Court for the Middle District of Tennessee alleging that pollutants have been discharged into the Cumberland River from CCR facilities at Gallatin in violation of the Clean Water Act ("CWA"). The plaintiffs are seeking injunctive relief, including an order requiring TVA to relocate the CCR facilities, civil penalties of up to $37,500 per violation per day, and attorneys' fees.

Trial in this action began on January 30, 2017, and concluded February 2, 2017. On August 4, 2017, the court issued a decision largely in favor of the plaintiffs (the "August 2017 Order"), finding that TVA had discharged pollutants into the Cumberland River in the past and that the discharge was likely ongoing. The court ordered TVA to excavate the CCR materials and move them to a lined facility. The court further required TVA to file within 30 days a timetable for excavating and removing the material. The court did not assess any monetary penalties against TVA for the CWA violations, citing the fact that its order to relocate the CCR material would cause TVA to incur significant costs.

On September 5, 2017, TVA submitted the required timetable, which assumes that a new lined facility can be permitted and built on the Gallatin site. The process of obtaining the necessary permits, constructing the facility, and moving all of the CCR materials is estimated to take approximately 24 years. Under current regulations, TVA would be required to monitor the existing facilities and the new facility for 30 years after closure. The estimated cost of the potential Gallatin CCR project is approximately $900 million. At December 31, 2017, related liabilities of $875 million and $23 million were recorded in Other long-term liabilities and Accounts payable and accrued liabilities, respectively. Prior to the court's decision, TVA had anticipated spending approximately $200 million to cap and close the existing CCR facilities. On October 2, 2017, TVA appealed the court's decision to the United States Court of Appeals for the Sixth Circuit ("Sixth Circuit").

Financial Impact

In August 2017, TVA began using regulatory accounting treatment to defer expected future costs of compliance with orders or settlements related to lawsuits involving the Gallatin CCR facilities. The TVA Board approved a plan to amortize these costs over the anticipated duration of the Gallatin CCR facilities project (excluding post-closure care), beginning October 1, 2018 as amounts are included in rates or paid out. TVA has estimated these costs to be approximately $900 million. These costs include, among other things, environmental studies concerning the existing and new facilities, the licensing activities for the new facility, design and construction of the new facility, relocating the material from the existing facilities to the new facility, closing the existing facilities, monitoring activities, and an amount of additional costs reflecting the expected impacts of inflation given the anticipated duration of the project. The costs do not include such items as any additional order or penalty arising from the TDEC lawsuit, which cannot be reasonably estimated at this time. TVA has not discounted this environmental obligation to a present value amount. TVA also committed in its timetable to complete capital projects related to construction of a permanent bottom ash dewatering facility and wastewater process ponds. These capital projects, which are not included in the estimate for cleanup costs above, are estimated to cost approximately $91 million and be completed by 2020.

It is reasonably possible that TVA will not be able to obtain the necessary permits to build the facility on the Gallatin site and will be required to move the CCR materials offsite. Offsite relocation would materially increase both the cost and the time to comply with the August 2017 Order. TVA has estimated that if it is required to relocate the materials to a facility off the Gallatin site, TVA may incur up to $2.0 billion in expenses. These costs include, among other things, environmental studies concerning the existing and new facilities, the licensing activities for the new facility, design and construction of the new facility, relocating the material from the existing facilities to the new facility, closing the existing facilities, monitoring activities, and an amount of additional costs reflecting the expected impacts

of inflation given the anticipated duration of the project. The process of obtaining the necessary permits for offsite disposal, locating or constructing an offsite facility, and moving all of the CCR materials offsite is estimated to take approximately 40 years. TVA would also be required to monitor the existing facilities and the offsite facility for 30 years after the facilities are closed, based on current regulations.

The ultimate cost of the removal project will depend on actual timing and results of ongoing litigation, environmental studies, licensing, permitting, site subsurface conditions, contractor availability, weather, equipment, available material resources, and other contingency factors. These contingency factors could cause the project cost estimate to change materially in the near term. TVA updates its estimate for project costs as changes in these factors are determined to be probable of occurring.

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9. Other Long-Term Liabilities

Other long-term liabilities consist primarily of liabilities related to certain derivative agreements, liabilities for environmental remediation, and liabilities under agreements related to compliance with certain environmental regulations. See Note 17 — Legal Proceedings — Environmental Agreements. The table below summarizes the types and amounts of Other long-term liabilities:

Other Long-Term Liabilities

	At December 31, 2017	At September 30, 2017
Interest rate swap liabilities	$ 1,364	$ 1,418
Gallatin coal combustion residual facilities liability	875	880
Capital lease obligations	181	182
EnergyRight® financing obligation	112	115
Currency swap liabilities	59	92
Commodity contract derivative liabilities	35	9
Membership interests of VIE subject to mandatory redemption	30	30
Environmental agreements liability	12	13
Other	293	316
Total other long-term liabilities	$ 2,961	$ 3,055

Interest Rate Swap Liabilities. TVA uses interest rate swaps to fix variable short-term debt to a fixed rate. The values of these derivatives are included in Accounts payable and accrued liabilities and Other long-term liabilities on the consolidated balance sheets. As of December 31, 2017, and September 30, 2017, the carrying amount of the interest rate swap liabilities reported in Accounts payable and accrued liabilities was approximately $90 million and $93 million, respectively. See Note 13 — Derivatives Not Receiving Hedge Accounting Treatment — Interest Rate Derivatives for information regarding the associated interest rate swap liabilities.

Gallatin Coal Combustion Residual Facilities Liability. The estimated cost of the potential Gallatin CCR project is approximately $900 million. The current and long-term portions of the resulting obligation are reported in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA's consolidated balance sheets. As of December 31, 2017, and September 30, 2017, related liabilities of $23 million and $19 million, respectively, were recorded in Accounts payable and accrued liabilities. See Note 8 for information regarding the Gallatin CCR facilities.

EnergyRight® Financing 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 December 31, 2017, and September 30, 2017, the carrying amount of the financing obligation reported in Accounts payable and accrued liabilities was approximately $28 million and $29 million, respectively. See Note 5 for information regarding the associated loans receivable and for details regarding the EnergyRight® Solutions program.

10. Asset Retirement Obligations

During the three months ended December 31, 2017, TVA's total asset retirement obligation ("ARO") liability increased $61 million as a result of revisions in estimates and periodic accretion, partially offset by settlement projects that were conducted during this period. The revisions in estimate are primarily related to changes in strategy of asset retirements at certain TVA facilities. The nuclear and non-nuclear accretion expenses were deferred as regulatory assets. During the three months ended December 31, 2017, $36 million of the related non-nuclear regulatory assets

were amortized into expense as these amounts were collected in rates. See Note 6. TVA maintains investment trusts to help fund its decommissioning obligations. See Note 14 — Investment Funds and Note 17 — Contingencies — Decommissioning Costs for a discussion of the trusts' objectives and the current balances of the trusts.

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Asset Retirement Obligation Activity[1]

	Nuclear	Non-Nuclear	Total
Balance at September 30, 2017	$ 2,859	$ 1,445	$ 4,304
Settlements	—	(25)	(25)
Revisions in estimate	—	46	46
Accretion (recorded as regulatory asset)	32	8	40
Balance at December 31, 2017	$ 2,891	$ 1,474	$ 4,365

Note
(1) The current portion of ARO in the amount of $159 million and $128 million is included in Accounts payable and accrued liabilities at December 31, 2017, and September 30, 2017, respectively.

11. Debt and Other Obligations

Debt Outstanding

Total debt outstanding at December 31, 2017, and September 30, 2017, consisted of the following:

Debt Outstanding

	At December 31, 2017	At September 30, 2017
Short-term debt		
Short-term debt, net	$ 2,721	$ 1,998
Current maturities of power bonds	2,031	1,728
Current maturities of long-term debt of variable interest entities	36	36
Current maturities of notes payable	52	53
Total current debt outstanding, net	4,840	3,815
Long-term debt		
Long-term power bonds[1]	19,362	20,357
Long-term debt of variable interest entities	1,175	1,175
Long-term notes payable	68	69
Unamortized discounts, premiums, issue costs, and other	(159)	(163)
Total long-term debt, net	20,446	21,438
Total outstanding debt	$ 25,286	$ 25,253

Note
(1) Includes net exchange gain from currency transactions of $118 million at December 31, 2017, and $125 million at September 30, 2017.

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Debt Securities Activity

The table below summarizes the long-term debt securities activity for the period from October 1, 2017, to December 31, 2017:

Debt Securities Activity

	Date	Amount[(1)]	Interest Rate
Redemptions/Maturities			
electronotes®	First Quarter 2018	$ 47	4.10 %
1997 Series E	December 2017	650	6.25 %
2009 Series B	December 2017	1	3.77 %
Total redemptions/maturities of power bonds		698	
Notes payable	November 2017	2	1.64 %
Total redemptions/maturities of debt		$ 700	

Note

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

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 2018 with a maturity date of September 30, 2018. 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 December 31, 2017. 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 under four long-term revolving credit facilities totaling $2.7 billion: a $150 million credit facility that matures on December 12, 2019, a $500 million credit facility that matures on February 1, 2021, a $1.0 billion credit facility that matures on June 2, 2020, and a $1.0 billion credit facility that 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 $2.7 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 December 31, 2017, and September 30, 2017, there were approximately $1.0 billion and $1.2 billion, respectively, of letters of credit outstanding under the facilities, and there were no borrowings outstanding. See Note 13 — Other Derivative Instruments — Collateral.

The following table provides additional information regarding TVA's funding available under the four long-term credit facilities:

Summary of Long-Term Credit Facilities

At December 31, 2017

Maturity Date	Facility Limit	Letters of Credit Outstanding	Cash Borrowings	Availability
December 2019	$ 150	$ 37	$ —	$ 113

February 2021	500	500	—	—
June 2020	1,000	268	—	732
September 2020	1,000	224	—	776
Total	$2,650	$ 1,029	$ —	$ 1,621

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Lease/Leasebacks

TVA previously entered into leasing transactions to obtain third-party financing for 24 peaking combustion turbine units ("CTs") as well as certain qualified technological equipment and software (collectively, “QTE”). Due to TVA’s continuing involvement with the combustion turbine facilities and the QTE during the leaseback term, TVA accounted for the lease proceeds as financing obligations. On September 20, 2017, TVA acquired 100 percent of the equity interests in two special purpose entities ("SPEs") created for the purpose of facilitating a portion of the leaseback arrangements. As a result of the acquisition, TVA effectively settled $70 million of its leaseback obligations related to eight CTs. 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. At both December 31, 2017, and September 30, 2017, the outstanding leaseback obligations related to the remaining CTs and QTE were $338 million.

12. Accumulated Other Comprehensive Income (Loss)

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. During the three months ended December 31, 2017 and 2016, TVA reclassified $3 million of gains and $38 million of losses, respectively, related to its cash flow hedges from AOCI to Interest expense.

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 6 for a schedule of regulatory assets and liabilities. See Note 13 for a discussion of the recognition in AOCI of gains and losses associated with certain derivative contracts. See Note 14 for a discussion of the recognition of certain investment fund gains and losses as regulatory assets and liabilities. See Note 16 for a discussion of the regulatory accounting related to components of TVA’s benefit plans.

13. 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).

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 OCI

Derivatives in Cash Flow Hedging Relationship	Objective of Hedge Transaction	Accounting for Derivative Hedging Instrument	Three Months Ended December 31,	
			2017	2016
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.	$ 39	$ (8)

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Summary of Derivative Instruments That Receive Hedge Accounting Treatment (part 2)[1]
Amount of Gain (Loss) Reclassified from OCI to Interest Expense

Derivatives in Cash Flow Hedging Relationship	Three Months Ended December 31, 2017	2016
Currency swaps	$ 3	$ (38)

Note
(1) 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 $1 million of losses from AOCI to interest expense within the next twelve months to offset amounts anticipated to be recorded in interest expense related to net exchange gain on the debt.

Summary of Derivative Instruments That Do Not Receive Hedge Accounting Treatment[1]
Amount of Gain (Loss) Recognized in Income on Derivatives

Derivative Type	Objective of Derivative	Accounting for Derivative Instrument	Three Months Ended December 31, 2017	2016
Interest rate swaps	To fix short-term debt variable rate to a fixed rate (interest rate risk)	Mark-to-market gains and losses are recorded as regulatory assets or liabilities. Realized gains and losses are recognized in interest expense when incurred during the settlement period.	$ (24)	$ (26)
Commodity contract derivatives	To protect against fluctuations in market prices of purchased coal or natural gas (price risk)	Mark-to-market gains and losses are recorded as regulatory assets or liabilities. Realized gains and losses due to contract settlements are recognized in fuel expense as incurred.	3	(2)
Commodity derivatives under FTP	To protect against fluctuations in market prices of purchased commodities (price risk)	Mark-to-market 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.	8	(14)

Note
(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 three months ended December 31, 2017 and 2016.

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Fair Values of TVA Derivatives

	At December 31, 2017		At September 30, 2017	
Derivatives That Receive Hedge Accounting Treatment	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Currency swaps				
£200 million Sterling	$(59)	Accounts payable and accrued liabilities $(4); Other long-term liabilities $(55)	$(67)	Accounts payable and accrued liabilities $(5); Other long-term liabilities $(62)
£250 million Sterling	1	Accounts payable and accrued liabilities $(4); Other long-term assets $5	(15)	Accounts payable and accrued liabilities $(4); Other long-term liabilities $(11)
£150 million Sterling	(7)	Accounts payable and accrued liabilities $(3); Other long-term liabilities $(4)	(21)	Accounts payable and accrued liabilities $(2); Other long-term liabilities $(19)

	At December 31, 2017		At September 30, 2017	
Derivatives That Do Not Receive Hedge Accounting Treatment	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Interest rate swaps				
$1.0 billion notional	(1,052)	Accounts payable and accrued liabilities $(64); Other long-term liabilities $(988)	(1,093)	Accounts payable and accrued liabilities $(66); Other long-term liabilities $(1,027)
$476 million notional	(394)	Accounts payable and accrued liabilities $(24); Other long-term liabilities $(370)	(410)	Accounts payable and accrued liabilities $(25); Other long-term liabilities $(385)
$42 million notional	(8)	Accounts payable and accrued liabilities $(2); Other long-term liabilities $(6)	(8)	Accounts payable and accrued liabilities $(2); Other long-term liabilities $(6)
Commodity contract derivatives	(77)	Other current assets $10; Other long-term assets $6; Other long-term liabilities $(35); Accounts payable and accrued liabilities $(58)	(60)	Other current assets $8; Other long-term assets $2; Other long-term liabilities $(9); Accounts payable and accrued liabilities $(61)
FTP				
Derivatives under FTP(1)	—		(5)	Other current assets $(4); Accounts payable and accrued liabilities $(1)

Note
(1) Fair values of certain derivatives under the FTP that were in net liability positions totaling $4 million at September 30, 2017, were recorded in TVA's margin cash accounts in Other current assets. These derivatives were 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. At December 31, 2017, TVA had no

derivatives under the FTP in net liability positions.

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 three currency swaps outstanding as of December 31, 2017, with total currency exposure of £600 million and expiration dates ranging from 2021 to 2043.

When the dollar strengthens against the British pound sterling, the exchange gain on the Bond liability is offset by an equal amount of loss on the swap contract that is reclassified out of AOCI. Conversely, the exchange loss on the Bond liability is
offset by an equal amount of gain on the swap contract that is reclassified out of AOCI. 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. The values of the currency swap asset and liabilities are included in Other long-term assets, Accounts payable and accrued liabilities, and Other long-term liabilities on the consolidated balance sheets.

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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 gains or losses are realized. The values of these derivatives are included in Accounts payable and accrued liabilities and 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 three months ended December 31, 2017 and 2016, the changes in fair market value of the interest rate swaps resulted in deferred unrealized gains of $28 million and $441 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 market values as regulatory assets or liabilities on a gross basis. At December 31, 2017, TVA's coal contract derivatives had terms of up to three years and natural gas contract derivatives had terms of up to four years.

Commodity Contract Derivatives

	At December 31, 2017			At September 30, 2017		
	Number of Contracts	Notional Amount	Fair Value (MtM)	Number of Contracts	Notional Amount	Fair Value (MtM)
Coal contract derivatives	11	23 million tons	$ (73)	20	17 million tons	$ (67)
Natural gas contract derivatives	46	253 million mmBtu	$ (4)	53	271 million mmBtu	$ 7

Derivatives Under FTP. TVA has suspended its FTP and no longer uses financial instruments to hedge risks related to commodity prices. At December 31, 2017, TVA had no open commodity derivatives under the FTP.

Derivatives Under Financial Trading Program[1]

	At December 31, 2017		At September 30, 2017	
	Notional Amount (in mmBtu)	Fair Value (MtM) (in millions)	Notional Amount (in mmBtu)	Fair Value (MtM) (in millions)
Natural gas Swap contracts	—	$ —	2,800,000	$ (5)

Note

(1) Fair value amounts presented are based on the net commodity position with the counterparty. Notional amounts disclosed represent the net value of contractual amounts.

Prior to the suspension of the FTP, TVA deferred all FTP unrealized gains (losses) as regulatory liabilities (assets) and recorded only realized gains or losses to match the delivery period of the underlying commodity. 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 December 31,	At September 30, 2017

	2017	
FTP unrealized gains (losses) deferred as regulatory liabilities (assets)		
Natural gas	$ —	$ (5)

Financial Trading Program Realized Gains (Losses)

	Three Months Ended December 31, 2017	2016
Decrease (increase) in fuel expense		
Natural gas	$(6)	$(11)
Decrease (increase) in purchased power expense		
Natural gas	(2)	(3)

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Offsetting of Derivative Assets and Liabilities

The amounts of TVA's derivative instruments as reported in the consolidated balance sheets at December 31, 2017, and September 30, 2017, are shown in the table below:

Derivative Assets and Liabilities

	At December 31, 2017		
	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 swaps(3)	$ 1	$ —	$ 1
Commodity derivatives not subject to master netting or similar arrangement	$ 16	$ —	$ 16
Total assets	$ 17	$ —	$ 17
Liabilities			
Currency swaps(3)	$ 66	$ —	$ 66
Interest rate swaps(3)	1,454	—	1,454
Total derivatives subject to master netting or similar arrangement	1,520	—	1,520
Commodity derivatives not subject to master netting or similar arrangement	93	—	93
Total liabilities	$ 1,613	$ —	$ 1,613

	At September 30, 2017		
	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 not subject to master netting or similar arrangement	$ 10	$ —	$ 10
Liabilities			

Currency swaps[3]	$ 103	$ —	$ 103
Interest rate swaps[3]	1,511	—	1,511
Commodity derivatives under FTP	5	(4)	1
Total derivatives subject to master netting or similar arrangement	1,619	(4)	1,615
Commodity derivatives not subject to master netting or similar arrangement	70	—	70
Total liabilities	$ 1,689	$ (4)	$ 1,685

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 that are not offset in the consolidated balance sheets.
(3) Letters of credit of approximately $1.0 billion and $1.2 billion were posted as collateral at December 31, 2017, and September 30, 2017, 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.

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Other Derivative Instruments

Investment Fund Derivatives. Investment funds consist primarily of funds held in the Nuclear Decommissioning Trust ("NDT"), the Asset Retirement Trust ("ART"), the Supplemental Executive Retirement Plan ("SERP"), and the TVA Deferred Compensation Plan ("DCP"). All securities in these trusts and plans are classified as trading. See Note 14 — Investment Funds for a discussion of the trusts and plans and the types of investments that they hold. The NDT and ART may invest in derivative instruments which may include swaps, futures, options, forwards, and other instruments. At December 31, 2017, and September 30, 2017, the NDT held investments in forward contracts to purchase debt securities. The fair values of these derivatives were in net asset positions totaling $37 million and $19 million at December 31, 2017, and September 30, 2017, respectively.

Collateral. TVA's interest rate swaps and currency swaps 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 December 31, 2017, the aggregate fair value of all derivative instruments with credit-risk related contingent features that were in a liability position was $1.5 billion. TVA's collateral obligations at December 31, 2017, under these arrangements were approximately $1 billion, for which TVA had posted approximately $1 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. 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. See Note 1 — Allowance for Uncollectible Accounts and Note 3.

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 December 31, 2017. 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.

On March 29, 2017, one of TVA’s suppliers, Westinghouse Electric Company (“Westinghouse”), filed for protection under Chapter 11 of the United States Bankruptcy Code. On January 4, 2018, Brookfield Business Partners L.P. ("Brookfield Business Partners"), together with institutional partners, announced that they have entered into an agreement to acquire 100% of Westinghouse, which is currently owned by Toshiba Corp. Brookfield Business Partners is listed on the New York and Toronto stock exchanges and is the flagship listed business services and industrials company of Brookfield Asset Management

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Inc., a leading global alternative asset manager with over $265 billion of assets under management, of which approximately $141 billion are in the U.S. Closing of the transaction remains subject to Bankruptcy Court approval and customary closing conditions including, among others, regulatory approvals. Closing is expected to occur in the fourth quarter of 2018.

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.

Derivative Counterparties. TVA has entered into physical and financial contracts that qualify as derivatives for hedging purposes, and TVA's NDT fund has 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 has 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 December 31, 2017, all of TVA's currency swaps and interest rate swaps as well as all of the derivatives in the NDT 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 December 31, 2017, the coal derivative contracts were with counterparties whose Moody's credit rating, or TVA’s internal analysis when such information was unavailable, ranged from C, or D, respectively, to Ba3. At December 31, 2017, the natural gas derivative contracts were with counterparties whose Moody's 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 and natural gas counterparties in an asset position as of December 31, 2017, was approximately $16 million.

TVA previously utilized two futures commission merchants ("FCMs") to clear commodity contracts, including futures, options, and similar financial derivatives. These transactions were executed under the FTP by the FCMs on exchanges on behalf of TVA. TVA maintained margin cash accounts with the FCMs. TVA made deposits to the margin cash accounts to adequately cover any net liability positions on its derivatives transacted with the FCMs. At December 31, 2017, TVA had no positions under the FTP. See the note to the Fair Values of TVA Derivatives table above.

14. 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 DCP assets, all changes in fair value of these assets and liabilities have

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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 DCP 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.

Investment Funds

At December 31, 2017, Investment funds were composed of $2.7 billion of securities classified as trading and measured at fair value. Trading securities are held in the NDT, ART, SERP, and DCP. 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 $1.9 billion and $655 million, respectively, at December 31, 2017.

TVA established a SERP to provide benefits to selected employees of TVA which are comparable to those provided by competing organizations. The DCP is designed to provide participants with the ability to defer compensation until employment with TVA ends. 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 DCP 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 DCP are composed of multiple types of investments and are managed by external institutional investment managers. Most U.S. and international equities, U.S. 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, 10 years or longer. The NDT had unfunded commitments related to private equity limited partnerships of $49 million and unfunded commitments related to private real estate of $5 million at December 31, 2017. 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 DCP 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 asset or liability 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 during each period as follows:

Unrealized Investment Gains (Losses)

		Three Months Ended December 31,	
Fund	Financial Statement Presentation	2017	2016
SERP	Other income (expense)	$ 1	$ —
NDT	Regulatory asset	47	(7)
ART	Regulatory asset	20	3

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Currency and Interest Rate Derivatives

See Note 13 — 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

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.

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 of 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 counterparty. TVA discounts each financial instrument using the historical default rate (as reported by Moody's for CY 1983 to CY 2017) 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 less than $1 million decrease in the fair value of assets and a $1 million decrease in the fair value of liabilities at December 31, 2017.

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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 as of December 31, 2017, and September 30, 2017. 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 December 31, 2017

	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets				
Investments				
Equity securities	$ 233	$ —	$ —	$233
Government debt securities	78	69	—	147
Corporate debt securities	—	393	—	393
Mortgage and asset-backed securities	—	50	—	50
Institutional mutual funds	96	—	—	96
Forward debt securities contracts	—	37	—	37
Private equity funds measured at net asset value(1)	—	—	—	137
Private real estate funds measured at net asset value(1)	—	—	—	115
Commingled funds measured at net asset value(1)	—	—	—	1,506
Total investments	407	549	—	2,714
Currency swaps(2)	—	1	—	1
Commodity contract derivatives	—	7	9	16
Total	$ 407	$ 557	$ 9	$2,731

	Quoted Prices in Active Markets for Identical Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Liabilities				
Currency swaps(2)	$ —	$ 66	$ —	$66
Interest rate swaps	—	1,454	—	1,454
Commodity contract derivatives	—	11	82	93
Total	$ —	$ 1,531	$ 82	$1,613

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) 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 13 — Offsetting of Derivative Assets and Liabilities.

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Fair Value Measurements
At September 30, 2017

	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets				
Investments				
Equity securities	$ 226	$ —	$ —	$226
Government debt securities	100	42	—	142
Corporate debt securities	—	373	—	373
Mortgage and asset-backed securities	—	49	—	49
Institutional mutual funds	94	—	—	94
Forward debt securities contracts	—	19	—	19
Private equity funds measured at net asset value[(1)]	—	—	—	136
Private real estate funds measured at net asset value[(1)]	—	—	—	113
Commingled funds measured at net asset value[(1)]	—	—	—	1,451
Total investments	420	483	—	2,603
Commodity contract derivatives	—	8	2	10
Total	$ 420	$ 491	$ 2	$2,613

	Quoted Prices in Active Markets for Identical Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Liabilities				
Currency swaps[(2)]	$ —	$ 103	$ —	$103
Interest rate swaps	—	1,511	—	1,511
Commodity contract derivatives	—	1	69	70
Commodity derivatives under FTP[(2)]				
Swap contracts	—	1	—	1
Total	$ —	$ 1,616	$ 69	$1,685

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 13 — Offsetting of Derivative Assets and Liabilities.

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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, 2016	$ (127)
Change in net unrealized gains (losses) deferred as regulatory assets and liabilities	23
Balance at December 31, 2016	$ (104)
Balance at October 1, 2017	$ (67)
Change in net unrealized gains (losses) deferred as regulatory assets and liabilities	(6)
Balance at December 31, 2017	$ (73)

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 December 31, 2017	Valuation Technique(s)	Unobservable Inputs	Range
Assets				
Commodity contract derivatives	$ 9	Pricing model	Coal supply and demand	0.6 - 0.7 billion tons/year
			Long-term market prices	$12.15 - $112.81/ton
Liabilities				
Commodity contract derivatives	$ 82	Pricing model	Coal supply and demand	0.6 - 0.7 billion tons/year
			Long-term market prices	$12.15 - $112.81/ton

Quantitative Information about Level 3 Fair Value Measurements

	Fair Value at September 30, 2017	Valuation Technique(s)	Unobservable Inputs	Range
Assets				
Commodity contract derivatives	$ 2	Pricing model	Coal supply and demand	0.6 - 0.7 billion tons/year
				$11.40 - $112.23/ton

			Long-term market prices	
Liabilities				
Commodity contract derivatives	$ 69	Pricing model	Coal supply and demand	0.6 - 0.7 billion tons/year
			Long-term market prices	$11.40 - $112.23/ton

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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 December 31, 2017, and September 30, 2017, 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 December 31, 2017, and September 30, 2017, were as follows:

Estimated Values of Financial Instruments Not Recorded at Fair Value

		At December 31, 2017		At September 30, 2017	
	Valuation Classification	Carrying Amount	Fair Value	Carrying Amount	Fair Value
EnergyRight® receivables (including current portion)	Level 2	$122	$123	$125	$127
Loans and other long-term receivables, net (including current portion)	Level 2	$127	$113	$118	$107
EnergyRight® financing obligation (including current portion)	Level 2	$140	$156	$144	$161
Unfunded loan commitments	Level 2	$—	$18	$—	$18
Membership interest of variable interest entity subject to mandatory redemption (including current portion)	Level 2	$32	$41	$32	$41
Long-term outstanding power bonds (including current maturities), net	Level 2	$21,245	$26,134	$21,933	$26,857
Long-term debt of variable interest entities (including current maturities), net	Level 2	$1,200	$1,366	$1,200	$1,356
Long-term notes payable (including current maturities)	Level 2	$120	$119	$122	$121

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 entities 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.

15. Other Income (Expense), Net

Income and expenses not related to TVA’s operating activities are summarized in the following table:

Other Income (Expense), Net

	Three Months Ended December 31,	
	2017	2016
Interest income	$ 6	$ 6
External services	4	3
Gains (losses) on investments	2	—
Miscellaneous	—	3
Total other income (expense), net	$ 12	$ 12

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16. Benefit Plans

TVA sponsors a qualified defined benefit pension plan ("pension plan") that covers most of its full-time employees hired before 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").

The components of net periodic benefit cost and other amounts recognized as changes in regulatory assets for the three months ended December 31, 2017 and 2016, were as follows:

Components of TVA’s Benefit Plans

	For the Three Months Ended December 31			
	Pension Benefits		Other Post-Retirement Benefits	
	2017	2016	2017	2016
Service cost	$14	$17	$ 4	$ 5
Interest cost	118	116	5	5
Expected return on plan assets	(120)	(114)	—	—
Amortization of prior service credit	(25)	(25)	(6)	(6)
Recognized net actuarial loss	103	116	2	3
Total net periodic benefit cost as actuarially determined	90	110	5	7
Amount capitalized due to actions of regulator	(14)	(34)	—	—
Total net periodic benefit cost	$76	$76	$ 5	$ 7

As of October 1, 2016, TVARS’s Rules and Regulations require TVA to contribute to the pension plan the greater of the minimum contribution calculated by TVARS's actuary or $300 million for a period of 20 years or until the plan has reached a fully funded status if sooner than 20 years. The minimum required contribution for 2018 is $300 million. As of December 31, 2017, TVA had contributed $75 million to TVARS and expects to contribute the remaining $225 million by September 30, 2018. TVA contributed $800 million to TVARS in 2017, though the minimum required contribution was $300 million. TVA also contributed $23 million and $20 million to the 401(k) plan during the three months ended December 31, 2017 and 2016, respectively. TVA does not separately set aside assets to fund its other post-retirement benefit plans, but rather funds such benefits on an as-paid basis. TVA provided approximately $12 million and $20 million, net of rebates and subsidies, to other post-retirement benefit plans for the three months ended December 31, 2017 and 2016, respectively. TVA includes its cash contributions to the pension plan in the rate-making formula; accordingly, TVA recognizes 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.

17. Contingencies and Legal Proceedings

Contingencies

Nuclear Insurance. Section 170 of the Atomic Energy Act, commonly known as the Price-Anderson Act, provides a layered framework of protection to compensate for liability claims of members of the public for personal injury and property
damages arising from a nuclear event in the United States. For the first layer, all of the Nuclear Regulatory Commission ("NRC") nuclear plant licensees, including TVA, purchase $450 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 $450 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.

Federal law requires that each NRC power reactor licensee obtain property insurance from private sources to cover the cost of stabilizing or shutting down a reactor after an accident. TVA carries property, decommissioning, and decontamination
insurance from Nuclear Electric Insurance Limited ("NEIL"), totaling $5.1 billion for its licensed nuclear plants with up to $2.1 billion available for a loss at any one site. Some of this insurance may require the payment of retrospective premiums up to a
maximum of approximately $126 million.

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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 $43 million.

Decommissioning Costs. TVA recognizes legal obligations associated with the future retirement of certain tangible long-lived assets related primarily to nuclear generating plants, coal-fired generating plants, hydroelectric generating plants/dams, transmission structures, and other property-related assets. See Note 10.

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 December 31, 2017, the estimated future decommissioning cost of $2.9 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 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 14 — Investment Funds. 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.

Non-Nuclear Decommissioning. The estimated future non-nuclear decommissioning ARO was $1.5 billion at December 31, 2017. 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 14. Estimates involved in determining if additional funding will be made to the ART include inflation rate, rate of return projections on the fund investments, and the planned use of other sources to fund decommissioning costs.

Environmental Matters. TVA's power generation activities, like those across the utility industry and in other industrial sectors, are subject to 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. Environmental requirements placed on the operation of TVA's coal-fired and other generating units will likely continue to become more restrictive over time. Litigation over emissions or discharges from coal-fired generating units is also occurring, including litigation against TVA. Failure to comply with environmental and safety 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.

TVA estimates that compliance with existing and future Clean Air Act ("CAA") requirements (excluding greenhouse gas ("GHG") requirements) could lead to costs of approximately $175 million from 2018 to 2022, which include future clean air controls, existing controls capital projects, and air operations and maintenance projects. TVA also estimates additional expenditures of $1 billion from 2018 to 2022 relating to TVA's coal combustion residuals ("CCR") conversion program, not including costs related to any new requirements related to the Gallatin CCR facilities lawsuits, as well as expenditures of approximately $500 million from 2018 to 2024 relating to compliance with Clean Water Act requirements. Future costs could differ from these estimates if new environmental laws or regulations become applicable to TVA or the facilities it operates, or if existing environmental laws or regulations are revised or reinterpreted. There could also be costs that cannot reasonably be predicted at this time, due to uncertainty of actions, that could increase these estimates.

Liability for releases and cleanup of hazardous substances is primarily regulated by the federal Comprehensive Environmental Response, Compensation, and Liability Act, 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 operations at some facilities have resulted in contamination that TVA is addressing. At December 31, 2017, and September 30, 2017, TVA's

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estimated liability for cleanup and similar environmental work for those sites for which sufficient information is available to develop a cost estimate was approximately $8 million and $7 million, respectively, 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 December 31, 2017, TVA had accrued $18 million of probable losses with respect to Legal Proceedings. Of the accrued amount, $11 million is included in Other long-term liabilities and $7 million is included in Accounts payable and accrued liabilities. 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 Environmental Protection Agency ("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 sulfur dioxide ("SO_2") and nitrogen oxide, (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.

Case Involving Tennessee Valley Authority Retirement System. In March 2010, eight current and former participants in
and beneficiaries of TVARS filed suit in the U.S. 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 $1.0 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 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 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. On March 2, 2017, the district court granted TVA's motion for a judgment on the administrative record and dismissed all the remaining claims in this case. The plaintiffs appealed this order, and oral argument before the Sixth Circuit was held on January 31, 2018.

Cases Involving Gallatin Fossil Plant CCR Facilities. TVA is a party in two lawsuits relating to alleged releases of waste materials from the CCR facilities at Gallatin. See Note 8 — Background — Lawsuit Brought by TDEC and — Lawsuit Brought by TSRA and TCWN.

Petitions to Intervene in the Proceeding Involving the Early Site Permit Application for Small Modular Reactors at TVA's Clinch River Site. Three environmental groups — the Southern Alliance for Clean Energy ("SACE"), Tennessee Environmental Council ("TEC"), and Blue Ridge Environmental Defense League ("BREDL") — filed petitions to intervene in the proceeding regarding the Early Site Permit Application that TVA submitted for review by the NRC in May 2016 relating to the potential future construction and operation of two or more small modular reactor units at TVA’s Clinch River site in Oak Ridge, Tennessee. On October 10, 2017, the Atomic Safety and Licensing Board issued a decision admitting two contentions proffered jointly by SACE and TEC and dismissing a third. The two admitted contentions challenge the application’s environmental report. One of the contentions alleges that the environmental report fails to consider the possibility of a spent fuel pool fire, and the other objects to language in the environmental report regarding the technical advantages of small modular reactors. The decision also denied admission of BREDL’s one proffered contention. On November 6, 2017, TVA appealed the admission of the two contentions to the NRC.

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 not as stringent as required, (2) includes allowances for startup, shutdown, and malfunctions that are inconsistent with the CAA, (3) fails to include

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reporting requirements to ensure compliance with the Environmental Agreements, and (4) contains impermissibly high SO_2 emission limits. On May 15, 2017, the Sierra Club filed a lawsuit in the United States District Court for the District of Columbia seeking to compel the EPA to act on the petition. On November 17, 2017, the District Court ordered the EPA to respond to the petition by January 31, 2018. While proceedings on this petition were ongoing, TDEC modified the CAA renewal permit on November 6, 2017, to address compliance with the 1-hour SO_2 NAAQS. On November 20, 2017, the Sierra Club filed a second petition requesting the EPA to object to the modified permit. On January 31, 2018, the EPA denied both petitions.

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ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS
(Dollars in millions except where noted)

Management’s Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") explains the results of operations and general financial condition of the Tennessee Valley Authority ("TVA"). The MD&A should be read in conjunction with the accompanying unaudited consolidated financial statements and TVA's Annual Report on Form 10-K for the fiscal year ended September 30, 2017 (the “Annual Report”).

Executive Overview

TVA’s net income for the three months ended December 31, 2017, was $288 million, as compared with net income of $102 million for the same period of the prior year. Total operating revenue during the first quarter of 2018 was relatively flat compared to the same period of the prior year. As is often the case for electric utilities, weather is a primary driver of TVA’s sales and revenue. TVA’s service territory experienced relatively normal weather during the three months ended December 31, 2017, resulting in higher energy sales compared to the milder weather experienced during the three months ended December 31, 2016. The increased revenue from higher energy sales and the base rate adjustment that became effective October 1, 2017, was offset by lower fuel cost recovery.

Total operating expenses decreased approximately eight percent during the first quarter of 2018 as compared to the same period of the prior year. Fuel and purchased power expense decreased $115 million for the three months ended December 31, 2017, as compared to the same period of the prior year. This was primarily due to lower natural gas prices and a change in generation mix, including significantly more hydroelectric generation. Operating and maintenance expense decreased $32 million for the three months ended December 31, 2017, as compared to the same period of the prior year. This was primarily due to a decrease in planned nuclear outage days which reduced outage expense by $24 million and a decrease of $8 million for reductions in workforce related to identified efficiencies and staffing changes needed to support TVA's generating fleet.

In April 2011, TVA entered into two substantively similar agreements, one with the Environmental Protection Agency ("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”). Under the Environmental Agreements, TVA committed to, among other things, retire 18 coal-fired units, control, convert, or retire additional coal-fired units, and invest in certain environmental projects. During the first quarter of 2018, TVA completed several actions related to these Environmental Agreements. The installations of two selective catalytic reduction systems ("SCRs") at the Gallatin Fossil Plant ("Gallatin"), as well as the installation of scrubbers and SCRs for Units 1 and 4 at the Shawnee Fossil Plant ("Shawnee"), were completed during the first quarter of 2018. In addition, Units 1-4 of the Johnsonville Fossil Plant were retired in December 2017. With these actions, TVA has substantially completed the requirements in the Environmental Agreements relating to retiring coal-fired units or installing controls on such units, with the exception of the retirement of Units 1-3 of Allen Fossil Plant, which will occur with the completion of the Allen Combined Cycle Plant ("Allen CC"). Allen CC began pre-commercial operations in September 2017 and is expected to begin commercial operations in the spring of 2018.

In May 2017, the TVA Board approved a $300 million multi-year, strategic fiber initiative that is expected to expand TVA’s fiber capacity and improve the reliability and resiliency of the transmission system. The network expansion is expected to help meet the power system’s growing need for bandwidth as well as accommodate the integration of new, distributed energy resources ("DER"). TVA has the potential to make some surplus fiber capacity available to help local communities and rural areas attract and retain jobs in support of economic development partnerships among

TVA, the Tennessee Valley states, LPCs, and other service providers. TVA continues to achieve 99.999 percent reliability in delivering energy to its customers.

Consistent with national trends, energy demand in the areas served by TVA and its LPCs has been essentially flat over the past five years. TVA anticipates this trend to continue as technological advances, consumer demand for generation and energy management technologies, and distributed energy increase. To accommodate this trend, TVA is working with its LPC customers to adjust rate structures, pricing, and programs to ensure TVA's continued strong financial health and its ability to meet customer needs. TVA also utilizes an Integrated Resource Plan ("IRP") to provide direction on how to best meet future electricity demand. In 2018, TVA will begin working on an updated IRP that will consider many views of the future to determine how TVA can continue to provide low-cost, reliable electricity, support environmental stewardship, and spur economic development in the Valley over the next 20 years. TVA remains committed to planning its system in a way that ensures evolving resource portfolios remain reliable and provide the most value to all customers.

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Results of Operations

Sales of Electricity

The following chart compares TVA’s energy sales statistics for the three months ended December 31, 2017 and 2016:
Sales of Electricity[1]
Three Months Ended
December 31,
(millions of kWh)
Note
(1) Includes approximately 20 million kilowatt hours ("kWh") and 536 million kWh of pre-commercial generation for the three months ended December 31, 2017, and 2016, respectively. See Note 1 — Pre-Commercial Plant Operations.

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
Three Months Ended December 31,

	Variation from Normal						Variation from Prior Period
	2017 Actual	Normal	Percent Variation	2016 Actual	Normal	Percent Variation	Percent Change
Heating Degree Days							
Three Months Ended December 31	1,267	1,302	(2.7)%	1,002	1,302	(23.0)%	26.4 %
Cooling Degree Days							
Three Months Ended December 31	129	67	92.5 %	171	67	155.2 %	(24.6)%
Total Degree Days	1,396	1,369	2.0 %	1,173	1,369	(14.3)%	19.0 %

Sales of electricity increased approximately two percent for the three months ended December 31, 2017, as compared to the same period of the prior year, primarily due to increased sales volume for LPCs driven primarily by a 26 percent increase in heating degree days. Partially offsetting this increase was a slight decrease in sales to industries directly served.

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Financial Results

The following table compares operating results for the three months ended December 31, 2017 and 2016:

Summary Consolidated Statements of Operations

	2017	2016	Percent Change
Operating revenues	$2,549	$2,546	0.1 %
Operating expenses	1,951	2,117	(7.8)%
Operating income	598	429	39.4 %
Other income, net	12	12	— %
Interest expense, net	322	339	(5.0)%
Net income (loss)	$288	$102	182.4 %

Operating Revenues. Operating revenues for the three months ended December 31, 2017 and 2016, consisted of the following:

Operating Revenues[(1)]
Three Months Ended
December 31,
Note
(1) Excludes contra-revenue amounts of approximately $1 million and $14 million representing revenue capitalized during pre-commercial operations for the three
months ended December 31, 2017 and 2016, respectively. See Note 1 — Pre-Commercial Plant Operations.

The rate structure in effect provides price signals intended to reflect higher cost periods to serve the local power company customers of TVA ("LPCs") and their end-use customers. Under this structure, weather can positively or negatively impact both volume and effective rates 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 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.

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The changes in components of operating revenues for the three months ended December 31, 2017, compared to the three months ended December 31, 2016, are as follows:

	Three Months Ended December 31,		
	2017	2016	Change
Base revenue[1]	$1,837	$1,716	$ 121
Fuel cost recovery	670	791	(121)
Off-system sales	2	1	1
Revenue from sales of electricity	2,509	2,508	1
Other revenue	40	38	2
Total operating revenues	$2,549	$2,546	$ 3

Note
(1) Includes the impact of revenue capitalized during pre-commercial operations of approximately $1 million and $14 million for the three months ended December 31, 2017 and 2016, respectively. See Note 1 —Pre-Commercial Plant Operations.

Operating revenues increased $3 million for the three months ended December 31, 2017, as compared to the same period of the prior year, primarily due to a $121 million increase in base revenue. The $121 million increase in base revenue was driven by an increase of $54 million resulting from higher sales volume during the quarter ended December 31, 2017, as compared to the same period of the prior year. In addition, approximately $54 million of the increase in base revenue was attributable to higher effective rates during the three months ended December 31, 2017, as compared to the same period of the prior year, resulting from the base rate adjustment that became effective October 1, 2017. The base revenue increase was also due in part to approximately $13 million less capitalization of revenue resulting from pre-commercial generation during the three months ended December 31, 2017, as compared to the same period of the prior year. See Note 1 — Pre-Commercial Plant Operations. Partially offsetting these increases was a $121 million decrease in fuel cost recovery revenues. The $121 million decrease in fuel cost recovery revenues reflects a $137 million decrease attributable to lower fuel rates partially offset by a $16 million increase attributable to higher energy sales. The lower fuel rates experienced were primarily driven by lower market prices for natural gas and a change in the mix of generation resources, including significantly more hydroelectric generation.
Operating Expenses. Operating expenses for the three months ended December 31, 2017 and 2016, consisted of the following:

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The following chart summarizes TVA's net generation and purchased power in millions of kWh by generating source for the periods indicated:

Power Supply from TVA-Operated Generation Facilities and Purchased Power

	Three Months Ended December 31,					
	2017		2016			
	kWh (millions)	Percent of Power Supply	kWh (millions)	Percent of Power Supply	Change	Percentage Change
Coal-fired	7,541	20 %	10,190	27 %	(2,649)	(26)%
Nuclear[1]	16,154	42 %	15,254	41 %	900	