

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

(MARK ONE)

☒ QUARTERLY REPORT PURSUANT TO SECTION 13, 15(d), OR 37 OF THE
SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended December 31, 2022

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 000-52313



TENNESSEE VALLEY AUTHORITY
(Exact name of registrant as specified in its charter)

A corporate agency of the United States created by an act of Congress
(State or other jurisdiction of incorporation or organization)

62-0474417
(I.R.S. Employer Identification No.)

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

37902
(Zip Code)

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

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

Securities registered pursuant to Section 12(b) of the Act

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
N/A	N/A	N/A

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 ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 such files).
Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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 ☐ Accelerated filer ☐
Non-accelerated filer ☒ Smaller reporting company ☐
Emerging growth company ☐

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. ☐

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

Number of shares of common stock outstanding at January 30, 2023: N/A

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GLOSSARY OF COMMON ACRONYMS

Following are definitions of some of the terms or acronyms that may be used in this Quarterly Report on Form 10-Q for the quarter ended December 31, 2022 (the "Quarterly Report"):

Term or Acronym	Definition
AOCI	Accumulated other comprehensive income (loss)
ARO	Asset retirement obligation
ART	Asset Retirement Trust
Bonds	Bonds, notes, or other evidences of indebtedness
CAA	Clean Air Act
Caledonia CC	Caledonia Combined Cycle Plant
CCR	Coal combustion residuals
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COVID-19	Coronavirus Disease 2019
CSAPR	Cross-State Air Pollution Rule
CTs	Combustion turbine unit(s)
CVA	Credit valuation adjustment
CWA	Clean Water Act
CY	Calendar year
DCP	Deferred Compensation Plan
DER	Distributed energy resources
EIS	Environmental Impact Statement
EO(s)	Executive Order(s)
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FHP	Financial Hedging Program
GAAP	Accounting principles generally accepted in the United States of America
GAC	Grid access charge
GHG	Greenhouse gas
HAP	Hazardous Air Pollutants
Holdco	John Sevier Holdco LLC
JSCCG	John Sevier Combined Cycle Generation LLC
kWh	Kilowatt hours
LPCs	Local power company customers
MD&A	Management's Discussion and Analysis of Financial Condition and Results of Operations
MLGW	Memphis Light, Gas and Water Division
mmBtu	Million British thermal unit(s)
MtM	Mark-to-market
MW	Megawatts
MWh	Megawatt hours
NAV	Net asset value
NDT	Nuclear Decommissioning Trust
NEIL	Nuclear Electric Insurance Limited
NEPA	National Environmental Policy Act
NES	Nashville Electric Service
NO _x	Nitrogen oxides
NRC	Nuclear Regulatory Commission
PPA(s)	Power Purchase Agreement(s)
QTE	Qualified technological equipment and software

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RCRA	Resource Conservation and Recovery Act
RECs	Renewable Energy Certificates
RFP(s)	Request(s) for proposals
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
TDEC	Tennessee Department of Environment and Conservation
TVA	Tennessee Valley Authority
TVA Act	The Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee
TVA Board	TVA Board of Directors
TVARs	Tennessee Valley Authority Retirement System
U.S. Treasury	United States Department of the Treasury
VIE	Variable interest entity
XBRL	eXtensible Business Reporting Language

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," "aim," "aspiration," "goal," "seek," "strategy," "target," the negative of such words, or other similar expressions.

Although the Tennessee Valley Authority ("TVA") believes that the assumptions underlying any 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 any forward-looking statements. These factors include, among other things:

- Significant delays and additional costs, and/or inability to obtain necessary regulatory approvals, licenses, or permits, for major projects, including for assets that TVA needs to serve its existing and future load and to meet its carbon reduction aspirations;
- 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, or 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, or cause TVA to forego future construction at these or other facilities;
- Risks associated with the operation of nuclear facilities or other generation and related facilities, including coal combustion residuals ("CCR") facilities;
- Inability to continue to operate certain assets, especially nuclear facilities, including due to the inability to obtain, or loss of, regulatory approval for the operation of assets;
- Significant additional costs for TVA to manage and operate its CCR facilities;
- Physical attacks, threats, or other interference causing damage to TVA's facilities or interfering with TVA's operations;
- The failure of TVA's generation, transmission, navigation, flood control, and related assets and infrastructure, including CCR facilities and spent nuclear fuel storage facilities, to operate as anticipated, resulting in lost revenues, damages, or other costs that are not reflected in TVA's financial statements or projections, including due to aging or technological issues;
- Costs or liabilities that are not anticipated in TVA's financial statements for third-party claims, natural resource damages, environmental cleanup activities, or fines or penalties associated with unexpected events such as failures of a facility or infrastructure;
- 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, or damage to the property of others;
- Events that negatively impact TVA's reliability, including from problems at other utilities or at TVA facilities or the increase in intermittent sources of power;
- 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 supplies of fuel, purchased power, or other critical items or services, which may result from, among other things, economic conditions, weather conditions, physical or cyber attacks, political developments, international trade restrictions or tariffs, legal actions, mine closures or reduced mine production, increases in fuel exports, environmental regulations affecting TVA's suppliers, transportation or delivery constraints, shortages of raw materials, supply chain difficulties, labor shortages, strikes, inflation, or similar events and which may, among other things, hinder TVA's ability to operate its assets and to complete projects on time and on budget;
- Circumstances that cause TVA to change its determinations regarding the appropriate mix of generation assets;
- Costs or other challenges resulting from a failure by TVA to meet its carbon reduction aspirations;
- New, amended, or existing laws, regulations, executive orders ("EOs"), or administrative orders or interpretations, including those related to climate change and other environmental matters, and the costs of complying with these laws, regulations, EOs, or administrative orders or interpretations;
- The cost of complying with known, anticipated, or new environmental requirements, some of which could render continued operation of many of TVA's aging coal-fired generation units not cost-effective or result in their removal from service, perhaps permanently;
- Actions taken, or inaction, by the United States ("U.S.") government relating to the national debt ceiling or automatic spending cuts in government programs;
- Inability to respond quickly enough to current or potential customer demands or needs or to act solely in the interest of ratepayers;
- Negative outcomes of current or future legal or administrative proceedings;
- Federal legislation aimed specifically at curtailing TVA's activities, including legislation that may cause TVA to lose its protected service territory, its sole authority to set rates, or its authority to manage the Tennessee River system or the real property currently entrusted to TVA; subject TVA to additional environmental regulation or additional requirements of the North American Electric Reliability Corporation; require the divestiture of TVA or the sale of certain of TVA's assets; lower the debt ceiling on bonds, notes, or other evidences of indebtedness (collectively, "Bonds") specified in the Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee ("TVA Act"); or restrict TVA's access to its

funds;

- Cyber attacks on TVA's assets or the assets of third parties upon which TVA relies;
- Other unforeseeable occurrences negatively impacting TVA assets or their supporting infrastructure;
- The need for significant future contributions associated with TVA's pension plans, other post-retirement benefit plans, or health care plans;
- Increases in TVA's financial liabilities for decommissioning its nuclear facilities and retiring other assets;
- The requirement or decision to make additional contributions to TVA's Nuclear Decommissioning Trust ("NDT") or Asset Retirement Trust ("ART");
- Differences between estimates of revenues and expenses and actual revenues earned and expenses incurred;
- Limitations on TVA's ability to borrow money, which may result from, among other things, TVA's approaching or substantially reaching the debt ceiling or TVA's losing access to the debt markets;
- An increase in TVA's cost of capital, which may result from, among other things, changes in the market for Bonds, 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;
- The inaccuracy of certain assumptions about the future, including economic forecasts, anticipated energy and commodity prices, cost estimates, construction schedules, power demand forecasts, the appropriate generation mix to meet demand, and assumptions about potential regulatory environments;
- Significant decline in the demand for electricity that TVA produces, which may result from, among other things, economic downturns or recessions, loss of customers, reductions in demand for electricity generated from non-renewable sources or centrally located generation sources, increased utilization of distributed energy resources ("DER"), increased energy efficiency and conservation, or improvements in alternative generation and energy storage technologies;
- Changes in customer preferences for energy produced from cleaner generation sources;
- Addition or loss of customers by TVA or TVA's local power company customers ("LPCs");
- Potential for increased demand for energy resulting from, among other things, an increase in the population of TVA's service area;
- Changes in technology, which, among other things, may affect relationships with customers and require TVA to change how it conducts its operations;
- Changes in the economy and volatility in financial markets;
- Reliability or creditworthiness of counterparties;
- Changes in the market price of commodities such as purchased power, coal, uranium, natural gas, fuel oil, crude oil, construction materials, reagents, or emission allowances;
- Changes in the market price of equity securities, debt securities, or other investments;
- Changes in interest rates, currency exchange rates, or inflation rates;
- Failure to attract or retain an appropriately qualified, diverse, and inclusive workforce;
- Changes in the membership of the TVA Board of Directors ("TVA Board") or TVA senior management, which may impact how TVA operates;
- Weather conditions, including changing weather patterns, extreme weather conditions, and other events such as flooding, droughts, wildfires, and snow or ice storms that may result from climate change, which may hamper TVA's ability to supply power, cause customers' demand for power to exceed TVA's then-present power supply, or otherwise negatively impact net revenue;
- Events affecting the supply or quality of water from the Tennessee River system or Cumberland River system, or elsewhere, which could interfere with TVA's ability to generate power;
- Catastrophic events, such as fires, earthquakes, explosions, solar events, electromagnetic pulses, geomagnetic disturbances, droughts, floods, hurricanes, tornadoes, polar vortexes, icing events, or other casualty events, wars, national emergencies, terrorist activities, pandemics, or other similar destructive or disruptive events;
- Inability to use regulatory accounting for certain costs;
- Ineffectiveness of TVA's financial control system to control issues and instances of fraud or to detect errors;
- Ineffectiveness of TVA's disclosure controls and procedures or its internal control over financial reporting;
- Adverse effects from the Coronavirus Disease 2019 ("COVID-19") or future pandemics;
- Inability of TVA to implement its business strategy successfully, including due to the increased use in the public of DER or energy-efficiency programs;
- Inability of TVA to adapt its business model to changes in the utility industry and customer preferences and to remain cost competitive;
- Loss of quorum of the TVA Board, which may limit TVA's ability to adapt to meet changing business conditions;
- Negative impacts on TVA's reputation; or
- Other unforeseeable events.

See also Part I, Item 1A, Risk Factors, and Part II, 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, 2022 (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 any 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, except as required by law.

GENERAL INFORMATION

Fiscal Year

References to years (2023, 2022, 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 files annual, quarterly, and current reports with the Securities and Exchange Commission ("SEC") under Section 37 of the Securities Exchange Act of 1934 (the "Exchange Act"). TVA's SEC filings are available to the public at www.tva.com, free of charge, as soon as reasonably practicable after such reports are electronically filed with or furnished to the SEC. Information contained on or accessible through TVA's website shall not be deemed to be incorporated into, or to be a part of, this Quarterly Report or any other report or document that TVA files with the SEC. All TVA SEC reports are available to the public without charge from the website maintained by the SEC at www.sec.gov.

PART I - FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

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

ASSETS	December 31, 2022	September 30, 2022
Current assets		
Cash and cash equivalents	\$ 500	\$ 500
Accounts receivable, net	1,749	2,007
Inventories, net	1,207	1,072
Regulatory assets	320	138
Other current assets	221	257
Total current assets	3,997	3,974
Property, plant, and equipment		
Completed plant	66,728	66,442
Less accumulated depreciation	(34,517)	(34,239)
Net completed plant	32,211	32,203
Construction in progress	2,648	2,535
Nuclear fuel	1,520	1,492
Finance leases	615	630
Total property, plant, and equipment, net	36,994	36,860
Investment funds	3,913	3,671
Regulatory and other long-term assets		
Regulatory assets	5,909	6,134
Operating lease assets, net of amortization	144	155
Other long-term assets	353	394
Total regulatory and other long-term assets	6,406	6,683
Total assets	\$ 51,310	\$ 51,188

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

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

LIABILITIES AND PROPRIETARY CAPITAL

	December 31, 2022	September 30, 2022
Current liabilities		
Accounts payable and accrued liabilities	\$ 2,362	\$ 2,466
Accrued interest	255	273
Asset retirement obligations	287	275
Regulatory liabilities	277	391
Short-term debt, net	1,618	1,172
Current maturities of power bonds	29	29
Current maturities of long-term debt of variable interest entities	39	39
Total current liabilities	4,867	4,645
Other liabilities		
Post-retirement and post-employment benefit obligations	2,998	3,072
Asset retirement obligations	6,868	6,887
Finance lease liabilities	619	628
Other long-term liabilities	1,374	1,485
Regulatory liabilities	109	172
Total other liabilities	11,968	12,244
Long-term debt, net		
Long-term power bonds, net	17,865	17,826
Long-term debt of variable interest entities, net	968	968
Total long-term debt, net	18,833	18,794
Total liabilities	35,668	35,683
Contingencies and legal proceedings (Note 20)		
Proprietary capital		
Power program appropriation investment	258	258
Power program retained earnings	14,902	14,800
Total power program proprietary capital	15,160	15,058
Nonpower programs appropriation investment, net	531	533
Accumulated other comprehensive loss	(49)	(86)
Total proprietary capital	15,642	15,505
Total liabilities and proprietary capital	\$ 51,310	\$ 51,188

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

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

	2022	2021
Operating revenues		
Revenue from sales of electricity	\$ 2,963	\$ 2,538
Other revenue	52	45
Total operating revenues	3,015	2,583
Operating expenses		
Fuel	615	466
Purchased power	491	369
Operating and maintenance	827	780
Depreciation and amortization	533	510
Tax equivalents	151	133
Total operating expenses	2,617	2,258
Operating income	398	325
Other income, net	16	14
Other net periodic benefit cost	51	65
Interest expense	262	263
Net income	<u>\$ 101</u>	<u>\$ 11</u>

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)

	2022	2021
Net income	\$ 101	\$ 11
Other comprehensive income (loss)		
Net unrealized gain on cash flow hedges	71	5
Net unrealized gain reclassified to earnings from cash flow hedges	(34)	(1)
Total other comprehensive income	37	4
Total comprehensive income	<u>\$ 138</u>	<u>\$ 15</u>

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

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

	2022	2021
Cash flows from operating activities		
Net income	\$ 101	\$ 11
Adjustments to reconcile net income to net cash provided by operating activities		
Depreciation and amortization ⁽¹⁾	538	515
Amortization of nuclear fuel cost	88	88
Non-cash retirement benefit expense	63	82
Other regulatory amortization and deferrals	(69)	32
Changes in current assets and liabilities		
Accounts receivable, net	256	181
Inventories and other current assets, net	(216)	(101)
Accounts payable and accrued liabilities	(86)	(140)
Accrued interest	(16)	(13)
Pension contributions	(75)	(76)
Other, net	(145)	(86)
Net cash provided by operating activities	439	493
Cash flows from investing activities		
Construction expenditures	(605)	(612)
Nuclear fuel expenditures	(192)	(137)
Acquisition of leasehold interests in combustion turbine assets	(78)	—
Loans and other receivables		
Advances	—	(3)
Repayments	3	6
Other, net	(4)	12
Net cash used in investing activities	(876)	(734)
Cash flows from financing activities		
Long-term debt		
Redemptions and repurchases of power bonds	(1)	(1)
Short-term debt issues, net	446	286
Payments on leases and leasebacks	(10)	(31)
Other, net	2	(5)
Net cash provided by financing activities	437	249
Net change in cash, cash equivalents, and restricted cash	—	8
Cash, cash equivalents, and restricted cash at beginning of period	520	518
Cash, cash equivalents, and restricted cash at end of period	\$ 520	\$ 526

Note

(1) Includes amortization of debt issuance costs and premiums/discounts.

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

TENNESSEE VALLEY AUTHORITY
CONSOLIDATED STATEMENTS OF CHANGES IN PROPRIETARY CAPITAL (Unaudited)
For the Three Months Ended December 31, 2022 and 2021
(in millions)

	Power Program Appropriation Investment	Power Program Retained Earnings	Nonpower Programs Appropriation Investment, Net	Accumulated Other Comprehensive Income (Loss)	Total
Balance at September 30, 2021	\$ 258	\$ 13,689	\$ 540	\$ (22)	\$ 14,465
Net income (loss)	—	13	(2)	—	11
Total other comprehensive income	—	—	—	4	4
Return on power program appropriation investment	—	(1)	—	—	(1)
Balance at December 31, 2021	<u>\$ 258</u>	<u>\$ 13,701</u>	<u>\$ 538</u>	<u>\$ (18)</u>	<u>\$ 14,479</u>
Balance at September 30, 2022	\$ 258	\$ 14,800	\$ 533	\$ (86)	\$ 15,505
Net income (loss)	—	103	(2)	—	101
Total other comprehensive income	—	—	—	37	37
Return on power program appropriation investment	—	(1)	—	—	(1)
Balance at December 31, 2022	<u>\$ 258</u>	<u>\$ 14,902</u>	<u>\$ 531</u>	<u>\$ (49)</u>	<u>\$ 15,642</u>

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

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

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1. 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 federal legislation in response to a proposal 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 approximately 10 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. TVA performs these management duties in cooperation with other federal and state agencies that have jurisdiction and authority over certain aspects of the river system. In addition, the TVA Board of Directors ("TVA Board") has established two councils — the Regional Resource Stewardship Council and the Regional Energy Resource Council — to advise TVA on its stewardship activities in the Tennessee Valley and its energy resource activities.

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 (collectively, "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 as authorized by the Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee ("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. TVA fulfilled its requirement to repay \$1.0 billion of the Power Program Appropriation Investment with the 2014 payment; therefore, this repayment obligation is no longer a component of rate setting. 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 (2023, 2022, etc.) refer to TVA's fiscal years unless they are preceded by "CY," in which case the references are to calendar years.

Cost-Based Regulation

Since the TVA Board is authorized by the TVA Act to set rates for power sold to its customers, TVA is self-regulated. Additionally, TVA's regulated rates are designed to recover its costs. Based on current projections, TVA believes that rates, set at levels that will recover TVA's costs, can be charged and collected. As a result of these factors, TVA records certain assets and liabilities that result from the regulated ratemaking process that would not be recorded under GAAP for non-regulated entities. Regulatory assets generally represent incurred costs that have been deferred because such costs are probable of future recovery in customer rates. Regulatory liabilities generally represent obligations to make refunds to customers for previous collections for costs that are not likely to be incurred or deferral of gains that will be credited to customers in future periods. TVA assesses whether the regulatory assets are probable of future recovery by considering factors such as applicable regulatory changes, potential legislation, and changes in technology. Based on these assessments, TVA believes the existing regulatory assets are probable of recovery. This determination reflects the current regulatory and political environment and is subject to change in the future. If future recovery of regulatory assets ceases to be probable, or TVA is no longer considered to be a regulated entity, then costs would be required to be written off. 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, 2022, and the notes thereto, which are contained in TVA's Annual Report on Form 10-K for the year ended September 30, 2022 (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 on the consolidated interim financial statements.

The accompanying consolidated interim financial statements, which have been prepared in accordance with GAAP, include the accounts of TVA and variable interest entities ("VIEs") of which TVA is the primary beneficiary. See Note 9 — *Variable Interest Entities*. 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.

Cash, Cash Equivalents, and Restricted Cash

Cash includes cash on hand, non-interest bearing cash, and deposit accounts. All highly liquid investments with original maturities of three months or less are considered cash equivalents. Cash and cash equivalents that are restricted, as to withdrawal or use under the terms of certain contractual agreements, are recorded in Other long-term assets on the Consolidated Balance Sheets. Restricted cash and cash equivalents include cash held in trusts that are currently restricted for TVA economic development loans and for certain TVA environmental programs in accordance with agreements related to compliance with certain environmental regulations.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported on the Consolidated Balance Sheets and Consolidated Statements of Cash Flows:

Cash, Cash Equivalents, and Restricted Cash (in millions)		
	At December 31, 2022	At September 30, 2022
Cash and cash equivalents	\$ 500	\$ 500
Restricted cash and cash equivalents included in Other long-term assets	20	20
Total cash, cash equivalents, and restricted cash	\$ 520	\$ 520

Allowance for Uncollectible Accounts

TVA recognizes an allowance that reflects the current estimate for credit losses expected to be incurred over the life of the financial assets based on historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the reported amounts. The appropriateness of the allowance is evaluated at the end of each reporting period.

To determine the allowance for trade receivables, TVA considers historical experience and other currently available information, including events such as customer bankruptcy and/or a customer failing to fulfill payment arrangements by the due date. TVA's corporate credit department also performs an assessment of the financial condition of customers and the credit quality of the receivables. In addition, TVA reviews other reasonable and supportable forecasts to determine if the allowance for uncollectible amounts should be further adjusted in accordance with the accounting guidance for Current Expected Credit Losses.

To determine the allowance for loans receivables, TVA aggregates loans into the appropriate pools based on the existence of similar risk characteristics such as collateral types and internal assessed credit risks. In situations where a loan exhibits unique risk characteristics and is no longer expected to experience similar risks to the rest of its pool, the loan will be evaluated separately. TVA derives an annual loss rate based on historical loss and then adjusts the rate to reflect TVA's consideration of available information on current conditions and reasonable and supportable future forecasts. This information may include economic and business conditions, default trends, and other internal and external factors. For periods beyond the reasonable and supportable forecast period, TVA uses the current calculated long-term average historical loss rate for the remaining life of the loan portfolio.

The allowance for uncollectible accounts was less than \$1 million at both December 31, 2022, and September 30, 2022, for trade accounts receivable. Additionally, loans receivable of \$109 million and \$105 million at December 31, 2022, and September 30, 2022, respectively, are included in Accounts receivable, net and Other long-term assets, for the current and long-term portions, respectively. Loans receivables are reported net of allowances for uncollectible accounts of \$3 million at both December 31, 2022 and September 30, 2022.

Inventories

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

Renewable Energy Certificates. TVA accounts for Renewable Energy Certificates ("RECs") using the specific identification cost method. RECs that are acquired through power purchases are recorded as inventory and charged to purchased power expense when the RECs are subsequently used or sold. TVA assigns a value to the RECs at the inception of the power purchase arrangement using a relative standalone selling price approach. RECs created through TVA-owned asset generation are recorded at zero cost.

Emission Allowances. TVA accounts for emission allowances using the specific identification cost method. Allowances that are acquired through third party purchases are recorded as inventory at cost and charged to operating expense based on tons emitted during the respective compliance periods.

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

Revenues

TVA recognizes revenue from contracts with customers to depict the transfer of goods or services to customers in an amount to which the entity expects to be entitled in exchange for those goods or services. For the generation and transmission of electricity, this is generally at the time the power is delivered to a metered customer delivery point for the customer's consumption or distribution. As a result, revenues from power sales are recorded as electricity is delivered to customers. In addition to power sales invoiced and recorded during the month, TVA accrues estimated unbilled revenues for power sales provided to five customers whose billing date occurs prior to the end of the month. Exchange power sales are presented in the accompanying Consolidated Statements of Operations as a component of sales of electricity. Exchange power sales are sales of excess power after meeting TVA native load and directly served requirements. Native load refers to the customers on whose behalf a company, by statute, franchise, regulatory requirement, or contract, has undertaken an obligation to serve. TVA engages in other arrangements in addition to power sales. Certain other revenue from activities related to TVA's overall mission is recorded in Other revenue. Revenues that are not related to the overall mission are recorded in Other income, net.

Depreciation

TVA accounts for depreciation of its properties using the composite depreciation convention of accounting. Under the composite method, assets with similar economic characteristics are grouped and depreciated as one asset. Depreciation is generally computed on a straight-line basis over the estimated service lives of the various classes of assets. The estimation of asset useful lives requires management judgment, supported by external depreciation studies of historical asset retirement experience. Depreciation rates are determined based on external depreciation studies that are updated approximately every five years, with the latest study implemented during the first quarter of 2022. Depreciation expense was \$466 million and \$453 million for the three months ended December 31, 2022 and 2021, respectively. See Note 6 — *Plant Closures* for a discussion of the impact of plant closures.

2. Impact of New Accounting Standards and Interpretations

The following accounting standards have been issued but, at December 31, 2022, were not effective and had not been adopted by TVA:

Accounting for Contract Assets and Contract Liabilities from Contracts with Customers	
Description	This guidance requires an entity (acquirer) to recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with revenue with customers. It is expected that an acquirer will generally recognize and measure acquired contract assets and contract liabilities in a manner consistent with how the acquiree recognized and measured contract assets and contract liabilities in the acquiree's financial statements. The entity should apply the standard prospectively to business combinations occurring on or after the effective date of the standard.
Effective Date for TVA	This new standard is effective for TVA's interim and annual reporting periods beginning October 1, 2023. While early adoption is permitted, TVA does not currently plan to adopt this 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 its financial condition, results of operations, or cash flows.

Troubled Debt Restructurings and Vintage Disclosures	
Description	This guidance eliminates the recognition and measurement guidance on troubled debt restructuring for creditors that have adopted Financial Instruments-Credit Losses and requires enhanced disclosures about loan modifications for borrowers experiencing financial difficulty. Additionally, the guidance requires public business entities to present current-period gross write-offs by year of origination in their vintage disclosures. The entity should apply the standard prospectively except for the transition method related to the recognition and measurement of troubled debt restructuring. For the transition method, an entity has the option to apply a modified retrospective transition method, resulting in a cumulative-effect adjustment to retained earnings in the period of adoption.
Effective Date for TVA	This new standard is effective for TVA's interim and annual reporting periods beginning October 1, 2023. While early adoption is permitted, TVA does not currently plan to adopt this 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 its financial condition, results of operations, or cash flows.

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 (in millions)		
	At December 31, 2022	At September 30, 2022
Power receivables	\$ 1,633	\$ 1,899
Other receivables	116	108
Accounts receivable, net ⁽¹⁾	\$ 1,749	\$ 2,007

Note

(1) Allowance for uncollectible accounts was less than \$1 million at both December 31, 2022, and September 30, 2022, and therefore is not represented in the table above.

4. Inventories, Net

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

Inventories, Net (in millions)		
	At December 31, 2022	At September 30, 2022
Materials and supplies inventory	\$ 824	\$ 808
Fuel inventory	426	303
Renewable energy certificates/emissions allowance inventory, net	19	18
Allowance for inventory obsolescence	(62)	(57)
Inventories, net	\$ 1,207	\$ 1,072

5. Other Current Assets

Other current assets consisted of the following:

Other Current Assets (in millions)		
	At December 31, 2022	At September 30, 2022
Commodity contract derivative assets	\$ 59	\$ 172
Collateral receivable	50	—
Other	112	85
Other current assets	\$ 221	\$ 257

Commodity Contract Derivative Assets. TVA enters into certain derivative contracts for natural gas that require physical delivery of the contracted quantity of the commodity as well as certain financial derivative contracts to hedge exposure to the price of natural gas. Commodity contract derivative assets classified as current include deliveries or settlements that will occur within 12 months or less. See Note 13 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment — Commodity Derivatives* and — *Commodity Derivatives under the FHP* for a discussion of TVA's commodity contract derivatives.

Collateral Receivable. On December 27, 2022, TVA deposited \$50 million of cash collateral with PJM Settlement Inc. ("PJM") to provide security for TVA's power purchases from PJM during the winter season.

6. Plant Closures

Background

TVA must continuously evaluate all generating assets to ensure an optimal energy portfolio that provides safe, clean, and reliable power while maintaining flexibility and fiscal responsibility to the people of the Tennessee Valley. Based on results of assessments presented to the TVA Board in 2019, the retirement of Bull Run Fossil Plant ("Bull Run") by December 2023 was approved. In addition, TVA is evaluating the impact of retiring the balance of the coal-fired fleet by 2035, and that evaluation

includes environmental reviews, public input, and TVA Board approval. Due to these evaluations, certain planning assumptions were updated, and their financial impacts are discussed below.

In January 2023, TVA issued its Record of Decision to retire the two remaining coal-fired units at Cumberland Fossil Plant ("Cumberland") by the end of CY 2026 and CY 2028.

Financial Impact

TVA's policy is to adjust depreciation rates to reflect the most current assumptions, ensuring units will be fully depreciated by the applicable retirement dates. As a result of TVA's decision to accelerate the retirement of Bull Run, TVA has recognized a cumulative \$518 million of accelerated depreciation since the second quarter of 2019. Of this amount, \$36 million and \$35 million were recognized for Bull Run during the three months ended December 31, 2022 and 2021, respectively.

TVA also recognized \$4 million and \$6 million in Operating and maintenance expense related to additional inventory reserves and write-offs for the coal-fired fleet, including Bull Run, during the three months ended December 31, 2022 and 2021, respectively.

7. Other Long-Term Assets

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

Other Long-Term Assets (in millions)		
	At December 31, 2022	At September 30, 2022
Loans and other long-term receivables, net	\$ 106	\$ 99
EnergyRight® receivables, net	48	49
Prepaid long-term service agreements	63	74
Commodity contract derivative assets	43	102
Other	93	70
Total other long-term assets	\$ 353	\$ 394

Loans and Other Long-Term Receivables. TVA's loans and other long-term receivables primarily consist of economic development loans for qualifying organizations and a receivable for reimbursements to recover the cost of providing long-term, on-site storage for spent nuclear fuel. 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. At December 31, 2022 and September 30, 2022, the carrying amount of the loans receivable, net of discount, reported in Accounts receivable, net was approximately \$3 million and \$6 million, respectively.

EnergyRight® Receivables. In association with the EnergyRight® program, TVA's local power company customers ("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 10 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 loans receivable that have been in default for 180 days or more or that TVA has determined are 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. At both December 31, 2022, and September 30, 2022, the carrying amount of the loans receivable, net of discount, reported in Accounts receivable, net was approximately \$13 million. See Note 10 — *Other Long-Term Liabilities* for information regarding the associated financing obligation.

Allowance for Loan Losses. The allowance for loan loss is an estimate of expected credit losses, measured over the estimated life of the loan receivables, that considers reasonable and supportable forecasts of future economic conditions in addition to information about historical experience and current conditions. See Note 1 — *Summary of Significant Accounting Policies — Allowance for Uncollectible Accounts*.

The allowance components, which consist of a collective allowance and specific loans allowance, are based on the risk characteristics of TVA's loans. Loans that share similar risk characteristics are evaluated on a collective basis in measuring credit losses, while loans that do not share similar risk characteristics with other loans are evaluated on an individual basis.

Allowance Components (in millions)		
	At December 31, 2022	At September 30, 2022
EnergyRight® loan reserve	\$ 1	\$ 1
Economic development loan collective reserve	1	1
Economic development loan specific loan reserve	1	1
Total allowance for loan losses	<u>\$ 3</u>	<u>\$ 3</u>

Prepaid Long-Term Service Agreements. TVA has entered into various long-term service agreements for major maintenance activities at certain of its combined cycle plants. TVA uses the direct expense method of accounting for these arrangements. TVA accrues for parts when it takes ownership and for contractor services when they are rendered. Under certain of these agreements, payments made exceed the value of parts received and services rendered. The current and long-term portions of the resulting prepayments are reported in Other current assets and Other long-term assets, respectively, on TVA's Consolidated Balance Sheets. At December 31, 2022, and September 30, 2022, prepayments of \$17 million and \$12 million, respectively, were recorded in Other current assets.

Commodity Contract Derivative Assets. TVA enters into certain derivative contracts for natural gas that require physical delivery of the contracted quantity of the commodity as well as certain financial derivative contracts to hedge exposure to the price of natural gas. See Note 13 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment — Commodity Derivatives* and — *Commodity Derivatives under the FHP* for a discussion of TVA's commodity contract derivatives.

8. Regulatory Assets and Liabilities

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

Regulatory Assets and Liabilities (in millions)		
	At December 31, 2022	At September 30, 2022
Current regulatory assets		
Unrealized losses on interest rate derivatives	\$ 41	\$ 47
Unrealized losses on commodity derivatives	137	14
Fuel cost adjustment receivable	142	77
Total current regulatory assets	320	138
Non-current regulatory assets		
Retirement benefit plans deferred costs	1,809	1,839
Non-nuclear decommissioning costs	2,769	2,856
Unrealized losses on interest rate derivatives	474	479
Nuclear decommissioning costs	705	821
Unrealized losses on commodity derivatives	15	1
Other non-current regulatory assets	137	138
Total non-current regulatory assets	5,909	6,134
Total regulatory assets	\$ 6,229	\$ 6,272
Current regulatory liabilities		
Fuel cost adjustment tax equivalents	\$ 218	\$ 218
Unrealized gains on commodity derivatives	59	173
Total current regulatory liabilities	277	391
Non-current regulatory liabilities		
Retirement benefit plans deferred credits	66	70
Unrealized gains on commodity derivatives	43	102
Total non-current regulatory liabilities	109	172
Total regulatory liabilities	\$ 386	\$ 563

9. Variable Interest Entities

A VIE is an entity that either (i) has insufficient equity to permit the entity to finance its activities without additional subordinated financial support or (ii) has equity investors who lack the characteristics of owning a controlling financial interest. When TVA determines that it has a variable interest in a 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 activity, 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 on each lease payment date as agreed in SHLLC's formation documents (the "Seven States Return"). The current and long-term portions of the Membership interests of VIE subject to mandatory redemption are included in Accounts payable and accrued liabilities and Other long-term liabilities, respectively.

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

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

TVA participated in the design, business activity, 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 at December 31, 2022, and September 30, 2022, as reflected on the Consolidated Balance Sheets, are as follows:

Summary of Impact of VIEs on Consolidated Balance Sheets
(in millions)

	At December 31, 2022	At September 30, 2022
Current liabilities		
Accrued interest	\$ 22	\$ 10
Accounts payable and accrued liabilities	2	2
Current maturities of long-term debt of variable interest entities	39	39
Total current liabilities	63	51
Other liabilities		
Other long-term liabilities	18	18
Long-term debt, net		
Long-term debt of variable interest entities, net	968	968
Total liabilities	\$ 1,049	\$ 1,037

Interest expense of \$12 million and \$13 million related to debt of VIEs and membership interests of VIEs subject to mandatory redemption is included on the Consolidated Statements of Operations for the three months ended December 31, 2022 and 2021, respectively.

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

10. Other Long-Term Liabilities

Other long-term liabilities consist primarily of liabilities related to certain derivative agreements as well as liabilities related to operating leases. The table below summarizes the types and amounts of Other long-term liabilities:

Other Long-Term Liabilities
(in millions)

	At December 31, 2022	At September 30, 2022
Interest rate swap liabilities	\$ 816	\$ 851
Operating lease liabilities	85	93
Currency swap liabilities	159	228
EnergyRight® financing obligation	57	58
Long-term deferred compensation	28	39
Advances for construction	42	53
Long-term deferred revenue	40	39
Other	147	124
Total other long-term liabilities	\$ 1,374	\$ 1,485

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, Accrued interest, and Other long-term liabilities on the Consolidated Balance Sheets. At December 31, 2022, and September 30, 2022, the carrying amount of the interest rate swap liabilities reported in Accounts payable and accrued liabilities and Accrued interest was \$41 million and \$54 million, respectively. See Note 13 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment — Interest Rate Derivatives* for information regarding the interest rate swap liabilities.

Operating Lease Liabilities. TVA's operating leases consist primarily of railcars, equipment, real estate/land, and power generating facilities. At December 31, 2022 and September 30, 2022, the current portion of TVA's operating leases reported in Accounts payable and accrued liabilities was \$60 million and \$59 million, respectively.

Currency Swap Liabilities. To protect against exchange rate risk related to British pound sterling denominated Bond transactions, TVA entered into foreign currency hedges. The values of these derivatives are included in Accounts payable and

accrued liabilities and Other long-term liabilities on the Consolidated Balance Sheets. At December 31, 2022 and September 30, 2022, the carrying amount of the currency swap liabilities recorded in Accounts payable and accrued liabilities was \$10 million and \$12 million, respectively. See Note 13 — *Risk Management Activities and Derivative Transactions — Cash Flow Hedging Strategy for Currency Swaps* for more information regarding the currency swap liabilities.

EnergyRight® Financing Obligation. TVA purchases certain loans receivable from its LPCs in association with the EnergyRight® 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. At December 31, 2022, and September 30, 2022, the carrying amount of the financing obligation reported in Accounts payable and accrued liabilities was \$15 million and \$14 million, respectively. See Note 7 — *Other Long-Term Assets* for information regarding the associated loans receivable.

Long-Term Deferred Compensation. TVA provides compensation arrangements to engage and retain certain employees, both executive and non-executive, which are designed to provide participants with the ability to defer compensation to future periods. The current and long-term portions are recorded in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA's Consolidated Balance Sheets. At December 31, 2022 and September 30, 2022, the current amount of deferred compensation recorded in Accounts payable and accrued liabilities was \$29 million and \$53 million, respectively.

Advances for Construction. TVA receives refundable and non-refundable advances for construction that are generally intended to defray all or a portion of the costs of building or extending TVA's existing power assets. Amounts received are deferred as a liability with the long-term portion representing amounts that will not be recognized within the next 12 months. As projects meet milestones or other contractual obligations, the refundable portion is refunded to the customer and the non-refundable portion is recognized as contributions in aid of construction and offsets the cost of plant assets. At December 31, 2022 and September 30, 2022, the current amount of advances for construction recorded in Accounts payable and accrued liabilities was \$52 million and \$33 million, respectively.

Long-Term Deferred Revenue. Long-term deferred revenue represents payments received that exceed services rendered resulting in the deferral of revenue. The long-term portion represents amounts that will not be recognized within the next 12 months primarily related to fiber and transmission agreements. The current and long-term portions of the deferral are reported in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA's Consolidated Balance Sheets. At December 31, 2022 and September 30, 2022, the current amount of deferred revenue recorded in Accounts payable and accrued liabilities was \$19 million and \$16 million, respectively.

11. Asset Retirement Obligations

During the three months ended December 31, 2022, TVA's total asset retirement obligations ("ARO") liability decreased \$7 million as a result of settlements related to retirement projects that were conducted during the period, partially offset by periodic accretion. The nuclear and non-nuclear accretion amounts were deferred as regulatory assets. During the three months ended December 31, 2022, \$47 million of the related regulatory assets were amortized into expense as these amounts were collected in rates. See Note 8 — *Regulatory Assets and Liabilities*. TVA maintains investment trusts to help fund its decommissioning obligations. See Note 14 — *Fair Value Measurements — Investment Funds* and Note 20 — *Contingencies and Legal Proceedings — Contingencies — Decommissioning Costs* for a discussion of the trusts' objectives and the current balances of the trusts.

Asset Retirement Obligation Activity			
	Nuclear	Non-Nuclear	Total
Balance at September 30, 2022	\$ 3,643	\$ 3,519	\$ 7,162 ⁽¹⁾
Settlements	—	(68)	(68) ⁽²⁾
Revisions in estimate	3	(1)	2
Accretion (recorded as regulatory asset)	41	18	59
Balance at December 31, 2022	\$ 3,687	\$ 3,468	\$ 7,155 ⁽¹⁾

Notes

(1) Includes \$287 million and \$275 million at December 31, 2022, and September 30, 2022, respectively, in Current liabilities.

(2) Settlements include the change in asset retirement obligation project accruals included in Accounts payable and accrued liabilities of (\$57) million.

12. Debt and Other Obligations

Debt Outstanding

Total debt outstanding at December 31, 2022, and September 30, 2022, consisted of the following:

	Debt Outstanding (in millions)	
	At December 31, 2022	At September 30, 2022
Short-term debt		
Short-term debt, net of discounts	\$ 1,618	\$ 1,172
Current maturities of power bonds issued at par	29	29
Current maturities of long-term debt of VIEs issued at par	39	39
Total current debt outstanding, net	1,686	1,240
Long-term debt		
Long-term power bonds ⁽¹⁾	17,987	17,950
Long-term debt of VIEs, net	968	968
Unamortized discounts, premiums, issue costs, and other	(122)	(124)
Total long-term debt, net	18,833	18,794
Total debt outstanding	\$ 20,519	\$ 20,034

Note

(1) Includes net exchange gain from currency transactions of \$114 million and \$150 million at December 31, 2022, and September 30, 2022, respectively.

Debt Securities Activity

The table below summarizes the long-term debt securities activity for the period from October 1, 2022, to December 31, 2022:

	Debt Securities Activity	
	Date	Amount (in millions)
Redemptions/Maturities⁽¹⁾		
2009 Series B	December 2022	\$ 1
Total redemptions/maturities of debt		\$ 1

Note

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

Credit Facility Agreements

TVA has funding available under four long-term revolving credit facilities totaling approximately \$2.7 billion: a \$150 million credit facility that matures on February 9, 2024, a \$500 million credit facility that matures on February 1, 2025, a \$1.0 billion credit facility that matures on September 21, 2026, and a \$1.0 billion credit facility that matures on March 25, 2027. 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, 2022, and September 30, 2022, there were approximately \$586 million and \$704 million, respectively, of letters of credit outstanding under these facilities, and there were no borrowings outstanding. See Note 13 — *Risk Management Activities and Derivative Transactions — Other Derivative Instruments — Collateral*.

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

Summary of Long-Term Credit Facilities
At December 31, 2022
(in millions)

Maturity Date	Facility Limit	Letters of Credit Outstanding	Cash Borrowings	Availability
February 2024	\$ 150	\$ 38	\$ —	\$ 112
February 2025	500	302	—	198
September 2026	1,000	100	—	900
March 2027	1,000	146	—	854
Total	\$ 2,650	\$ 586	\$ —	\$ 2,064

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 2023 with a maturity date of September 30, 2023. 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 U.S. with maturities from date of issue of 12 months or less. There were no outstanding borrowings under the facility at December 31, 2022. The availability of this credit facility may be impacted by how the U.S. government addresses the possibility of approaching its debt limit.

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 ("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. There were no outstanding leaseback obligations related to the remaining CTs and QTE at December 31, 2022 and September 30, 2022. Prior to 2021, TVA made final rent payments involving 16 CTs and acquired the equity interest related to these transactions. Rent payments under the remaining CT lease/leaseback transactions were made through January 2022. In December 2021, TVA gave notice of its election to acquire the leasehold interests related to the remaining eight CTs for a total of \$155 million. One associated acquisition closed in December 2022 for \$78 million. As a result, TVA recorded the cash consideration as reacquired rights, which is an intangible asset included in Completed plant on the Consolidated Balance Sheet. The amount will be amortized over the remaining estimated useful life of the underlying CTs. TVA recognized less than \$1 million of amortization expense related to the reacquired rights within the Consolidated Statement of Operations for the three months ended December 31, 2022. Transaction costs were not material. The estimated amortization expense for the remainder of 2023 is \$2 million and will be \$3 million annually through December 2052. The other acquisition is expected to close in May 2023.

13. Risk Management Activities and Derivative Transactions

TVA is exposed to various 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 historically 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.

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 Accumulated Other Comprehensive Income (Loss)
(in millions)

Derivatives in Cash Flow Hedging Relationship	Objective of Hedge Transaction	Accounting for Derivative Hedging Instrument	Three Months Ended December 31	
			2022	2021
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	\$ 71	\$ 5

Summary of Derivative Instruments That Receive Hedge Accounting Treatment (part 2)⁽¹⁾
Amount of Gain (Loss) Reclassified from Accumulated Other Comprehensive Income (Loss) to Interest Expense
(in millions)

Derivatives in Cash Flow Hedging Relationship	Three Months Ended December 31	
	2022	2021
Currency swaps	\$ 34	\$ 1

Note

(1) There were no amounts excluded from effectiveness testing for any of the periods presented. Based on forecasted foreign currency exchange rates, TVA expects to reclassify approximately \$5 million of gains from AOCI to Interest expense within the next 12 months to offset amounts anticipated to be recorded in Interest expense related to the forecasted exchange loss on the debt.

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

Derivative Type	Objective of Derivative	Accounting for Derivative Instrument	Three Months Ended December 31	
			2022	2021
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 liabilities and assets, respectively Realized gains and losses are recognized in Interest expense when incurred during the settlement period and are presented in operating cash flow	\$ (15)	\$ (29)
Commodity derivatives under the FHP ⁽²⁾	To protect against fluctuations in market prices of purchased commodities (price risk)	Mark-to-market gains and losses are recorded as regulatory liabilities and assets, respectively Realized gains and losses are recognized in Fuel expense or Purchased power expense as the contracts settle to match the delivery period of the underlying commodity ⁽²⁾	(19)	—

Notes

(1) All of TVA's derivative instruments that do not receive hedge accounting treatment have unrealized gains (losses) that would otherwise be recognized in income but instead are deferred as regulatory assets and liabilities. As such, there were no related gains (losses) recognized in income for these unrealized gains (losses) for the three months ended December 31, 2022 and for the three months ended December 31, 2021.

(2) Of the amount recognized for the three months ended December 31, 2022, \$15 million and \$4 million were reported in Fuel expense and Purchased power expense, respectively.

Fair Values of TVA Derivatives (in millions)				
At December 31, 2022			At September 30, 2022	
Derivatives That Receive Hedge Accounting Treatment:				
	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Currency swaps				
£250 million Sterling	\$ (88)	Accounts payable and accrued liabilities \$(6); Other long-term liabilities \$(82)	\$ (130)	Accounts payable and accrued liabilities \$(7); Other long-term liabilities \$(123)
£150 million Sterling	(81)	Accounts payable and accrued liabilities \$(4); Other long-term liabilities \$(77)	(110)	Accounts payable and accrued liabilities \$(5); Other long-term liabilities \$(105)
Derivatives That Do Not Receive Hedge Accounting Treatment:				
	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Interest rate swaps				
\$1.0 billion notional	\$ (639)	Accounts payable and accrued liabilities \$(24); Accrued interest \$(9); Other long-term liabilities \$(606)	\$ (672)	Accounts payable and accrued liabilities \$(9); Accrued interest \$(33); Other long-term liabilities \$(630)
\$476 million notional	(218)	Accounts payable and accrued liabilities \$(8); Other long-term liabilities \$(210)	(233)	Accounts payable and accrued liabilities \$(3); Accrued interest \$(9); Other long-term liabilities \$(221)
Commodity contract derivatives	71	Other current assets \$59; Other long-term assets \$21; Accounts payable and accrued liabilities \$(8); Other long-term liabilities \$(1)	145	Other current assets \$118; Other long-term assets \$34; Accounts payable and accrued liabilities \$(6); Other long-term liabilities \$(1)
Commodity derivatives under the FHP	(121)	Other long-term assets \$22; Accounts payable and accrued liabilities \$(129); Other long-term liabilities \$(14)	115	Accounts receivable, net \$1; Other current assets \$54; Other long-term assets \$68; Accounts payable and accrued liabilities \$(8)

Cash Flow Hedging Strategy for Currency Swaps

To protect against exchange rate risk related to British pound sterling denominated Bond transactions, TVA entered into foreign currency hedges at the time the Bond transactions occurred. TVA had two currency swaps outstanding at December 31, 2022, with total currency exposure of £400 million and expiration dates in 2032 and 2043.

When the dollar strengthens against the British pound sterling, the exchange gain on the Bond liability and related accrued interest 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 and related accrued interest 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 and related accrued interest are included in Long-term debt, net and Accrued interest, respectively. 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 liabilities are included in Accounts payable and accrued liabilities and Other long-term liabilities on the Consolidated Balance Sheets.

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 mark-to-market ("MtM") gains and losses on its interest rate swaps. The net deferred unrealized gains and losses are classified as regulatory liabilities or assets 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, Accrued interest, and Other long-term liabilities on the Consolidated Balance Sheets, and realized gains and losses, if any, are included on TVA's Consolidated Statements of Operations. For the three months ended December 31, 2022 and 2021, the changes in fair market value of the interest rate swaps resulted in the reduction in unrealized losses of \$14 million and increase in unrealized losses of \$11 million, respectively. TVA may hold short-term debt balances lower than the notional amount of the interest rate swaps from time to time due to changes in business conditions and

other factors. While actual balances vary, TVA generally plans to maintain average balances of short-term debt equal to or in excess of the combined notional amount of the interest rate swaps.

Commodity Derivatives. TVA enters into certain derivative contracts for natural gas that require physical delivery of the contracted quantity of the commodity. TVA marks to market these natural gas contracts and defers the fair market values as regulatory assets or liabilities on a gross basis. At December 31, 2022, TVA's natural gas contract derivatives had terms of up to three years.

Commodity Contract Derivatives						
	At December 31, 2022			At September 30, 2022		
	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)
Natural gas contract derivatives	48	356 million mmBtu	\$ 71	44	296 million mmBtu	\$ 145

Commodity Derivatives under the FHP. In 2022, TVA reinstated the Financial Hedging Program ("FHP"), and hedging activity began under the program. Currently, TVA is hedging exposure to the price of natural gas under the FHP. There is no Value at Risk aggregate transaction limit under the current FHP structure, but the TVA Board reviews and authorizes the use of tolerances and measures annually. TVA's policy prohibits trading financial instruments under the FHP for speculative purposes. At December 31, 2022, TVA's natural gas swap contracts under the FHP had remaining terms of up to five years.

Commodity Derivatives under Financial Hedging Program ⁽¹⁾						
	At December 31, 2022			At September 30, 2022		
	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)
Natural gas						
Swap contracts	253	300 million mmBtu	\$ (121)	225	256 million mmBtu	\$ 115

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.

TVA defers all FHP unrealized gains (losses) as regulatory liabilities (assets) and records the realized gains or losses in Fuel expense and Purchased power expense to match the delivery period of the underlying commodity. The fair value of commodity derivatives under the FHP decreased \$236 million primarily due to a decrease in forward natural gas prices at December 31, 2022, as compared to September 30, 2022.

Offsetting of Derivative Assets and Liabilities

The amounts of TVA's derivative instruments as reported on the Consolidated Balance Sheets are shown in the table below:

Derivative Assets and Liabilities ⁽¹⁾ (in millions)			
	At December 31, 2022	At September 30, 2022	
Assets			
Commodity contract derivatives	\$ 80	\$ 152	
Commodity derivatives under the FHP ⁽²⁾	22	123	
Total derivatives subject to master netting or similar arrangement	\$ 102	\$ 275	
Liabilities			
Currency swaps	\$ 169	\$ 240	
Interest rate swaps ⁽³⁾	857	905	
Commodity contract derivatives	9	7	
Commodity derivatives under the FHP ⁽²⁾	143	8	
Total derivatives subject to master netting or similar arrangement	\$ 1,178	\$ 1,160	

Notes

(1) Offsetting amounts include counterparty netting of derivative contracts. Except as discussed below, there were no other material offsetting amounts on TVA's

Consolidated Balance Sheets at either December 31, 2022, or September 30, 2022.

- (2) At December 31, 2022, the gross derivative asset and gross derivative liability was \$61 million and \$182 million, respectively, with offsetting amounts for each totaling \$39 million. TVA received \$3 million of collateral from counterparties as of December 31, 2022, which is recorded separately from the fair values of the derivative assets and liabilities and reported in Accounts payable and accrued liabilities.
- (3) Letters of credit of approximately \$586 million and \$704 million were posted as collateral at December 31, 2022, and September 30, 2022, respectively, to partially secure the liability positions of one of the interest rate swaps in accordance with the collateral requirements for this derivative.

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"). See Note 14 — *Fair Value Measurements — Investment Funds* for a discussion of the trusts, plans, and types of investments. The NDT and ART may invest in derivative instruments which may include swaps, futures, options, forwards, and other instruments. At December 31, 2022, and September 30, 2022, the NDT held investments in forward contracts to purchase debt securities. The fair values of these derivatives were in net asset positions totaling \$9 million and \$4 million at December 31, 2022, and September 30, 2022, respectively.

Collateral. TVA's interest rate swaps, currency swaps, and commodity derivatives under the FHP 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, 2022, the aggregate fair value of all derivative instruments with credit-risk related contingent features that were in a liability position was \$1.2 billion. TVA's collateral obligations at December 31, 2022, under these arrangements were \$569 million, for which TVA had posted \$586 million 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 interest rate swap contracts as a result of this posted collateral. In addition, as of December 31, 2022, TVA received \$3 million of collateral from counterparties related to the commodity derivatives under the FHP.

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 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.

Other Collateral

On December 27, 2022, TVA deposited \$50 million of cash collateral with PJM to provide security for TVA's power purchases from PJM during the winter season. In addition, on January 4, 2023, TVA deposited \$50 million of cash collateral with the Midcontinent Independent System Operator ("MISO") to provide security for TVA's power purchases from MISO for the winter season.

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.

Customers. TVA is exposed to counterparty credit risk associated with trade accounts receivable from delivered power sales to LPCs, and from industries and federal agencies directly served, all located in the Tennessee Valley region. Of the \$1.6 billion and \$1.9 billion of receivables from power sales outstanding at December 31, 2022, and September 30, 2022, respectively, the majority of the counterparties were rated investment grade. The obligations of these customers that are not investment grade are secured by collateral. TVA is also exposed to risk from exchange power arrangements with a small number of investor-owned regional utilities related to either delivered power or the replacement of open positions of longer-term purchased power or fuel agreements. TVA believes its policies and procedures for counterparty performance risk reviews have generally protected TVA against significant exposure related to market and economic conditions. See Note 1 — *Summary of Significant Accounting Policies — Allowance for Uncollectible Accounts*, Note 3 — *Accounts Receivable, Net*, and Note 7 — *Other Long-Term Assets*.

TVA had revenue from two LPCs that collectively accounted for 16 percent of total operating revenues for both the three months ended December 31, 2022 and the three months ended December 31, 2021.

Although TVA has cryptocurrency industry customers, TVA believes it does not have material risk due to the relative size of these customers and credit mitigation measures that are in place. TVA also has minimal cryptocurrency exposure through its investment trusts, which TVA also believes is not a material risk due to the exposure being indirect and the relative size of these fund of fund commitments.

Suppliers. TVA assesses potential supplier performance risks, including procurement of fuel, parts, and services. If suppliers are unable to perform under TVA's existing contracts or if TVA is unable to obtain similar services or supplies from other vendors, TVA could experience delays, disruptions, additional costs, or other operational outcomes that may impact generation, maintenance, and capital programs. If certain fuel or purchased power suppliers fail to perform under the terms of their 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. TVA continues evaluating potential supplier performance risks and supplier impact but cannot determine or predict the duration of such risks/impacts or the extent to which such risks/impacts could affect TVA's business, operations, and financial results or cause potential business disruptions.

TVA has experienced an increase in supplier impacts as a result of COVID-19 and the state of global supply chains and the economy, such as project delays, limited availability of supplies, and price increases. Russia's invasion of Ukraine has further intensified the state of global supply chains and inflationary pressures, and TVA will continue to monitor these pressures.

Natural Gas. TVA purchases a significant amount of its natural gas requirements through contracts with a variety of suppliers and purchases substantially all of its fuel oil requirements on the spot market. TVA delivers to its gas fleet under firm and non-firm transportation contracts on multiple interstate natural gas pipelines. TVA contracts for storage capacity that allows for operational flexibility and increased supply during peak gas demand scenarios or supply disruptions. TVA plans to continue using contracts of various lengths and terms to meet the projected natural gas needs of its natural gas fleet. TVA also maintains on-site, fuel oil backup to operate at the majority of the combustion turbine sites in the event of major supply disruptions. In the event suppliers are unable to perform under existing contracts, TVA can utilize its storage portfolio or other suppliers to help secure replacement natural gas volumes.

Coal. To help ensure a reliable supply of coal, TVA had coal contracts with multiple suppliers at December 31, 2022. The contracted supply of coal is sourced from several geographic regions of the U.S. and is delivered via barge and rail. As a result of emerging technologies, environmental regulations, industry trends, and natural gas market volatility over the past few years, coal suppliers are facing increased financial pressure, which has led to relatively poor credit ratings and bankruptcies, restructuring, mine closures, or other scenarios. A long-term continued decline in demand for coal could result in more consolidations, additional bankruptcies, restructuring, mine closures, or other scenarios. Current market conditions indicate limited availability of spot market coal due to increased exports, utility demand, and mine capacity and capability.

Although TVA experienced challenges in 2022 related to coal supply as a result of supply limitation and transportation challenges, supply availability and transportation performance gradually improved during the first quarter of 2023. Mild weather prior to late December 2022 required lower than forecasted coal-fired generation, enabling inventory stockpiles to increase. TVA also invested in additional multi-year coal supply contracts to provide stability in coal supply availability. These investments will support fuel resiliency with TVA's overall coal supply. Coal transportation performance has also been improving in 2023 due to the settlement of the rail labor strike and increased availability of railroad workers.

Nuclear Fuel. Nuclear fuel is obtained predominantly through long-term uranium concentrate supply contracts, contracted conversion services, contracted enrichment services, or a combination thereof, and contracted fuel fabrication services. The supply markets for uranium concentrates and certain nuclear fuel services are subject to price fluctuations and availability restrictions. Supply market conditions may make procurement contracts subject to credit risk related to the potential nonperformance of counterparties. In the event of nonperformance by these or other suppliers, TVA believes that replacement uranium concentrate and nuclear fuel services can be obtained, although at prices that may be unfavorable when compared to the prices under the current supply agreements.

As a result of Russia's invasion of Ukraine, new contracts for Russian origin nuclear fuel have been limited by Executive Order ("EO") 14066, and further restrictions on the purchase or use of Russian origin fuel may be forthcoming. TVA should have no direct impact from existing or future restrictions since TVA has no Russian origin nuclear fuel in inventory for use in its reactors and it is not contracted to purchase any Russian origin nuclear fuel. TVA could be impacted by higher market prices as a result of general market impacts associated with supply restrictions; however, at this time TVA's nuclear fuel is obtained predominantly through long-term contracts.

Purchased Power. TVA acquires power from a variety of power producers through long-term and short-term power purchase agreements ("PPAs") as well as through spot market purchases. Because of the long-term nature and reliability risk of purchased power, TVA requires that the PPAs contain certain counterparty performance assurance requirements to help insure counterparty performance during the term of the agreements.

Other Suppliers. Mounting solar supply chain constraints, commodity price increases, and the recent trade policy investigation into solar panel imports have created challenges for the U.S. solar industry. Both TVA's Self-Directed Solar project and existing solar PPA portfolio are not immune from these challenges. Similar to the experience of the rest of the industry, the majority of TVA's contracted PPAs from previous requests for proposals ("RFPs") that are not yet online have been impacted by project delays and prices increases.

Derivative Counterparties. TVA has entered into physical and financial contracts that are classified as derivatives for hedging purposes, and TVA's NDT, ART, and qualified defined benefit plan ("pension plan") have entered into derivative contracts for investment purposes. If a counterparty to one of the physical or financial derivative transactions defaults, TVA might incur costs in connection with entering into a replacement transaction. If a counterparty to the derivative contracts into which the NDT, the ART, or the pension plan have entered for investment purposes defaults, the value of the investment could decline significantly or perhaps become worthless. TVA has concentrations of credit risk from the banking, coal, and gas industries because multiple companies in these industries serve as counterparties to TVA in various derivative transactions. At December 31, 2022, all of TVA's commodity derivatives under the FHP, currency swaps, and interest rate swaps were with counterparties whose Moody's credit ratings were A2 or higher.

TVA classifies forward natural gas contracts as derivatives. See *Derivatives Not Receiving Hedge Accounting Treatment* above. At December 31, 2022, the natural gas contracts were with counterparties whose ratings ranged from B1 to A1.

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 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, 2022, Investment funds were comprised of \$3.9 billion of equity securities and debt securities classified as trading measured at fair value. Equity and trading debt 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 \$2.7 billion and \$1.1 billion, respectively, at December 31, 2022.

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 to future periods. The NDT, ART, SERP, and DCP funds are invested in portfolios of securities generally designed to achieve a return in line with overall equity and debt 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, private real asset investments, and private credit 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 \$179 million, private real assets of \$118 million, and private credit of \$80 million at December 31, 2022. The ART had unfunded commitments related to limited partnerships in private equity of \$95 million, private real assets of \$67 million, and private credit of \$42 million at December 31, 2022. These investments have no redemption or limited redemption options and may also impose restrictions on the NDT's and ART's ability to liquidate their investments. There are no readily available quoted exchange prices for these investments. The fair value of these investments is based on information provided by the investment managers. These investments are valued on a quarterly basis. TVA's private equity limited partnerships, private real asset investments, and private credit 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 NAV 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 NAV in the fair value hierarchy.

Realized and unrealized gains and losses on equity and trading debt 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 — *Summary of Significant Accounting Policies — Cost-Based Regulation* and Note 8 — *Regulatory Assets and Liabilities*. TVA recorded unrealized gains and losses related to its equity and trading debt securities held during each period as follows:

		Unrealized Investment Gains (Losses) (in millions)	
		Three Months Ended December 31	
Fund	Financial Statement Presentation	2022	2021
NDT	Regulatory assets	\$ 136	\$ 119
ART	Regulatory assets	69	30
SERP	Other income	3	2

Currency and Interest Rate Swap Derivatives

See Note 13 — *Risk Management Activities and Derivative Transactions — Cash Flow Hedging Strategy for Currency Swaps and Derivatives Not Receiving Hedge Accounting Treatment* for a discussion of the nature, purpose, and contingent features of TVA's currency swaps and interest rate swaps. These swaps are classified as Level 2 valuations and are valued based on income approaches using observable market inputs for similar instruments.

Commodity Contract Derivatives and Commodity Derivatives under the FHP

Commodity Contract Derivatives. Most of these derivative contracts are valued based on market approaches, which utilize short-term and mid-term market-quoted prices from an external industry brokerage service.

Commodity Derivatives under the FHP. Swap contracts are valued using a pricing model based on New York Mercantile Exchange inputs and are subject to nonperformance risk outside of the exit price. These contracts are classified as Level 2 valuations.

See Note 13 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment — Commodity Derivatives and — Commodity Derivatives under the FHP.*

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 2021) for companies with a similar credit rating over a time period consistent with the remaining term of the contract. The application of CVAs resulted in a \$2 million decrease in the fair value of assets and a \$2 million decrease in the fair value of liabilities at December 31, 2022.

Fair Value Measurements

The following tables set forth by level, within the fair value hierarchy, TVA's financial assets and liabilities that were measured at fair value on a recurring basis at December 31, 2022, and September 30, 2022. 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, 2022 (in millions)				
	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	\$ 575	\$ —	\$ —	\$ 575
Government debt securities ⁽¹⁾	402	46	—	448
Corporate debt securities ⁽²⁾	—	302	—	302
Mortgage and asset-backed securities	—	29	—	29
Institutional mutual funds	260	—	—	260
Forward debt securities contracts	—	9	—	9
Private equity funds measured at net asset value ⁽³⁾	—	—	—	537
Private real asset funds measured at net asset value ⁽³⁾	—	—	—	391
Private credit measured at net asset value ⁽³⁾	—	—	—	124
Commingled funds measured at net asset value ⁽³⁾	—	—	—	1,238
Total investments	1,237	386	—	3,913
Commodity contract derivatives	—	80	—	80
Commodity derivatives under the FHP	—	22	—	22
Total	\$ 1,237	\$ 488	\$ —	\$ 4,015
Liabilities				
Currency swaps ⁽⁴⁾	\$ —	\$ 169	\$ —	\$ 169
Interest rate swaps	—	857	—	857
Commodity contract derivatives	—	9	—	9
Commodity derivatives under the FHP	—	143	—	143
Total	\$ —	\$ 1,178	\$ —	\$ 1,178

Notes

(1) Includes government-sponsored entities, including \$402 million of U.S. Treasury securities within Level 1 of the fair value hierarchy.

(2) Includes both U.S. and foreign debt.

(3) Certain investments that are measured at fair value using the NAV 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 on the Consolidated Balance Sheets.

(4) TVA records currency swaps net of cash collateral received from or paid to the counterparty if applicable, to the extent such amount is not recorded in Accounts payable and accrued liabilities. See Note 13 — Risk Management Activities and Derivative Transactions — Offsetting of Derivative Assets and Liabilities.

Fair Value Measurements At September 30, 2022 (in millions)				
	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	\$ 534	\$ —	\$ —	\$ 534
Government debt securities ⁽¹⁾	358	36	—	394
Corporate debt securities ⁽²⁾	—	283	—	283
Mortgage and asset-backed securities	—	52	—	52
Institutional mutual funds	242	—	—	242
Forward debt securities contracts	—	4	—	4
Private equity funds measured at net asset value ⁽³⁾	—	—	—	487
Private real asset funds measured at net asset value ⁽³⁾	—	—	—	369
Private credit measured at net asset value ⁽³⁾	—	—	—	103
Commingled funds measured at net asset value ⁽³⁾	—	—	—	1,203
Total investments	1,134	375	—	3,671
Commodity contract derivatives	—	152	—	152
Commodity derivatives under the FHP	—	123	—	123
Total	\$ 1,134	\$ 650	\$ —	\$ 3,946
Liabilities				
Currency swaps ⁽⁴⁾	\$ —	\$ 240	\$ —	\$ 240
Interest rate swaps	—	905	—	905
Commodity contract derivatives	—	7	—	7
Commodity derivatives under the FHP	—	8	—	8
Total	\$ —	\$ 1,160	\$ —	\$ 1,160

Notes

(1) Includes government-sponsored entities, including \$358 million of U.S. Treasury securities within Level 1 of the fair value hierarchy.

(2) Includes both U.S. and foreign debt.

(3) Certain investments that are measured at fair value using the NAV 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 on the Consolidated Balance Sheets.

(4) TVA records currency swaps net of cash collateral received from or paid to the counterparty if applicable, to the extent such amount is not recorded in Accounts payable and accrued liabilities. See Note 13 — Risk Management Activities and Derivative Transactions — Offsetting of Derivative Assets and Liabilities.

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 instruments. The fair value of the financial instruments held at December 31, 2022, and September 30, 2022, 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, 2022, and September 30, 2022, were as follows:

Estimated Values of Financial Instruments Not Recorded at Fair Value
(in millions)

	Valuation Classification	At December 31, 2022		At September 30, 2022	
		Carrying Amount	Fair Value	Carrying Amount	Fair Value
EnergyRight® receivables, net (including current portion)	Level 2	\$ 61	\$ 62	\$ 62	\$ 62
Loans and other long-term receivables, net (including current portion)	Level 2	109	100	105	96
EnergyRight® financing obligations (including current portion)	Level 2	72	81	72	81
Unfunded loan commitments	Level 2	—	1	—	—
Membership interests of VIEs subject to mandatory redemption (including current portion)	Level 2	20	22	20	22
Long-term outstanding power bonds, net (including current maturities)	Level 2	17,894	17,790	17,856	18,070
Long-term debt of VIEs, net (including current maturities)	Level 2	1,007	1,009	1,007	989

The carrying value of Cash and cash equivalents, Restricted cash and cash equivalents, Accounts receivable, net, and Short-term debt, net 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 and membership interests of VIEs 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. Revenue

Revenue from Sales of Electricity

TVA's revenue from contracts with customers is primarily derived from the generation and sale of electricity to its customers and is included in Revenue from sales of electricity on the Consolidated Statements of Operations. Electricity is sold primarily to LPCs for distribution to their end-use customers. In addition, TVA sells electricity to directly served industrial companies, federal agencies, and others.

LPC sales	<p>Approximately 91 percent of TVA's Revenue from sales of electricity for the three months ended December 31, 2022 was from LPCs, which then distribute the power to their customers using their own distribution systems. Power is delivered to each LPC at delivery points within the LPC's service territory. TVA recognizes revenue when the customer takes possession of the power at the delivery point. For power sales, the performance obligation to deliver power is satisfied in a series over time because the sales of electricity over the term of the customer contract are a series of distinct goods that are substantially the same and have the same pattern of transfer to the customer. TVA has no continuing performance obligations subsequent to delivery. Using the output method for revenue recognition provides a faithful depiction of the transfer of electricity as customers obtain control of the power and benefit from its use at delivery. Additionally, TVA has an enforceable right to consideration for energy delivered at any discrete point in time and will recognize revenue at an amount that reflects the consideration to which TVA is entitled for the energy delivered.</p> <p>The amount of revenue is based on contractual prices approved by the TVA Board. Customers are invoiced monthly for power delivered as measured by meters located at the delivery points. The net transaction price is offset by certain credits available to customers that are known at the time of billing. Credits are designed to achieve objectives of the TVA Act and include items such as hydro preference credits for residential customers of LPCs, economic development credits to promote growth in the Tennessee Valley, wholesale bill credits to maintain long-term partnerships with LPCs, pandemic credits created to support LPCs and strengthen the public power response to the COVID-19 pandemic, and demand response credits allowing TVA to reduce industrial customer usage in periods of peak demand to balance system demand. Payments are typically due within approximately one month of invoice issuance.</p>
Directly served customers	<p>Directly served customers, including industrial customers, federal agencies, and other customers, take power for their own consumption. Similar to LPCs, power is delivered to a delivery point, at which time the customer takes possession and TVA recognizes revenue. For all power sales, the performance obligation to deliver power is satisfied in a series over time since the sales of electricity over the term of the customer contract are a series of distinct goods that are substantially the same and have the same pattern of transfer to the customer. TVA has no continuing performance obligations subsequent to delivery. Using the output method for revenue recognition provides a faithful depiction of the transfer of electricity as customers obtain control of the power and benefit from its use at delivery. Additionally, TVA has an enforceable right to consideration for energy delivered at any discrete point in time and will recognize revenue at an amount that reflects the consideration to which TVA is entitled for the energy delivered.</p> <p>The amount of revenue is based on contractual prices approved by the TVA Board. Customers are invoiced monthly for power delivered as measured by meters located at the delivery points. The net transaction price is offset by certain credits available to customers that are known at the time of billing. Examples of credits include items such as economic development credits to promote growth in the Tennessee Valley, pandemic credits created to support directly served customers in response to the COVID-19 pandemic, and demand response credits allowing TVA to reduce industrial customer usage in periods of peak demand to balance system demand. Payments are typically due within approximately one month of invoice issuance.</p>

Other Revenue

Other revenue consists primarily of wheeling and network transmission charges, sales of excess steam that is a by-product of power production, delivery point charges for interconnection points between TVA and the customer, REC sales, and certain other ancillary goods or services.

Disaggregated Revenues

During the three months ended December 31, 2022, revenues generated from TVA's electricity sales were \$3.0 billion and accounted for virtually all of TVA's revenues. TVA's operating revenues by state for the three months ended December 31, 2022 and 2021, are detailed in the table below:

Operating Revenues By State (in millions)		
	Three Months Ended December 31	
	2022	2021
Alabama	\$ 428	\$ 371
Georgia	76	64
Kentucky	198	171
Mississippi	278	241
North Carolina	25	20
Tennessee	1,941	1,659
Virginia	13	11
Subtotal	2,959	2,537
Off-system sales	4	1
Revenue from sales of electricity	2,963	2,538
Other revenue	52	45
Total operating revenues	\$ 3,015	\$ 2,583

TVA's operating revenues by customer type for the three months ended December 31, 2022 and 2021, are detailed in the table below:

Operating Revenues by Customer Type (in millions)		
	Three Months Ended December 31	
	2022	2021
Revenue from sales of electricity		
Local power companies	\$ 2,706	\$ 2,306
Industries directly served	225	205
Federal agencies and other	32	27
Revenue from sales of electricity	2,963	2,538
Other revenue	52	45
Total operating revenues	\$ 3,015	\$ 2,583

TVA and LPCs continue to work together to meet the changing needs of consumers around the Tennessee Valley. In 2019, the TVA Board approved a partnership agreement option that better aligns the length of LPC power contracts with TVA's long-term commitments. Under the partnership arrangement, the LPC power contracts automatically renew each year and have a 20-year termination notice. The partnership arrangements can be terminated under certain circumstances, including TVA's failure to limit rate increases as provided for in the agreements going forward. Participating LPCs receive benefits including a 3.1 percent wholesale bill credit in exchange for their long-term commitment, which enables TVA to recover its long-term financial commitments over a commensurate period. The total wholesale bill credits to LPCs participating in the partnership agreement were \$48 million and \$43 million, respectively, for the three months ended December 31, 2022 and 2021. In 2020, TVA provided participating LPCs a flexibility option, named Generation Flexibility, that allows them to locally generate or purchase up to approximately five percent of their average total hourly energy sales over a certain time period in order to meet their individual customers' needs. As of January 30, 2023, 147 LPCs had signed the partnership agreement with TVA, and 81 LPCs had signed a Power Supply Flexibility Agreement.

In 2021, the TVA Board approved a 2.5 percent monthly base rate credit, the Pandemic Recovery Credit, which was effective for 2022. In 2022, the TVA Board approved a 2.5 percent monthly base rate credit, which is an extension of the Pandemic Recovery Credit, and is effective for 2023. These pandemic credits apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers. The 2023 credit is expected to approximate \$230 million. For the three months ended December 31, 2022 and three months ended December 31, 2021, pandemic credits

totaled \$53 million and \$50 million, respectively.

The number of LPCs by contract arrangement, the revenues derived from such arrangements for the three months ended December 31, 2022, and the percentage those revenues comprised of TVA's total operating revenues for the same periods, are summarized in the table below:

**TVA Local Power Company Contracts
At or for the Three Months Ended December 31, 2022**

Contract Arrangements ⁽¹⁾	Number of LPCs	Revenue from Sales of Electricity to LPCs (in millions)	Percentage of Total Operating Revenues
20-year termination notice	147	\$ 2,345	77.8 %
5-year termination notice	6	361	12.0 %
Total	153	\$ 2,706	89.8 %

Note

(1) Ordinarily, the LPCs and TVA have the same termination notice period; however, in a contract with one of the LPCs with a five-year termination notice, TVA has a 10-year termination notice (which becomes a five-year termination notice if TVA loses its discretionary wholesale rate-setting authority). Certain LPCs have five-year termination notices or a shorter period if any act of Congress, court decision, or regulatory change requires or permits that election.

TVA's two largest LPCs — Memphis Light, Gas and Water Division ("MLGW") and Nashville Electric Service ("NES") — have contracts with a five-year and a 20-year termination notice period, respectively. Sales to MLGW and NES each accounted for eight percent of TVA's total operating revenues for both the three months ended December 31, 2022 and the three months ended December 31, 2021.

Contract Balances

Contract assets represent an entity's right to consideration in exchange for goods and services that the entity has transferred to customers. TVA did not have any material contract assets at December 31, 2022.

Contract liabilities represent an entity's obligations to transfer goods or services to customers for which the entity has received consideration (or an amount of consideration is due) from the customers. These contract liabilities are primarily related to upfront consideration received prior to the satisfaction of the performance obligation. See *Economic Development Incentives* below and Note 10 — *Other Long-Term Liabilities — Long-Term Deferred Revenue*.

Economic Development Incentives. Under certain economic development programs, TVA offers incentives to existing and potential power customers in targeted business sectors that make multi-year commitments to invest in the Tennessee Valley. TVA records those incentives as reductions of revenue. Incentives recorded as a reduction to revenue were \$82 million and \$89 million for the three months ended December 31, 2022 and the three months ended December 31, 2021, respectively. Incentives that have been approved but have not been paid are recorded in Accounts payable and accrued liabilities and Other long-term liabilities on the Consolidated Balance Sheets. At December 31, 2022, and September 30, 2022, the outstanding unpaid incentives were \$188 million and \$187 million, respectively. Incentives that have been paid out may be subject to claw back if the customer fails to meet certain program requirements.

16. Other Income, Net

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

	Other Income, Net (in millions)	
	Three Months Ended December 31	
	2022	2021
Interest income	\$ 7	\$ 3
External services	3	5
Gains on investments	6	4
Miscellaneous	—	2
Other income, net	\$ 16	\$ 14

17. Supplemental Cash Flow Information

Construction in progress and asset retirement obligation project accruals and nuclear fuel expenditures included in Accounts payable and accrued liabilities at December 31, 2022 and 2021, were \$425 million and \$417 million, respectively, and are excluded from the Consolidated Statements of Cash Flows for the three months ended December 31, 2022 and 2021, as non-cash investing activities.

Cash flows from swap contracts that are accounted for as hedges are classified in the same category as the item being hedged or on a basis consistent with the nature of the instrument.

18. Benefit Plans

TVA sponsors a 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 post-employment 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 components of net periodic benefit cost and other amounts recognized as changes in regulatory assets for the three months ended December 31, 2022 and 2021, were as follows:

Components of TVA's Benefit Plans ⁽¹⁾ (in millions)				
For the Three Months Ended December 31				
	Pension Benefits		Other Post-Retirement Benefits	
	2022	2021	2022	2021
Service cost	\$ 9	\$ 13	\$ 3	\$ 4
Interest cost	142	94	5	4
Expected return on plan assets	(123)	(109)	—	—
Amortization of prior service credit	(22)	(23)	(4)	(4)
Recognized net actuarial loss	34	96	—	1
Total net periodic benefit cost as actuarially determined	40	71	4	5
Amount expensed due to actions of regulator	19	6	—	—
Total net periodic benefit cost	\$ 59	\$ 77	\$ 4	\$ 5

Note

(1) The components of net benefit cost other than the service cost component are included in Other net periodic benefit cost on the Consolidated Statements of Operations.

TVA's minimum required pension plan contribution for 2023 is \$300 million. TVA contributes \$25 million per month to TVARS and as of December 31, 2022, had contributed \$75 million. The remaining \$225 million will be contributed by September 30, 2023. For the three months ended December 31, 2022, TVA also contributed \$29 million to the 401(k) plan and \$8 million (net of \$1 million in rebates) to the other post-retirement plans. TVA expects to contribute \$6 million to the SERP in 2023.

19. Collaborative Arrangement

In December 2022, TVA entered into a multi-party collaborative arrangement. Under the agreement, TVA will contribute up to \$88 million for costs incurred through 2026. At the time feasibility is determined, TVA will have the right to use the design and receive other economic benefits.

Payments pursuant to the agreement are recorded as research and development expense in the period incurred. TVA recorded \$16 million of expense related to this agreement for the three months ended December 31, 2022.

20. 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 financial protection to compensate for liability claims of members of the public for personal injury and property damages arising from a nuclear incident in the U.S. This financial protection consists of two layers of coverage. The primary level is private insurance underwritten by American Nuclear Insurers and provides public liability insurance coverage of \$450 million for each nuclear power plant licensed to operate. If this amount is not sufficient to cover claims arising from a

nuclear incident, the second level, Secondary Financial Protection, applies. Within the Secondary Financial Protection level, the licensee of each nuclear reactor has a contingent obligation to pay a retrospective premium, equal to its proportionate share of the loss in excess of the primary level, regardless of proximity to the incident of fault, up to a maximum of approximately \$138 million per reactor per incident. With TVA's seven reactors, the maximum total contingent obligation per incident is \$963 million. This retrospective premium is payable at a maximum rate currently set at approximately \$20 million per year per nuclear incident per reactor. Currently, 96 reactors are participating in the Secondary Financial Protection program.

In the event that a nuclear incident results in public liability claims, the primary level provided by American Nuclear Insurers combined with the Secondary Financial Protection should provide up to approximately \$13.7 billion in coverage.

Federal law requires that each Nuclear Regulatory Commission ("NRC") power reactor licensee obtain property insurance from private sources to cover the cost of stabilizing and decontaminating a reactor and its station site after an accident. TVA carries property, decommissioning liability, and decontamination liability insurance from Nuclear Electric Insurance Limited ("NEIL") and European Mutual Association for Nuclear Insurance. The limits available for a loss are up to \$2.1 billion for two of TVA's nuclear sites and up to \$2.8 billion for the remaining site. Some of this insurance may require the payment of retrospective premiums up to a maximum of approximately \$115 million.

TVA purchases accidental outage (business interruption) insurance for TVA's nuclear sites from NEIL. In the event that an accident covered by this policy takes a nuclear unit offline or keeps a nuclear unit offline, NEIL will pay TVA, after a waiting period, an indemnity (a set dollar amount per week) with a maximum indemnity of \$490 million per unit. This insurance policy may require the payment of retrospective premiums up to a maximum of approximately \$44 million, but only to the extent the retrospective premium is deemed necessary by the NEIL Board of Directors to pay losses unable to be covered by NEIL's surplus.

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 11 — *Asset Retirement Obligations*.

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, 2022, \$3.7 billion, representing the discounted value of future estimated nuclear decommissioning costs, was included in nuclear 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 bases its nuclear decommissioning estimates on site-specific cost studies. The most recent study was approved and implemented in September 2022. Site-specific cost studies are updated for each of TVA's nuclear units at least every five years.

TVA maintains an NDT to provide funding for the ultimate decommissioning of its nuclear power plants. See Note 14 — *Fair Value Measurements — 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 various dates between 2033 - 2055, depending on the unit. It may be possible to extend the operating life of some of the units with approval from the NRC. See Note 8 — *Regulatory Assets and Liabilities* and Note 11 — *Asset Retirement Obligations*.

Non-Nuclear Decommissioning. At December 31, 2022, \$3.5 billion, representing the discounted value of future estimated non-nuclear decommissioning costs, was included in non-nuclear AROs. 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 updates its underlying assumptions for non-nuclear decommissioning AROs at least every five years. However, material changes in underlying assumptions that impact the amount and timing of undiscounted cash flows are continuously monitored and incorporated into ARO balances in the period identified.

TVA maintains an ART to help fund the ultimate decommissioning of its non-nuclear power assets. See Note 14 — *Fair Value Measurements — Investment Funds*. 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. See Note 8 — *Regulatory Assets and Liabilities* and Note 11 — *Asset Retirement Obligations*.

Environmental Matters. TVA's 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, greenhouse gas ("GHG") emissions, water quality control, and management and disposal of solid and hazardous wastes. Regulations in these major areas continue to become more stringent and have, and will continue to have, 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 and natural gas-fired generating units in general and emissions of pollutants from those units. Environmental requirements placed on the operation of coal-fired and other generating units using fossil fuels such as oil and natural gas will likely continue to become more restrictive over time. Failure to comply with environmental and safety requirements can result in enforcement actions and litigation, which can lead to the imposition of significant civil liability, including fines and penalties, criminal sanctions, and/or temporary or permanent closure of non-compliant facilities. Historical non-compliance can also lead to difficulty in renewing existing permits, as well as difficulty in obtaining permits to bring new generation facilities online. Other obstacles to renewal or permitting of new facilities include a proliferation of non-government organizations seeking to use litigation tools to delay or stop altogether permitting of new fossil fuel facilities in favor of renewable energy projects.

TVA estimates that compliance with existing and future Clean Air Act ("CAA") requirements (excluding GHG requirements) could lead to costs of \$284 million from 2023 to 2027, which include existing controls capital projects and air operations and maintenance projects. TVA also estimates additional expenditures of approximately \$835 million from 2023 to 2027 relating to TVA's coal combustion residuals ("CCR") Program, as well as expenditures of approximately \$96 million from 2023 to 2027 relating to compliance with Clean Water Act ("CWA") 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, and these estimates do not include expenditures expected to be incurred after 2027.

Compliance with the Environmental Protection Agency's ("EPA's") CCR rule ("CCR Rule") required implementation of a groundwater monitoring program, additional engineering, and ongoing analysis. As further analyses are performed, including evaluation of monitoring results, there is the potential for additional costs for investigation and/or remediation. These costs cannot reasonably be predicted until a final remedy is selected where required.

Liability for releases, natural resource damages, and required cleanup of hazardous substances is primarily regulated by the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), the Resource Conservation and Recovery Act ("RCRA"), and other federal and parallel state statutes. In a manner similar to many other governmental entities, industries, and power systems, TVA has generated or used hazardous substances over the years. TVA operations at some facilities have resulted in releases of contaminants that TVA has addressed or is addressing consistent with state and federal requirements. At December 31, 2022 and September 30, 2022, TVA's estimated liability for required cleanup and similar environmental work for those sites for which sufficient information is available to develop a cost estimate was approximately \$16 million and \$17 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. Additionally, the potential inclusion of new hazardous substances under CERCLA and RCRA jurisdiction could significantly affect TVA's future liability for remediating historical releases.

Potential Liability Associated with Workers' Exposure to CCR Materials. In response to the 2008 ash spill at Kingston, TVA hired Jacobs Engineering Group, Inc. ("Jacobs") to oversee aspects of the cleanup. After the cleanup was completed, Jacobs was sued in the U.S. District Court for the Eastern District of Tennessee ("Eastern District") by employees of a contractor involved in the cleanup and family members of some of the employees. The plaintiffs alleged that Jacobs failed to take or provide proper health precautions and misled workers about the health risks associated with exposure to coal fly ash, which is a CCR material. The plaintiffs also alleged that exposure to the fly ash caused significant illnesses, including in some cases death. In 2018, a jury found in favor of the plaintiffs regarding general causation, including that Jacobs failed to adhere to its contract with TVA or the Site Wide Safety and Health Plan; Jacobs failed to provide reasonable care to the plaintiffs; and Jacobs's failures were capable of causing a variety of employee medical conditions. Currently, the Eastern District has stayed all proceedings in the case pending the Tennessee Supreme Court's review of four questions from the Eastern District. An oral argument on these questions was held on June 1, 2022. If the litigation proceeds to a damages phase, the principal question for resolution will be whether Jacobs's breaches were the specific medical cause of the plaintiffs' alleged injuries and damages.

Other contractor employees and family members also have filed lawsuits against Jacobs that are pending in the Eastern District. These pending lawsuits are stayed and raise similar claims to those being litigated against Jacobs.

While TVA is not a party to any of these lawsuits, TVA may potentially have an indemnity obligation to reimburse Jacobs in some circumstances. TVA does not expect any potential liability to have a material adverse impact on its results of operations or financial condition.

Legal Proceedings

There have been no material changes to the legal proceedings described in Note 21 — *Commitments and Contingencies* — *Legal Proceedings* of the Annual Report, except as described below.

Case Involving Rate Changes. As discussed in the Annual Report, on September 7, 2022, the U.S. Court of Appeals for the Fourth Circuit ("Fourth Circuit") affirmed the dismissal of the lawsuit filed against TVA and one of its LPCs, Bristol Virginia Utilities Authority, by a LPC customer, asserting claims for breach of contract and violation of the Administrative Procedure Act. On January 5, 2023, the plaintiff filed a petition with the U.S. Supreme Court to review the Fourth Circuit's decision.

Case Involving Johnsonville Aeroderivative Combustion Turbine Project. On December 22, 2022, the Southern Environmental Law Center filed a lawsuit in the United States District Court for the Middle District of Tennessee on behalf of the Sierra Club, alleging that TVA violated the National Environmental Policy Act ("NEPA") in deciding to build a new aeroderivative combustion turbine project at its Johnsonville facility.

The Sierra Club claims that TVA violated NEPA by failing to adequately analyze the climate consequences of the project, adequately address GHG mitigation in light of EOs to decarbonize the power sector, consider a reasonable range of alternatives to the project, and prepare an environmental impact statement ("EIS").

The Sierra Club requests the federal court to enter a declaratory judgment that TVA's environmental assessment ("EA") violates NEPA and that TVA's decision to issue a finding of no significant impact ("FONSI") was arbitrary, vacate the EA and FONSI, order TVA to prepare an EIS, and prohibit further construction and operation of the combustion turbines until TVA has complied with NEPA. TVA cannot predict the outcome of this litigation.

21. Subsequent Events

Valuation Changes in Derivative Transactions

As of January 30, 2023, TVA's interest rate swap derivative liability and related regulatory asset for unrealized losses are estimated to increase approximately \$90 million compared to December 31, 2022, due to decreases in long-term market interest rates.

As of January 30, 2023, TVA's commodity derivative liability under the FHP and related regulatory asset for unrealized losses are estimated to increase approximately \$175 million compared to December 31, 2022, due to recent decreases in natural gas prices.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The 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 year ended September 30, 2022 (the "Annual Report").

Executive Overview

TVA's operating revenues were \$3.0 billion and \$2.6 billion for the three months ended December 31, 2022 and 2021, respectively. Operating revenues increased for the three months ended December 31, 2022, as compared to the same period of the prior year, primarily as a result of higher fuel cost recovery revenue. The higher fuel cost recovery revenue was driven by higher fuel rates as a result of higher coal, natural gas, and purchased power market prices. In addition, higher sales volume driven by both weather impacts and economic growth in the Tennessee Valley region contributed to the increase in operating revenue. In late December 2022, TVA sustained several days of single-digit temperatures and experienced record-setting demand as a result of Winter Storm Elliott; however, these impacts were partially offset by TVA experiencing milder weather prior to the winter storm event.

Winter Storm Elliott brought historic winter storm conditions across the majority of the United States, including the TVA service area. These cold temperatures with high winds also created operational challenges, including several generating facilities not operating as planned and encountering challenges in purchasing and importing generation from neighboring markets. TVA implemented emergency operation plans previously established with its local power company customers ("LPCs") and direct serve customers, including load reduction directives to LPCs which resulted in rolling outages, to ensure the overall stability of the power grid. TVA is conducting a review of the actions taken both before and during the event to prepare for future needs and challenges. See *Key Initiatives and Challenges — Operational Challenges — Winter Storm Elliott*.

Total operating expenses increased \$359 million for the three months ended December 31, 2022, as compared to the three months ended December 31, 2021. Fuel and purchased power expense increased \$271 million primarily due to an increase from higher effective fuel rates and purchased power market prices, partially offset by a decrease in fuel cost recovery primarily from higher recovery of deferred fuel costs during the three month period of the prior year. Operating and maintenance expense increased \$47 million for the three months ended December 31, 2022, as compared to the same period of the prior year primarily due to expenditures related to TVA's New Nuclear Program and increased payroll and benefit costs.

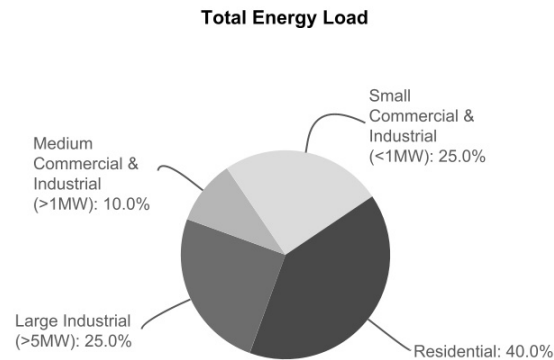
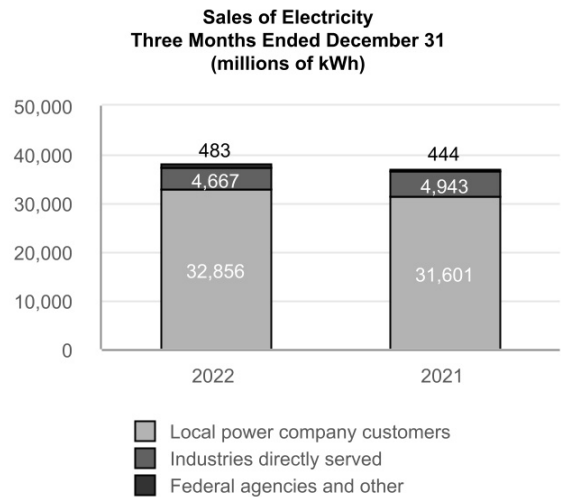
TVA's economic development efforts, reliability, and competitive rates continued to help attract or expand businesses and industries in the Tennessee Valley. Through the first quarter of 2023, these companies announced projected capital investments of over \$2.7 billion and are expected to create or retain over 21,700 jobs. These amounts are forward-looking and are subject to various uncertainties. Amounts may differ materially based upon a number of factors, including, but not limited to, economic downturns or recessions. See *Forward-Looking Information* in this Quarterly Report and Part I, Item 1A, Risk Factors in the Annual Report.

Results of Operations

Sales of Electricity

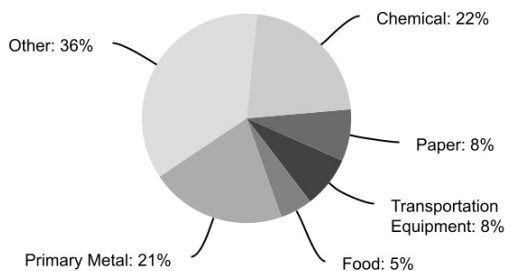
Sales of electricity, which accounted for nearly all of TVA's operating revenues, were 38,006 million and 36,988 million of kilowatt hours ("kWh") for the three months ended December 31, 2022 and 2021, respectively. TVA sells power at wholesale rates to LPCs that then resell the power to their customers at retail rates. TVA also sells power to directly served customers, consisting primarily of federal agencies and customers with large or nonstandard loads. In addition, power exceeding TVA's system needs is sold under exchange power arrangements with certain other power systems.

The following chart compares TVA's sales of electricity by customer type for the periods indicated:



The following charts show a breakdown of TVA's energy load:

Large Industrial Energy Load



Note
Information included in the charts above was derived from energy usage of directly served customers and customers served by LPCs during calendar year ("CY") 2021, and these graphs will continue to be updated on a CY basis.

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 the TVA system 23-station average temperatures vary from 65 degrees Fahrenheit.

	Degree Days						Change from Prior Period
	Variation from Normal						
	2022	Normal	Percent Variation	2021	Normal	Percent Variation	Percent Change
Heating Degree Days							
Three Months Ended December 31	1,262	1,243	1.5 %	1,003	1,243	(19.3)%	25.8 %
Cooling Degree Days							
Three Months Ended December 31	9	61	(85.2)%	104	61	70.5 %	(91.3)%

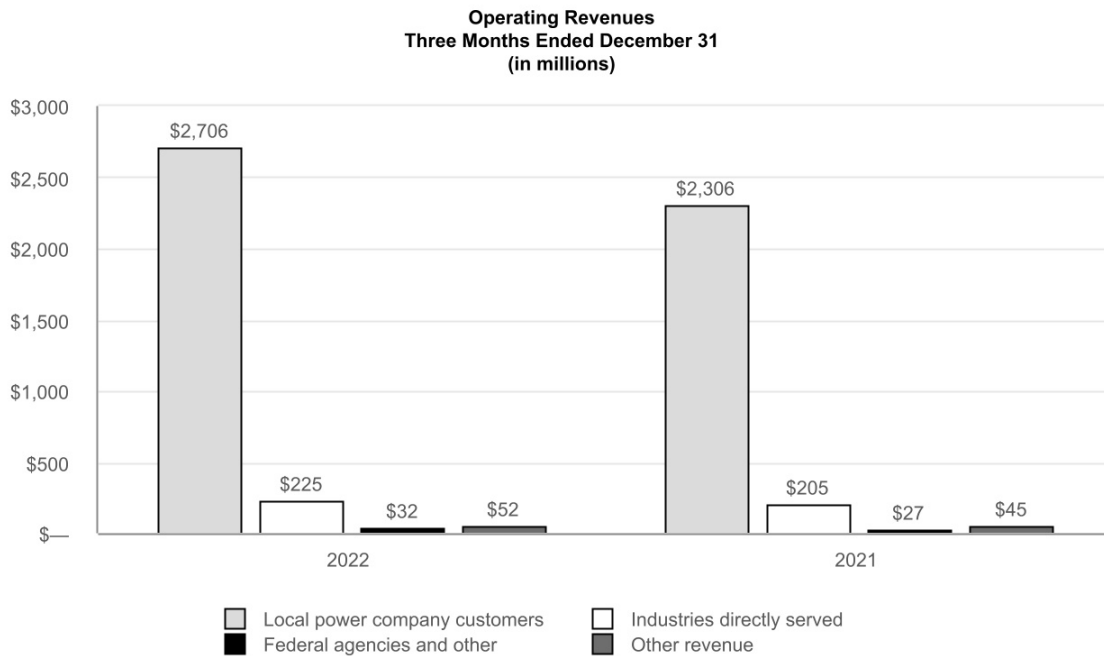
Sales of electricity increased approximately three percent for the three months ended December 31, 2022, as compared to the same period of the prior year. The increased sales volume was driven by both weather impacts and economic growth in the Tennessee Valley region. In late December 2022, Winter Storm Elliott brought cold temperatures to the Tennessee Valley region. TVA broke its all-time record for single-day energy demand of more than 740 million kWh and recorded its highest winter peak power demand of 33,427 megawatts ("MW") during this storm. Prior to late December 2022, however, TVA had been experiencing milder weather than the same period of the prior year, which partially offset the higher sales due to cold temperatures. In addition, TVA continues to see growth in the region as a result of migration into the Tennessee Valley, which is driving population growth and load growth. For industries directly served, sales of electricity decreased due to business-specific constraints within certain sectors, as these industries directly served are not driven primarily by weather, but mainly from changes in the economy and respective industry sectors.

Financial Results

The following table compares operating results for the three months ended December 31, 2022 and 2021:

	Summary Consolidated Statements of Operations (in millions)			
	Three Months Ended December 31			
	2022	2021	Change	Percent Change
Operating revenues	\$ 3,015	\$ 2,583	\$ 432	16.7 %
Operating expenses	2,617	2,258	359	15.9 %
Operating income	398	325	73	22.5 %
Other income, net	16	14	2	14.3 %
Other net periodic benefit cost	51	65	(14)	(21.5)%
Interest expense	262	263	(1)	(0.4)%
Net income	\$ 101	\$ 11	\$ 90	818.2 %

Operating Revenues. Operating revenues for the three months ended December 31, 2022 and the three months ended December 31, 2021, were \$3.0 billion and \$2.6 billion, respectively. The following charts compare TVA's operating revenues for the periods indicated:



TVA's two largest LPCs — Memphis Light, Gas and Water Division ("MLGW") and Nashville Electric Service ("NES") — have contracts with a five-year and a 20-year termination notice period, respectively. Sales to MLGW and NES each accounted for eight percent of TVA's total operating revenues for both the three months ended December 31, 2022 and the three months ended December 31, 2021.

TVA's rate structure uses pricing signals to indicate seasons and hours of higher cost to serve its customers and to capture a portion of TVA's fixed costs in fixed charges. The structure includes three base revenue components: time of use demand charges, time of use energy charges, and a grid access charge ("GAC"). The demand charges are based upon the customer's peak monthly usage. The energy charges are based on time differentiated kWh used by the customer. Both of these components can be significantly impacted by weather. The GAC captures a portion of fixed costs and is offset by a corresponding reduction to the energy rates. The GAC also reduces the impact of weather variability to the overall rate structure.

TVA has a partnership agreement option that better aligns the length of LPC power contracts with TVA's long-term commitments. Under the partnership arrangement, the LPC power contracts automatically renew each year and have a 20-year termination notice. The partnership arrangements can be terminated under certain circumstances, including TVA's failure to limit rate increases as provided for in the agreements going forward. Participating LPCs receive benefits including a 3.1 percent wholesale bill credit in exchange for their long-term commitment, which enables TVA to recover its long-term financial commitments over a commensurate period. As of January 30, 2023, 147 LPCs had signed the 20-year partnership agreement with TVA.

In 2021, the TVA Board approved a 2.5 percent monthly base rate credit, the Pandemic Recovery Credit, which was effective for 2022. In 2022, the TVA Board approved a 2.5 percent monthly base rate credit, which is an extension of the Pandemic Recovery Credit, and is effective for 2023. These pandemic credits apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers. The 2023 credit is expected to approximate \$230 million. These credits were able to be offered as a result of TVA's financial and operational performance. Future credits are uncertain as they also will be subject to TVA performance.

In addition to base revenues, the rate structure 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 payments to states and counties in lieu of taxes ("tax equivalents") associated with the fuel cost adjustments.

The changes in revenue components are summarized below:

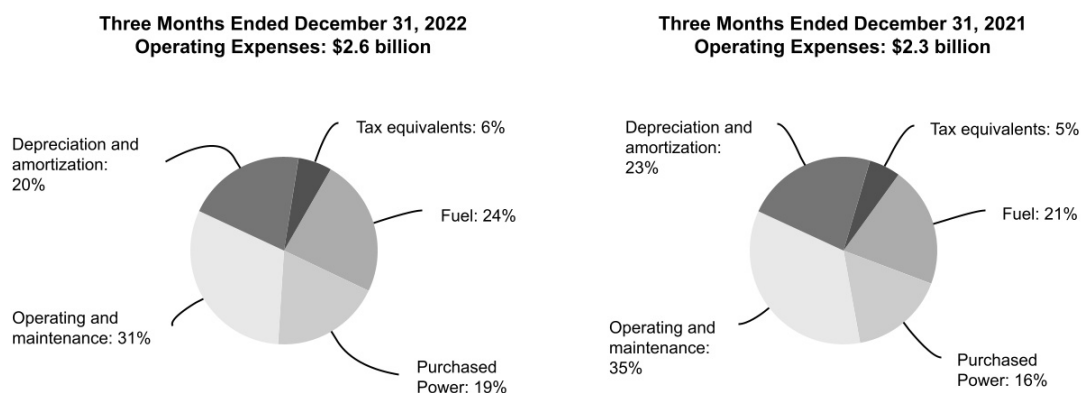
	Changes in Revenue Components (in millions)		
	Three Months Ended December 31		
	2022	2021	Change
Base revenue			
Energy revenue	\$ 1,096	\$ 1,057	\$ 39
Demand revenue	885	786	99
Grid access charge	147	148	(1)
Long-term partnership credits for LPCs	(48)	(43)	(5)
Pandemic credits	(53)	(50)	(3)
Other charges and credits ⁽¹⁾	(149)	(162)	13
Total base revenue	1,878	1,736	142
Fuel cost recovery	1,081	801	280
Off-system sales	4	1	3
Revenue from sales of electricity	2,963	2,538	425
Other revenue	52	45	7
Total operating revenues	<u>\$ 3,015</u>	<u>\$ 2,583</u>	<u>\$ 432</u>

Note

(1) Includes economic development credits to promote growth in the Tennessee Valley, hydro preference credits for residential customers of LPCs, and demand response credits allowing TVA to reduce industrial customer usage in periods of peak demand to balance system demand. See Note 15 — Revenue.

Operating revenues increased \$432 million for the three months ended December 31, 2022, as compared to the same period of the prior year, primarily due to a \$280 million increase in fuel cost recovery revenue. The \$280 million increase in fuel cost recovery revenue was driven by a \$258 million increase attributable to higher fuel rates and a \$22 million increase attributable to higher sales volume during the quarter. The higher fuel rates were primarily due to higher coal, natural gas, and purchased power market prices. In addition, there was a \$142 million increase in base revenue driven by an increase of \$163 million attributable to higher sales volume and a decrease of \$21 million attributable to lower effective rates. Sales volume increased as a result of weather impacts and economic growth in the Tennessee Valley region. Winter Storm Elliott brought cold temperatures to the Tennessee Valley region in late December 2022; however, this impact was partially offset with milder weather prior to the winter storm event. TVA recorded its highest winter peak power demand of 33,427 MW during this storm.

Operating Expenses. Operating expense components as a percentage of total operating expenses for the three months ended December 31, 2022 and the three months ended December 31, 2021, consisted of the following:



	Operating Expenses (in millions)			
	Three Months Ended December 31			
	2022	2021	Change	Percent Change
Operating expenses				
Fuel	\$ 615	\$ 466	\$ 149	32.0 %
Purchased power	491	369	122	33.1 %
Operating and maintenance	827	780	47	6.0 %
Depreciation and amortization	533	510	23	4.5 %
Tax equivalents	151	133	18	13.5 %
Total operating expenses	\$ 2,617	\$ 2,258	\$ 359	15.9 %

Fuel expense increased \$149 million for the three months ended December 31, 2022, as compared to the same period of the prior year. This increase was primarily due to higher effective fuel rates from higher natural gas and coal prices, resulting in a \$170 million increase in fuel expense. An increase in fuel volume from higher coal and gas generation also increased fuel expense \$25 million. Partially offsetting these increases was a decrease in fuel cost recovery of \$46 million primarily from higher recovery of deferred fuel costs during the three months ended December 31, 2021. These deferred fuel costs related to significant fuel price volatility in the summer of 2021. Unplanned fuel costs associated with Winter Storm Elliott were deferred in TVA's fuel cost adjustment and will be recognized in future quarters.

Purchased power expense increased \$122 million for the three months ended December 31, 2022, as compared to the same period of the prior year. This increase was primarily due to higher purchased power market prices, resulting in an increase of \$206 million. Partially offsetting this increase was a \$37 million decrease due to lower purchased power volume as a result of higher availability of TVA-operated generation. In addition, fuel cost recovery decreased \$47 million primarily from higher recovery of deferred purchased power costs during the three months ended December 31, 2021. These deferred costs related to significant market volatility in the summer of 2021. Unplanned purchased power costs associated with Winter Storm Elliott were deferred in TVA's fuel cost adjustment and will be recognized in future quarters.

Operating and maintenance expense increased \$47 million for the three months ended December 31, 2022, as compared to the same period of the prior year. This increase was primarily due to \$26 million of expenditures related to TVA's New Nuclear Program and \$12 million of increased payroll and benefit costs primarily due to labor escalation for cost of living increases and additional headcount to support operational needs.

Depreciation and amortization expense increased \$23 million for the three months ended December 31, 2022, as compared to the same period of the prior year. Amortization expense of decommissioning costs recovered in rates increased \$13 million. Additionally, there was an increase due to depreciation of additions to net completed plant.

Tax equivalents expense increased \$18 million for the three months ended December 31, 2022, as compared to the same period of the prior year. The change is primarily driven by higher tax equivalent payments as a result of increased power sales revenue.

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

Total Power Supply by Generating Source
For the three months ended December 31
(millions of kWh)

	2022		2021	
Nuclear	16,428	42 %	16,170	43 %
Natural gas and/or oil-fired	7,806	20 %	6,829	18 %
Coal-fired	4,513	12 %	3,699	10 %
Hydroelectric	3,542	9 %	3,852	10 %
Total TVA-operated generation facilities ⁽¹⁾⁽²⁾	32,289	83 %	30,550	81 %
Purchased power (natural gas and/or oil-fired) ⁽³⁾	3,751	10 %	4,401	12 %
Purchased power (other renewables) ⁽⁴⁾	1,485	4 %	1,442	4 %
Purchased power (coal-fired)	742	2 %	591	1 %
Purchased power (hydroelectric)	393	1 %	654	2 %
Total purchased power ⁽²⁾	6,371	17 %	7,088	19 %
Total power supply	38,660	100 %	37,638	100 %

Notes

- (1) Generation from TVA-owned renewable resources (non-hydroelectric) is less than one percent for all periods shown and therefore is not represented in the table above.
- (2) Raccoon Mountain Pumped-Storage Plant net generation is allocated against each TVA-operated generation facility and purchased power type for both the three months ended December 31, 2022, and the three months ended December 31, 2021. See Part I, Item 1, Business — *Power Supply and Load Management Resources — Raccoon Mountain Pumped-Storage Plant* in the Annual Report for a discussion of Raccoon Mountain Pumped-Storage Plant.
- (3) Purchased power (natural gas and/or oil-fired) includes generation from Caledonia Combined Cycle Plant ("Caledonia CC"), which is currently a leased facility operated by TVA. Generation from Caledonia CC was 1,041 million kWh and 1,176 million kWh for the three months ended December 31, 2022 and 2021, respectively.
- (4) Purchased power (other renewables) includes purchased power from the following renewable sources: solar, wind, biomass, and renewable cogeneration. TVA sells the Renewable Energy Certificates ("RECs") resulting from some of this purchased power to certain customers.

In addition to power supply sources included here, TVA offers energy efficiency programs that effectively reduce energy needs. TVA estimates energy needs could be reduced by approximately 2,100 million kWh in 2023 due to TVA's energy efficiency programs.

Interest Expense. Interest expense and interest rates for the three months ended December 31, 2022 and the three months ended December 31, 2021, were as follows:

Interest Expense and Rates
(in millions)

	Three Months Ended December 31		
	2022	2021	Percent Change
Interest expense ⁽¹⁾	\$ 262	\$ 263	(0.4)%
Average blended debt balance ⁽²⁾	\$ 20,236	\$ 20,936	(3.3)%
Average blended interest rate ⁽³⁾	4.99 %	4.92 %	1.4 %

Notes

- (1) Includes amortization of debt discounts, issuance, and reacquisition costs, net.
- (2) Includes average balances of long-term power bonds, debt of variable interest entities ("VIEs"), and discount notes.
- (3) Includes interest on long-term power bonds, debt of VIE, and discount notes.

Total interest expense decreased \$1 million for the three months ended December 31, 2022, as compared to the same period of the prior year primarily driven by a \$14 million decrease from lower average rates and balances on long-term debt partially offset by a \$13 million increase primarily due to higher average rates on short-term debt.

Liquidity and Capital Resources

Sources of Liquidity

TVA depends on various sources of liquidity to meet cash needs and contingencies. TVA's primary sources of liquidity are cash from operations and proceeds from the issuance of short-term debt in the form of discount notes, along with periodic issuances of long-term debt. TVA's balance of short-term debt typically changes frequently as TVA issues discount notes to meet short-term cash needs and pay scheduled maturities of discount notes and long-term debt. TVA's next significant power bond maturity is \$1.0 billion in September 2024. The periodic amounts of short-term debt issued are determined by near-term expectations for cash receipts, cash expenditures, and funding needs, while seeking to maintain a target range of cash and cash equivalents on hand.

In addition to cash from operations and proceeds from the issuance of short-term and long-term debt, TVA's sources of liquidity include four long-term revolving credit facilities totaling approximately \$2.7 billion, a \$150 million credit facility with the United States Department of the Treasury ("U.S. Treasury"), and proceeds from other financings. The TVA Board authorized TVA to issue power bonds and enter into other financing arrangements in an aggregate amount not to exceed \$2.0 billion during 2023. See Note 12 — *Debt and Other Obligations* — *Credit Facility Agreements*. Other financing arrangements may include sales of receivables, loans, or other assets.

The Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee ("TVA Act") authorizes TVA to issue bonds, notes, or other evidences of indebtedness (collectively, "Bonds") in an amount not to exceed \$30.0 billion outstanding at any time. Power bonds outstanding, excluding unamortized discounts and premiums and net exchange gains from foreign currency transactions, at December 31, 2022, were \$19.7 billion (including current maturities). The balance of Bonds outstanding directly affects TVA's capacity to meet operational liquidity needs and to strategically use Bonds to fund certain capital investments as management and the TVA Board may deem desirable. Other options for financing not subject to the limit on Bonds, including lease financings, could provide supplementary funding if needed. Currently, TVA expects to have adequate capability to fund its ongoing operational liquidity needs and make planned capital investments over the next decade. See *Lease Financings* below, Note 9 — *Variable Interest Entities*, and Note 12 — *Debt and Other Obligations* for additional information.

TVA may from time to time seek to retire or purchase its outstanding debt through cash purchases and/or exchanges for securities, in open market purchases, privately negotiated transactions, or otherwise. Such repurchases or exchanges, if any, will depend on prevailing market conditions, TVA's liquidity requirements, contractual restrictions, and other factors. The amounts involved may be material.

TVA may hold higher cash balances from time to time in response to potential market volatility or other business conditions. In addition, cash balances may include collateral received from counterparties.

Debt Securities. TVA's Bonds are not obligations of the U.S., and the U.S. does not guarantee the payments of principal or interest on Bonds. TVA's Bonds consist of power bonds and discount notes. Power bonds have maturities of between one and 50 years. At December 31, 2022, the average maturity of long-term power bonds was 15.70 years, and the weighted average interest rate was 4.65 percent. Discount notes have maturities of less than one year. Power bonds and discount notes have a first priority and equal claim of payment out of net power proceeds. Net power proceeds are defined as the remainder of TVA's gross power revenues after deducting the costs of operating, maintaining, and administering its power properties and payments to states and counties in lieu of taxes, but before deducting depreciation accruals or other charges representing the amortization of capital expenditures, plus the net proceeds from the sale or other disposition of any power facility or interest therein. In addition to power bonds and discount notes, TVA had long-term debt associated with certain VIEs outstanding at December 31, 2022. See *Lease Financings* below, Note 9 — *Variable Interest Entities*, and Note 12 — *Debt and Other Obligations* for additional information.

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

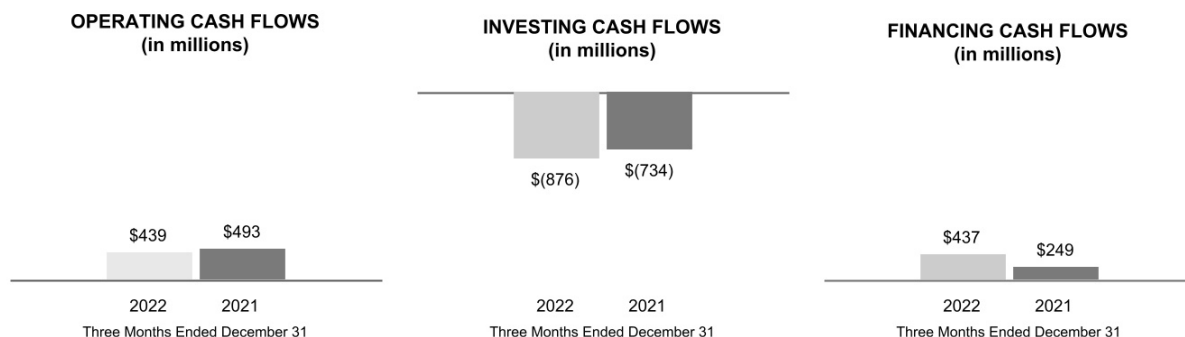
Short-Term Borrowings (in millions)				
	At December 31, 2022	Three Months Ended December 31, 2022	At December 31, 2021	Three Months Ended December 31, 2021
Gross Amount Outstanding (at End of Period) or Average Gross Amount Outstanding (During Period)				
Discount notes	\$ 1,620	\$ 1,080	\$ 1,066	\$ 1,203
Maximum Month-End Gross Amount Outstanding (During Period)				
Discount notes	N/A	\$ 1,620	N/A	\$ 1,526
Weighted Average Interest Rate				
Discount notes	3.98 %	3.58 %	0.03 %	0.04 %

Lease Financings. TVA has entered into certain leasing transactions with special purpose entities ("SPEs") to obtain third-party financing for its facilities. These SPEs are sometimes identified as VIEs of which TVA is determined to be the primary beneficiary. TVA is required to account for these VIEs on a consolidated basis. In addition, 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 ("QTE"). See Note 9 — *Variable Interest Entities* and Note 12 — *Debt and Other Obligations* for information about TVA's lease financing activities.

Summary Cash Flows

A major source of TVA's liquidity is operating cash flows resulting from the generation and sale of electricity. Cash, cash equivalents, and restricted cash totaled \$520 million and \$526 million at December 31, 2022 and December 31, 2021, respectively. A summary of cash flow components for the three months ended December 31, 2022 and three months ended December 31, 2021, follows:

Cash provided by (used in):



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

Net cash flows provided by operating activities decreased \$54 million for the three months ended December 31, 2022, as compared to the same period of the prior year. The decrease was primarily due to increased fuel and purchased power payments as a result of higher natural gas and market prices coupled with an increase in fuel inventory; increased cash collateral payments for power purchases; higher cash used for asset retirement obligation ("ARO") settlements; and higher cash payments related to TVA's New Nuclear Program. These items were partially offset by an increase in collections of fuel cost recovery revenue from higher fuel and purchased power prices.

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

Net cash flows used in investing activities increased \$142 million for the three months ended December 31, 2022, as compared to the same period of the prior year driven by the acquisition of leasehold interests in combustion turbine assets and higher nuclear fuel expenditures. Nuclear fuel expenditures vary depending on the number of outages and the prices and timing of purchases of uranium and enrichment services.

Financing Activities. TVA's cash flows provided by or used in financing activities are primarily driven by the timing and level of cash flows provided by operating activities, cash flows used in investing activities, and net issuance and redemption of debt instruments to maintain a strategic balance of cash on hand.

Net cash provided by financing activities increased \$188 million for the three months ended December 31, 2022, as compared to the same period of the prior year, primarily due to higher net issuances of discount notes and lower payments on leaseback transactions. Lower net cash flows provided by operating activities and higher net cash used in investing activities in the first quarter of 2023 resulted in the need for net debt issuances to maintain targeted cash balance levels during the first quarter of 2023.

Contractual Obligations

TVA has certain obligations and commitments to make future payments under contracts. TVA's contractual obligations are discussed in the Annual Report in Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Liquidity and Capital Resources*, Note 8 — *Leases*, Note 11 — *Variable Interest Entities*, Note 14 — *Debt and Other Obligations*, and Note 20 — *Benefit Plans*.

Key Initiatives and Challenges

There have been no material changes to the key initiatives and challenges described in Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* of the Annual Report, except as described below.

Optimum Energy Portfolio

Coal-Fired Fleet. As discussed in the Annual Report, TVA must continuously evaluate all generating assets to ensure an optimal energy portfolio that provides safe, clean, and reliable power while maintaining flexibility and fiscal responsibility to the people of the Tennessee Valley. In 2022, TVA made available and received public input on a draft environmental impact statement ("EIS") to assess the impacts associated with the potential retirement of Cumberland Fossil Plant ("Cumberland") and the construction and operation of facilities to replace part of that generation. The final EIS was published in December 2022, and TVA documented its final decision with the Record of Decision on January 10, 2023. TVA plans to retire the two coal-fired units at Cumberland and replace generation for one unit with a 1,450 MW combined cycle plant that is expected to be operational by the end of CY 2026 when the first unit is scheduled to be retired. The second unit is scheduled to be retired by the end of CY 2028, and environmental reviews to explore potential replacement generation options for the second retired unit will be deferred to allow consideration for a broader range of replacement options.

Renewable Power Purchase Agreements. As discussed in the Annual Report, TVA issued a request for proposal ("RFP") during 2021 for up to 200 MW of new renewable energy. In December 2022, TVA signed four power purchase agreements ("PPAs") for a total of 160 MW of solar generation expected to come online in 2025.

In addition, TVA's existing solar PPA portfolio is not immune from the challenges affecting the U.S. solar industry. Similar to the experience of the rest of the industry, the majority of TVA's contracted PPAs from previous RFPs that are not yet online have been impacted by project delays and price increases.

Collaborative Arrangement. In December 2022, TVA entered into a multi-party collaborative arrangement. TVA recorded \$16 million of research and development expense related to this agreement for the three months ended December 31, 2022 and expects to record up to an additional \$21 million of expense for the remainder of 2023. See Note 19 — *Collaborative Arrangement* for additional information.

Operational Challenges

Winter Storm Elliott. In late December 2022, Winter Storm Elliott brought historic winter storm conditions across the majority of the United States. The TVA service area sustained several days of single-digit temperatures and high winds and experienced record-setting power demand. On December 23, TVA broke its all-time record for single-day energy demand of more than 740 million kWh, as well as its highest winter peak power demand of 33,427 MW. The cold temperatures with high winds caused operational challenges at several coal and natural gas-fired facilities, including freezing instrumentation, which resulted in a maximum loss of generation capacity of approximately 8,000 MW. TVA also encountered challenges in purchasing

and importing generation from neighboring markets that were also experiencing high demand, which resulted in curtailments during TVA's peak demand periods.

As a result of these challenges, TVA implemented emergency operation plans previously established with its LPC and direct serve customers, which included public requests for broad conservation of power, curtailment of power to all customers on interruptible rates through TVA's demand response programs along with further requests to large customers to voluntarily reduce power consumption, and load reduction directives to LPCs to ensure the overall stability of the power grid. The load reduction directives were issued on two occasions, on December 23, 2022 for approximately two hours and on December 24, 2022 for approximately six hours, which resulted in rolling outages that affected some LPC customers.

Although purchases were challenged, TVA did purchase a significant volume of power to help meet energy needs and experienced high prices during the winter storm event. TVA deferred approximately \$149 million of fuel and purchased power costs in December 2022 through its fuel cost adjustment, which will be expensed in a future period. This deferral was primarily impacted by unplanned power purchases during the event.

TVA is conducting a review of the actions taken both before and during the event to prepare for future needs and challenges. In addition, the Federal Energy Regulatory Commission ("FERC"), North American Electric Reliability Corporation, and North American Electric Reliability Corporation's regional entities have announced that they will open a joint inquiry into the operations of the bulk power system during the winter weather conditions that occurred with Winter Storm Elliott. FERC has stated that the purpose of the joint inquiry is to further protect the reliability of the grid for future weather-related events.

Decarbonization

As discussed in the Annual Report, TVA is exploring the potential for hydrogen to serve as a tool in the decarbonization of the Tennessee Valley, both within the electrical sector and elsewhere. In November 2022, TVA and other major utility companies responded to a funding opportunity from the Department of Energy with the intention of obtaining federal financial support for a Southeast Hydrogen Hub. In December 2022, notification was received from the Department of Energy that the preliminary proposal was reviewed and the Southeast Hydrogen Hub proposal was encouraged to advance to the application stage. TVA anticipates the Southeast Hydrogen Hub will build on existing infrastructure utilizing advancing technologies to enhance the production, storage, transport, and delivery of hydrogen to transition the energy economy toward a decarbonized future. Decisions on the funding opportunity are expected by the end of CY 2023.

Environmental Matters

There have been no material changes to the environmental matters described in Part I, Item 1, Business — *Environmental Matters* of the Annual Report, except as described below.

Clean Air Act Programs and Regulations

Revised Cross-State Air Pollution Rule. As discussed in the Annual Report, under a revised version of the Cross-State Air Pollution Rule ("CSAPR"), the Shawnee Fossil Plant ("Shawnee") facility is subject to reduced ozone-season nitrogen oxides ("NO_x") allowances and has been required to surrender most of its allowance inventory. In 2022, TVA monitored forecasted needs and purchased allowances for the Shawnee facility. A longer-term compliance strategy for the facility is being developed that may include installing NO_x control upgrades, incorporating operational changes, and continuing to purchase allowances. When completed, this strategy will help TVA comply with both the revised Cross-State Air Pollution Rule and a proposed transport rule to address the 2015 ozone National Ambient Air Quality Standards. TVA has obtained approval from the State of Kentucky for construction of seven selective catalytic reduction systems ("SCRs") at the Shawnee facility. TVA plans to construct SCRs at four units by the end of 2025 and is evaluating plans for the remaining three units. Inclusive of the costs for these four SCRs, at December 31, 2022, TVA's estimated potential expenditures on Clean Air Act control projects are \$101 million, \$100 million, and \$83 million for the remainder of 2023, 2024, and 2025 - 2027, respectively.

Cleanup of Solid and Hazardous Wastes

Coal Combustion Residuals. As discussed in the Annual Report, in August 2015, the Tennessee Department of Environment and Conservation ("TDEC") issued an order that sets out an iterative process through which TVA and TDEC will identify and evaluate any coal combustion residuals ("CCR") contamination risks and, if necessary, respond to such risks. Under this process, TVA submitted environmental assessment reports ("EARs") for Allen in 2021 and Cumberland in 2022. The John Sevier EAR was submitted in January 2023. TVA will continue conducting environmental investigations for the remaining four sites in accordance with TDEC-approved Environmental Investigation Plans and will submit EARs to TDEC upon completion of the related investigations.

Legal Proceedings

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting its activities, as a result of catastrophic events or otherwise. At December 31, 2022, TVA had accrued \$11 million with respect to Legal Proceedings. No assurance can be given that TVA will not be subject to significant additional claims and liabilities. If actual liabilities significantly exceed the estimates made, TVA's results of operations, liquidity, and financial condition could be materially adversely affected.

For a discussion of certain current material Legal Proceedings, see Note 20 — *Contingencies and Legal Proceedings* — *Legal Proceedings*, which discussions are incorporated into this Part I, Item 2, Management's Discussion and Analysis of Financial Condition and Results of Operations.

Off-Balance Sheet Arrangements

At December 31, 2022, TVA had no off-balance sheet arrangements.

Critical Accounting 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 financial statements. Although the financial statements are prepared in conformity with accounting principles generally accepted in the U.S., 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 deemed critical either when a different estimate could have reasonably been used, or where changes in the estimate are reasonably likely to occur from period to period, and such use or change would materially impact TVA's financial condition, results of operations, or cash flows. TVA's critical accounting estimates and policies are discussed in Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Critical Accounting Estimates* and Note 1 — *Summary of Significant Accounting Policies* of the Notes to Consolidated Financial Statements in the Annual Report.

New Accounting Standards and Interpretations

For a discussion of new accounting standards and interpretations, see Note 2 — *Impact of New Accounting Standards and Interpretations*, which discussion is incorporated into this Part I, Item 2, Management's Discussion and Analysis of Financial Condition and Results of Operations.

Legislative and Regulatory Matters

For additional discussion on legislative and regulatory matters, including a discussion of environmental legislation and regulation, see Item 2, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* and — *Environmental Matters* of this Quarterly Report. Also, see Part I, Item 1, Business — *Environmental Matters* and Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* of the Annual Report.

TVA does not engage, and does not control any entity that is engaged, in any activity listed under Section 13(r) of the Securities Exchange Act of 1934 ("Exchange Act"), which requires certain issuers to disclose certain activities relating to Iran involving the issuer and its affiliates. Based on information supplied by each such person, none of TVA's directors and executive officers are involved in any such activities. While TVA is an agency and instrumentality of the U.S., TVA does not believe its disclosure obligations, if any, under Section 13(r) extend to the activities of any other departments, divisions, or agencies of the U.S.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

There are no material changes related to market risks disclosed under Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Risk Management Activities* in the Annual Report. See Note 13 — *Risk Management Activities and Derivative Transactions* for additional information regarding TVA's derivative transactions and risk management activities.

ITEM 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

TVA maintains disclosure controls and procedures designed to ensure that information required to be disclosed by TVA in reports that it files or submits under the Exchange Act is recorded, processed, summarized, and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms, and is accumulated and communicated to TVA's

management, as appropriate, to allow timely decisions regarding required disclosure. TVA's management, including the President and Chief Executive Officer, the Executive Vice President and Chief Financial and Strategy Officer, and members of the Disclosure Control Committee, including the Vice President and Controller (Principal Accounting Officer) (collectively "management"), evaluated the effectiveness of TVA's disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of December 31, 2022. Based on this evaluation, management concluded that TVA's disclosure controls and procedures were effective as of December 31, 2022.

Changes in Internal Control over Financial Reporting

During the quarter ended December 31, 2022, there were no changes in TVA's internal control over financial reporting that materially affected, or are reasonably likely to materially affect, TVA's internal control over financial reporting.

PART II - OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

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

For a discussion of certain current material Legal Proceedings, see Note 20 — *Contingencies and Legal Proceedings* — *Legal Proceedings*, which discussions are incorporated by reference into this Part II, Item 1, Legal Proceedings.

ITEM 1A. RISK FACTORS

There are no material changes related to risk factors from the risk factors disclosed in Part I, Item 1A, Risk Factors in the Annual Report.

ITEM 6. EXHIBITS

Exhibit No.	Description
3.1	Tennessee Valley Authority Act of 1933, as amended, 16 U.S.C. §§ 831-831ee (Incorporated by reference to Exhibit 3.1 to TVA's Quarterly Report on Form 10-Q for the quarter ended December 31, 2016, File No. 000-52313)
3.2	Bylaws of the Tennessee Valley Authority Adopted by the TVA Board of Directors on May 18, 2006, as amended on April 3, 2008, May 19, 2008, June 10, 2010, February 13, 2014, August 21, 2014, and November 6, 2014 (Incorporated by reference to Exhibit 3.2 to TVA's Annual Report on Form 10-K for the year ended September 30, 2014, File No. 000-52313)
10.1	Fourth Amendment Dated as of January 5, 2023, to the \$500,000,000 February Maturity Credit Agreement Dated as of August 7, 2015, and Amended as of February 28, 2017, February 21, 2018, and February 27, 2020, among TVA, Bank of America, N.A., as Administrative Agent, Letter of Credit Issuer, and a Lender, and the Other Lenders Party Thereto (Incorporated by reference to Exhibit 10.1 to TVA's Current Report on Form 8-K filed on January 6, 2023, File No. 000-52313)
31.1	Rule 13a-14(a)/15d-14(a) Certification Executed by the Chief Executive Officer
31.2	Rule 13a-14(a)/15d-14(a) Certification Executed by the Chief Financial Officer
32.1	Section 1350 Certification Executed by the Chief Executive Officer
32.2	Section 1350 Certification Executed by the Chief Financial Officer
101.INS	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File - formatted in Inline XBRL and contained in Exhibit 101

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: January 30, 2023

TENNESSEE VALLEY AUTHORITY
(Registrant)

By: /s/ Jeffrey J. Lyash
Jeffrey J. Lyash
President and Chief Executive Officer
(Principal Executive Officer)

By: /s/ John M. Thomas, III
John M. Thomas, III
Executive Vice President and Chief Financial and Strategy Officer
(Principal Financial Officer)

RULE 13a-14(a)/15d-14(a) CERTIFICATION

I, Jeffrey J. Lyash, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of the Tennessee Valley Authority;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 30, 2023

/s/ Jeffrey J. Lyash

Jeffrey J. Lyash

President and Chief Executive Officer

RULE 13a-14(a)/15d-14(a) CERTIFICATION

I, John M. Thomas, III, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of the Tennessee Valley Authority;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 30, 2023

/s/ John M. Thomas, III

John M. Thomas, III

Executive Vice President and Chief Financial and Strategy Officer
(Principal Financial Officer)

**CERTIFICATION FURNISHED PURSUANT TO
SECURITIES EXCHANGE ACT RULE 13a-14(b)
OR RULE 15d-14(b) AND 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report on Form 10-Q of the Tennessee Valley Authority (the "Company") for the quarter ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jeffrey J. Lyash, President and Chief Executive Officer of the Company, certify, for the purposes of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) the Report fully complies with the requirements of section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Jeffrey J. Lyash

Jeffrey J. Lyash

President and Chief Executive Officer

January 30, 2023

**CERTIFICATION FURNISHED PURSUANT TO
SECURITIES EXCHANGE ACT RULE 13a-14(b)
OR RULE 15d-14(b) AND 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report on Form 10-Q of the Tennessee Valley Authority (the "Company") for the quarter ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, John M. Thomas, III, Executive Vice President and Chief Financial and Strategy Officer of the Company, certify, for the purposes of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) the Report fully complies with the requirements of section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ John M. Thomas, III

John M. Thomas, III

Executive Vice President and Chief Financial and Strategy Officer
(Principal Financial Officer)

January 30, 2023
