

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

(MARK ONE)

ANNUAL REPORT PURSUANT TO

SECTION 13, 15(d), OR 37 OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended September 30, 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
(IRS Employer Identification No.)

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

37902
(Zip Code)

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

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

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

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes o No x

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13, Section 15(d), or Section 37 of the Act.
Yes o No x

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13, 15(d), or 37 of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes x No o

Indicate by check mark whether the registrant has submitted electronically 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 x No o

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 o Emerging growth company o Smaller reporting company o
Non-accelerated filer x Accelerated filer o

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. x

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

Estimated aggregate market value of the common equity held by non-affiliates of TVA at March 31, 2022: N/A

Number of shares of common stock outstanding at November 14, 2022: N/A

[Table of Contents](#)

Table of Contents	
GLOSSARY OF COMMON ACRONYMS.....	4
FORWARD-LOOKING INFORMATION.....	6
GENERAL INFORMATION.....	8
PART I	
ITEM 1. BUSINESS.....	9
The Corporation.....	9
Service Area.....	10
Customers.....	11
Rates.....	12
Power Supply and Load Management Resources.....	13
Fuel Supply.....	20
Transmission.....	22
Weather and Seasonality.....	23
Competition.....	23
Research and Development.....	23
Flood Control Activities.....	24
Environmental Stewardship Activities.....	25
Economic Development Activities.....	25
Regulation.....	25
Taxation and Tax Equivalents.....	27
Environmental Matters.....	27
Human Capital Management.....	34
ITEM 1A. RISK FACTORS.....	40
ITEM 1B. UNRESOLVED STAFF COMMENTS.....	54
ITEM 2. PROPERTIES.....	55
Generating Properties.....	55
Transmission Properties.....	57
Natural Resource Stewardship Properties.....	57
Buildings.....	57
Disposal of Property.....	57
ITEM 3. LEGAL PROCEEDINGS.....	58
ITEM 4. MINE SAFETY DISCLOSURES.....	58
PART II	
ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.....	59
ITEM 6. RESERVED.....	59
ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.....	59
Business and Mission.....	59
Executive Overview.....	62
Results of Operations.....	63
Liquidity and Capital Resources.....	69
Off-Balance Sheet Arrangements.....	73
Key Initiatives and Challenges.....	73
Critical Accounting Estimates.....	81
New Accounting Standards and Interpretations.....	86
Legislative and Regulatory Matters.....	86
Environmental Matters.....	87
Legal Proceedings.....	87
Risk Management Activities.....	87
ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.....	89
ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.....	90
Consolidated Balance Sheets.....	90
Consolidated Statements of Operations.....	92
Consolidated Statements of Comprehensive Income (Loss).....	93
Consolidated Statements of Cash Flows.....	94
Consolidated Statements of Changes in Proprietary Capital.....	95
Notes to Consolidated Financial Statements.....	96
Report of Independent Registered Public Accounting Firm (PCAOB ID 42)	154

Table of Contents

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.....	156
ITEM 9A. CONTROLS AND PROCEDURES.....	156
Disclosure Controls and Procedures.....	156
Internal Control over Financial Reporting.....	156
Report of Independent Registered Public Accounting Firm.....	157
ITEM 9B. OTHER INFORMATION.....	158
ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS.....	158
PART III	
ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE.....	159
Directors.....	159
Executive Officers.....	160
Disclosure and Financial Code of Ethics.....	161
Committees of the TVA Board.....	161
ITEM 11. EXECUTIVE COMPENSATION.....	163
Compensation Discussion and Analysis.....	163
CEO Pay Ratio Disclosure.....	200
Executive Compensation Tables and Narrative Disclosures.....	206
Retirement and Pension Plans.....	210
Nonqualified Deferred Compensation.....	212
Potential Payments on Account of Resignation, Retirement, Termination without Cause, Termination with Cause, Death, or Disability.....	215
Other Agreements.....	220
Director Compensation.....	220
Compensation Committee Interlocks and Insider Participation.....	221
Compensation Committee Report.....	221
ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.....	222
ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE.....	222
Director Independence.....	222
Related Party Transactions.....	222
ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.....	224
PART IV	
ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES.....	225
ITEM 16. FORM 10-K SUMMARY.....	228
SIGNATURES.....	229

GLOSSARY OF COMMON ACRONYMS

Following are definitions of some of the terms or acronyms that may be used in this Annual Report on Form 10-K for the fiscal year ended September 30, 2022 (the "Annual Report"):

Term or Acronym	Definition
ACE	Affordable Clean Energy
ACPA	Anti-Cherrypicking Amendment
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
CCR	Coal combustion residuals
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CO ₂	Carbon dioxide
COVID-19	Coronavirus Disease 2019
COLA(s)	Cost-of-living adjustment(s)
CSAPR	Cross-State Air Pollution Rule
CTs	Combustion turbine unit(s)
CVA	Credit valuation adjustment
CWA	Clean Water Act
CY	Calendar year
DBOT	Down-blend offering for Tritium
DCP	Deferred Compensation Plan
DEIA	Diversity, Equity, Inclusion and Accessibility
DER	Distributed Energy Resources
DOE	Department of Energy
EIS	Environmental Impact Statement
ELGs	Effluent Limitation Guidelines
EMPs	Electromagnetic pulses
EO(s)	Executive Order(s)
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ERC	Enterprise Risk Council
FASB	Financial Accounting Standards Board
FERC	Federal Energy Regulatory Commission
FHP	Financial Hedging Program
FIP	Federal Implementation Plan
FPA	Federal Power Act
GAAP	Accounting principles generally accepted in the United States of America
GAC	Grid Access Charge
GHG	Greenhouse gas
IRP	Integrated Resource Plan
IwD	Inclusion with Diversity
JSCCG	John Sevier Combined Cycle Generation LLC
kW	Kilowatts
kWh	Kilowatt hours
LPCs	Local power company customers
LTA	Long-Term Agreement
MATS	Mercury and Air Toxics Standards

[Table of Contents](#)

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
NAAQS	National Ambient Air Quality Standards
NAV	Net asset value
NDT	Nuclear Decommissioning Trust
NEIL	Nuclear Electric Insurance Limited
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NES	Nashville Electric Service
NO _x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
Nuclear Development	Nuclear Development, LLC
NYSE	New York Stock Exchange
OCI	Other comprehensive income (loss)
OMB	Office of Management and Budget
PARRS	Putable Automatic Rate Reset Securities
QTE	Qualified technological equipment and software
RCRA	Resource Conservation and Recovery Act
RECs	Renewable Energy Certificates
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
SIPs	State implementation plans
SMR	Small modular reactor(s)
SO ₂	Sulfur dioxide
SOA	Society of Actuaries
TDEC	Tennessee Department of Environment & Conservation
TIPS	Treasury Inflation-Protected Securities
TPBAR	Tritium-producing burnable absorber rods
TVA Act	The Tennessee Valley Authority Act of 1933, as amended
TVA Board	TVA Board of Directors
TVARS	Tennessee Valley Authority Retirement System
U.S. Treasury	United States Department of the Treasury
USACE	U.S. Army Corps of Engineers
VIE(s)	Variable interest entity(s)
XBRL	eXtensible Business Reporting Language

FORWARD-LOOKING INFORMATION

This Annual Report on Form 10-K for the fiscal year ended September 30, 2022 ("Annual Report") contains forward-looking statements relating to future events and future performance. All statements other than those that are purely historical may be forward-looking statements. In certain cases, forward-looking statements can be identified by the use of words such as "may," "will," "should," "expect," "anticipate," "believe," "intend," "project," "plan," "predict," "assume," "forecast," "estimate," "objective," "possible," "probably," "likely," "potential," "speculate," "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;
- Loss of quorum of the TVA Board of Directors ("TVA Board"), which may limit TVA's ability to adapt to meet changing business conditions;
- Changes in the membership of the 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 affects 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;
- 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 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 (2022, 2021, etc.) in this Annual Report on Form 10-K for the fiscal year ended September 30, 2022 are to TVA's fiscal years ending September 30 except for references to years in the biographical information about directors and executive officers in Part III, Item 10, Directors, Executive Officers and Corporate Governance, as well as to years that are preceded by "CY," which references are to calendar years.

Notes

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

Property

TVA does not own real property and generally does not own real property interests (collectively, "real property"). TVA acquires real property in the name of the United States ("U.S."), and such legal title in real property is entrusted to TVA as the agent of the U.S. to accomplish the purposes of the TVA Act. TVA acquires personal property in the name of TVA. Accordingly, unless the context indicates the reference is to TVA's personal property, any statement in this Annual Report referring to TVA property shall be read as referring to the real property of the U.S. that has been entrusted to TVA as its agent.

Available Information

TVA files annual, quarterly, and current reports with the Securities and Exchange Commission ("SEC") under Section 37 of the Securities Exchange Act of 1934 (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 Annual 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 <http://www.sec.gov>.

PART I

ITEM 1. BUSINESS

The Corporation

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 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.

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

TVA's Mission of Service

TVA was built for the people, created by federal legislation, and charged with a unique mission - to improve the quality of life in a seven-state region through the integrated management of the region's resources. TVA's mission focuses on three key areas:

- Energy — Delivering reliable, low cost, clean energy;
- Environment — Caring for the region's natural resources; and
- Economic Development — Creating sustainable economic growth.

TVA's Strategic Priorities

While TVA's mission has not changed since it was established in 1933, the climate in which TVA operates continues to evolve. To continue to deliver its mission of service while evolving for future success, TVA must realize five strategic priorities:

- Powerful Partnerships — Promoting progress through the shared success of TVA's customers and stakeholders;
- People Advantage — Amplifying the energy, passion, and creativity within each TVA employee;
- Operational Excellence — Building on TVA's best-in-class reputation for reliable service and competitively priced power;
- Igniting Innovation — Pursuing innovative solutions for TVA and its customers and communities; and
- Financial Strength — Investing in the future, while keeping energy costs as low as possible.

TVA's Strategic Financial Plan

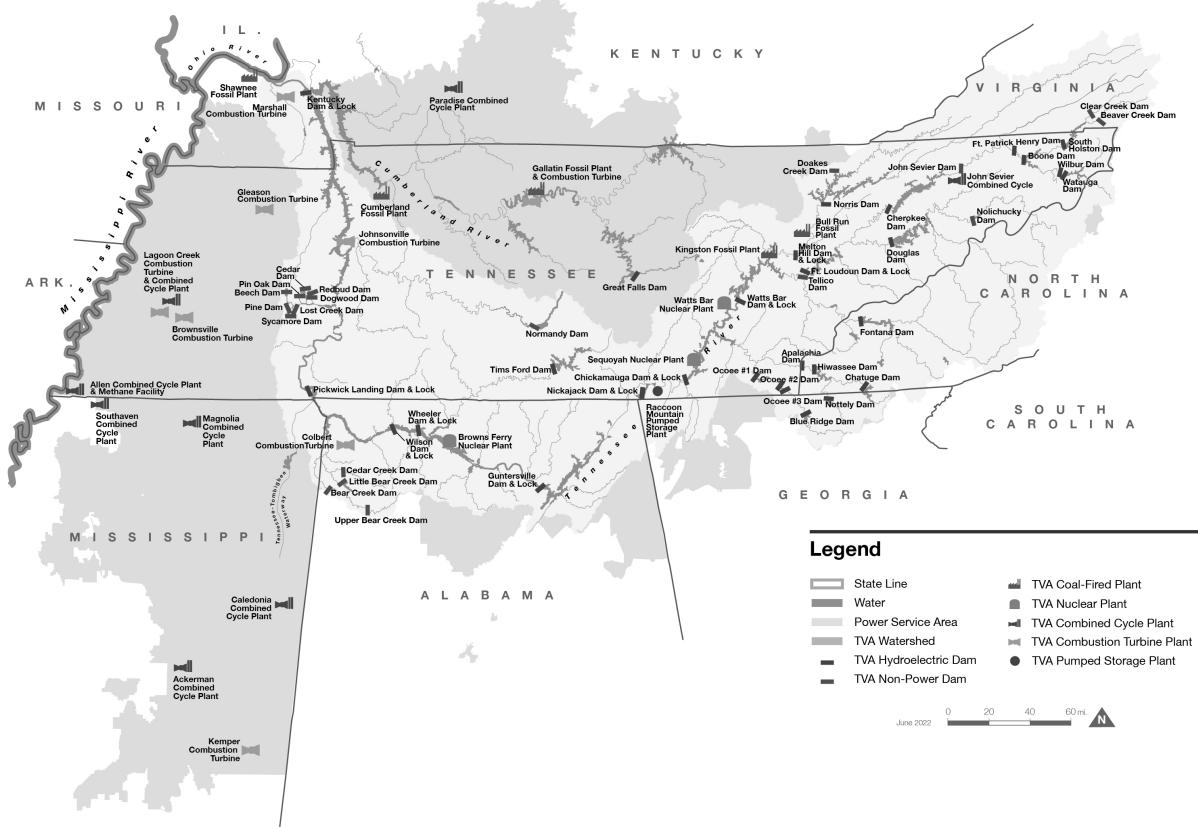
TVA developed the Strategic Financial Plan in order to help achieve its strategic priorities and mission. TVA's Strategic Financial Plan, which extends from 2020 through 2030, is flexible in aligning customer preferences and TVA's mission while at the same time establishing a long-term forecast of financial results. Key focus areas of the Strategic Financial Plan include maintaining flat base rates, stabilizing debt, establishing alignment between the length of LPC contracts and TVA's long-term commitments, driving efficiencies into the business, and advancing the public power model. As TVA executes the plan, key

assumptions and focus areas may change.

Service Area

TVA's service area, the area in which it sells power, is defined by the Tennessee Valley Authority Act of 1933, as amended ("TVA Act"). TVA supplies power in most of Tennessee, northern Alabama, northeastern Mississippi, and southwestern Kentucky, and in portions of northern Georgia, western North Carolina, and southwestern Virginia. Under the TVA Act, subject to certain minor exceptions, TVA may not, without the enactment of authorizing federal legislation, enter into contracts that would have the effect of making it, or the wholesale customers that distribute TVA power ("local power company customers" or "LPCs"), a source of power supply outside the area for which TVA or its LPCs were the primary source of power supply on July 1, 1957. This provision is referred to as the "fence" because it bounds TVA's sales activities, essentially limiting TVA to power sales within a defined service area.

TVA Locations



Note

In addition to the locations above, TVA owns approximately 1 MW of solar capability among 13 solar installations across the Tennessee Valley region with seven installations in Tennessee, two in Alabama, two in Mississippi, one in Virginia, and one in Kentucky. See *Power Supply and Load Management Resources* for a description of all of TVA's power supply resources.

In addition, the Federal Power Act ("FPA") includes a provision that helps protect TVA's ability to sell power within its service area. This provision, called the "anti-cherrypicking" provision, prevents the Federal Energy Regulatory Commission ("FERC") from ordering TVA to provide access to its transmission lines to others to deliver power to customers within TVA's defined service area. As a result, the anti-cherrypicking provision reduces TVA's exposure to loss of its customers. However, there have been some efforts to circumvent the anti-cherrypicking provision, and the protection of the provision could be limited and perhaps eliminated by federal legislation at some time in the future. See *Competition*, Item 1A, *Risk Factors — Regulatory, Legislative, and Legal Risks — TVA may lose its protected service territory*, Part II, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations — Legislative and Regulatory Matters*, and Note 21 — *Commitments and Contingencies — Legal Proceedings — Challenge to Anti-Cherrypicking Amendment*.

In 2022, the revenues generated from TVA's electricity sales were \$12.4 billion and accounted for virtually all of TVA's revenues. See Note 17 — *Revenue* for details regarding revenues by state for each of the last three years.

Customers

TVA is primarily a wholesaler of power, selling power to LPCs that then resell power to their customers at retail rates. TVA's LPCs consist of (1) municipalities and other local government entities ("municipalities") and (2) customer-owned entities ("cooperatives"). These municipalities and cooperatives operate public power electric systems whose primary purpose is not to make a profit but to supply electricity to the general public or the cooperatives' members. TVA also sells power directly to certain end-use customers, primarily large commercial and industrial loads and federal agencies with loads larger than 5,000 kilowatts ("kW"). Whether TVA or an LPC serves a new power customer is determined by the applicable TVA-LPC wholesale power contract. Each contract contains a formula that balances the size of the LPC and the amount of any TVA infrastructure investment to determine which party is entitled to serve the new customer. In addition, power in excess of the needs of the TVA system may, where consistent with the provisions of the TVA Act, be sold under exchange power arrangements with other specific electric systems. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Results of Operations — Financial Results — Operating Revenues* and Note 17 — *Revenue* for details regarding operating revenues for each of the last three years.

Local Power Company Customers

Revenues from LPCs accounted for approximately 90 percent of TVA's total operating revenues for 2022. TVA had wholesale power contracts with 153 LPCs at September 30, 2022. Each of these contracts requires the LPC to purchase from TVA all of the electric power required for service to the LPC's customers; however, Power Supply Flexibility Agreements available to LPCs that have executed long-term contracts with TVA allow LPCs 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. LPCs purchase power under contracts with terms of five or 20 years to terminate.

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 accounted for nine percent and eight percent, respectively, of TVA's total operating revenues for 2022. Certain LPCs, including MLGW, are evaluating options for future energy choices.

TVA and LPCs continue to work together to meet the changing needs of consumers around the Tennessee Valley. 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. TVA has 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 November 14, 2022, 147 LPCs had signed the Partnership Agreement with TVA, and 80 LPCs had signed a Power Supply Flexibility Agreement.

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

TVA also regulates LPC policies for customer deposits, termination of service for non-payment, information to consumers, and billing through a service practice policy framework. TVA's regulatory framework provides for consistent regulatory policy for ratepayers across the Tennessee Valley, while recognizing local considerations. The regulatory provisions in TVA's wholesale power contracts are designed to carry out the objectives of the TVA Act, including the objective of providing for an adequate supply of power at the lowest feasible rates. See *Rates — Rate Methodology* below.

Other Customers

Revenues from directly served industrial customers accounted for approximately seven percent of TVA's total operating revenues in 2022. Contracts with these customers are subject to termination by the customer or TVA upon a minimum notice period that varies according to a number of factors, including the customer's contract demand and the period of time service has been provided. TVA also serves seven federal customers, including U.S. Department of Energy ("DOE") facilities and military installations, which accounted for approximately one percent of TVA's total operating revenues in 2022.

Other Revenue

Other revenue consists primarily of wheeling and network transmission charges, sales of steam that is a by-product of power production, delivery point charges for interconnection points between TVA and the customer, Renewable Energy Certificate ("REC") sales, and certain other minor items. Other revenue accounted for approximately one percent of TVA's total operating revenues in 2022.

Rates

Rate Authority

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

- Operation, maintenance, and administration of its power system;
- Payments to states and counties in lieu of taxes ("tax equivalents");
- Debt service on outstanding indebtedness;
- Payments to the United States Department of the Treasury ("U.S. Treasury") in repayment of and as a return on the government's appropriation investment in TVA's power facilities (the "Power Program Appropriation Investment"); and
- Such additional margin as the TVA Board may consider desirable for investment in power system assets, retirement of outstanding Bonds in advance of their maturity, additional reduction of the Power Program Appropriation Investment, and other purposes connected with TVA's power business, having due regard for the primary objectives of the TVA Act, including the objective that power shall be sold at rates as low as are feasible. See Note 22 — *Related Parties*.

TVA fulfilled its requirement to repay \$1.0 billion of the Power Program Appropriation Investment in 2014; therefore, the repayment of this amount is no longer a component of rate setting.

Rate Methodology

TVA uses a seasonal time of use wholesale rate structure comprised of base demand and energy rates, a fuel rate, and a grid access charge ("GAC"). In setting the base rates, TVA uses a debt-service coverage ("DSC") methodology to derive annual revenue requirements in a manner similar to that used by other public power entities that also use the DSC rate methodology. Under the DSC methodology, rates are calculated so that an entity will be able to cover its operating costs and to satisfy its obligations to pay principal and interest on debt, plus an additional margin. This ratemaking approach is particularly suitable for use by entities financed primarily, if not entirely, by debt, such as TVA, and helps ensure that TVA produces gross revenues sufficient to fund requirements specified in the TVA Act listed under *Rate Authority* above.

TVA recovers fuel costs and tax equivalent payments associated with fuel cost adjustments through a monthly rate reflecting the forecasted costs of fuel. Fuel costs are allocated to three groups of customers: (1) Standard Service (residential and small commercial customers), (2) large general service customers with contract demands greater than 5 megawatts ("MW"), and (3) large manufacturing customers with contract demands greater than 5 MW. Fuel costs are allocated to these three classes of customers in relation to their hourly loads and TVA's hourly incremental dispatch cost. Total monthly fuel costs include costs for natural gas, fuel oil, coal, purchased power, emission allowances, nuclear fuel, and other fuel-related commodities as well as realized gains and losses on derivatives purchased to hedge the costs of such commodities.

TVA's rate structure includes a focus on TVA's long-term pricing by aligning rates with underlying cost drivers and by sending pricing signals, while maintaining competitive industrial rates and keeping residential rates affordable. The GAC better recovers fixed costs and the pricing approach more accurately reflects the wholesale cost of energy and recognizes the value of the grid's reliability and associated fixed costs. TVA's modernized approach to pricing provides bill stability while maintaining reliability and fairness for all TVA's customers. TVA will continue to collaborate with LPCs and directly served industries as necessary to ensure alignment with this approach.

Power Supply and Load Management Resources

General

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

TVA is making investments in its generating portfolio to modernize the fleet while also allowing TVA to maintain competitive rates and high reliability and work toward carbon emission reductions. As TVA continues to evaluate the impact of retiring its coal-fired fleet by 2035, it is also evaluating adding flexible lower carbon-emitting gas plants as a strategy to maintain reliability, such as the ongoing projects at TVA's Paradise and Colbert sites. In addition, TVA is committed to investing in the future of nuclear with the evaluation of emerging advanced nuclear technologies, such as small modular reactors ("SMRs"). TVA is also implementing the Hydro Life Extension Program with a focus on improving the availability and flexibility of the hydroelectric fleet. In August 2022, the Inflation Reduction Act of 2022 ("Inflation Reduction Act") was signed into law, which makes certain tax-exempt entities, including TVA, eligible for a direct-pay option for certain tax credits that encourage investment in clean energy, in some circumstances. TVA is currently evaluating the Inflation Reduction Act to determine whether it will be able to benefit from any of these tax credits for related eligible investments. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives — Optimum Energy Portfolio*.

In addition, an automated energy exchange platform that facilitates more short-term power exchanges took effect in 2022. The energy exchange will be an enhancement to the existing market. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives — Optimum Energy Portfolio — Automated Energy Exchange Platform*.

Power generating facilities operated by TVA at September 30, 2022, included three nuclear sites, 17 natural gas and/or oil-fired sites, five coal-fired sites, 29 conventional hydroelectric sites, one pumped-storage hydroelectric site, one diesel generator site, and 13 solar installations. See Item 2, Properties — *Generating Properties — Net Capability* for a discussion of the units at these facilities. TVA also acquires power under PPAs of varying durations, including short-term contracts of less than 24-hours in duration. See *Power Purchase and Other Agreements* below.

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

Generation Resource ⁽¹⁾	Total Power Supply by Generating Source For the years ended September 30		
	2022	2021	2020
Nuclear	39%	41%	42%
Natural gas and/or oil-fired	22%	21%	22%
Coal-fired	13%	15%	13%
Hydroelectric	8%	10%	10%
Purchased power	18%	13%	13%

Note

(1) TVA's non-hydro renewable resources from TVA facilities are less than one percent for all periods shown, and therefore are not represented on the table above. Purchased power contains the majority of non-hydro renewable energy supply. TVA sells the RECs resulting from some of its purchased power to certain customers. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Optimum Energy Portfolio — Renewable Power Purchase Agreements*.

While TVA continues down the path of reducing power generation from carbon-emitting sources, there will be fluctuations in usage due to electricity demands. Also, TVA continues to make operational decisions to keep the system reliable and to deliver low-cost energy.

Nuclear

At September 30, 2022, TVA had three nuclear sites consisting of seven units in operation. The units at Browns Ferry Nuclear Plant ("Browns Ferry") are boiling water reactor units, and the units at Sequoyah Nuclear Plant ("Sequoyah") and Watts Bar Nuclear Plant ("Watts Bar") are pressurized water reactor units. Operating information for each of these units is included in the table below.

TVA Nuclear Power At September 30, 2022			
Nuclear Unit	Summer Net Capability (MW)	Net Capacity Factor for 2022 (%)	Date of Expiration of Operating License
Browns Ferry Unit 1	1,227	92.8	2033
Browns Ferry Unit 2	1,208	100.2	2034
Browns Ferry Unit 3	1,227	83.5	2036
Sequoyah Unit 1	1,152	97.7	2040
Sequoyah Unit 2	1,140	84.8	2041
Watts Bar Unit 1	1,157	85.3	2035
Watts Bar Unit 2	1,121	64.1	2055

Other Nuclear Initiatives. TVA has an Early Site Permit to potentially construct and operate SMRs at TVA's Clinch River Nuclear Site in Oak Ridge, Tennessee, and in 2022, the TVA Board approved a programmatic approach to exploring advanced nuclear technology (the "New Nuclear Program"). See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Optimum Energy Portfolio — Small Modular Reactors*.

Other Nuclear Matters. Operating nuclear facilities subjects TVA to waste disposal, decommissioning, and insurance requirements, as well as litigation risks. See *Fuel Supply — Nuclear Fuel* below for a discussion of spent nuclear fuel and low-level radioactive waste, Note 21 — *Commitments and Contingencies — Contingencies* for a discussion of TVA's nuclear decommissioning liabilities and the related trust and nuclear insurance, and Note 21 — *Commitments and Contingencies — Legal Proceedings* for a discussion of legal proceedings related to TVA's nuclear program, which discussions are incorporated herein by reference.

Natural Gas and/or Oil-Fired

At September 30, 2022, TVA's natural gas and oil-fired fleet consisted of 101 combustion turbine power blocks (81 simple-cycle units, one cogeneration unit, and 14 combined-cycle power units, accounting for 11,777 MW of summer net capability, and five idled units at Allen Combustion Turbine Facility: Units 2, 3, 11, 17, and 18). Sixty-six of the simple-cycle units are currently capable of quick-start response allowing full generation capability in approximately 10 minutes. The economic dispatch of natural gas-fired plants depends on both the day-to-day price of natural gas and the price of other available intermediate resources such as coal-fired plants. TVA uses simple-cycle units to meet peaking or backup power needs. TVA's 2019 Integrated Resource Plan ("IRP") projects significant solar expansion over the next decade. The natural gas-fired fleet supports that expansion by providing reliability across all hours, as well as the flexibility to help manage ramping and intermittency. In addition, as TVA evaluates its coal-fired fleet, it will also evaluate adding flexible lower carbon-emitting gas plants as a strategy to maintain reliability.

See Item 2, Properties — *Generating Properties*, Note 8 — *Leases*, Note 11 — *Variable Interest Entities*, and Note 14 — *Debt and Other Obligations* for a discussion of lease arrangements into which TVA has entered in connection with certain combustion turbine units ("CTs"). Because of TVA's strategy of portfolio diversification and reduction of air emissions, TVA may decide to make further strategic investments in natural gas-fired facilities in the future by purchase, construction, or lease. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Optimum Energy Portfolio — Natural Gas-Fired Units* for a discussion of ongoing projects at certain natural gas-fired facilities.

Coal-Fired

At September 30, 2022, TVA had five coal-fired plants consisting of 25 active units, accounting for 6,580 MW of summer net capability. TVA considers units to be in an active state when the unit is generating, available for service, or temporarily unavailable due to equipment failures, inspections, or repairs. All other coal-fired units are considered retired. In 2019, the TVA Board approved the retirement of Bull Run Fossil Plant ("Bull Run") by December 2023.

Coal-fired plants have been subject to increasingly stringent regulatory requirements over the last few decades, including those under the Clean Air Act ("CAA"), the Clean Water Act ("CWA"), and the Resource Conservation and Recovery Act ("RCRA"). TVA has committed to a programmatic approach for the evaluation of its sites where coal combustion residuals ("CCR") are stored to meet all applicable state and federal regulations. See Part II, Item 7, Management's Discussion and

Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Coal Combustion Residuals — Coal Combustion Residuals Facilities.

TVA is moving toward a more balanced generation plan with greater reliance on lower-cost and cleaner energy generation technologies. Since September 30, 2010, TVA has reduced its summer net capability of coal-fired units by 7,653 MW. Following the publication of the 2019 IRP, TVA conducted end-of-life evaluations of the remaining coal fleet to inform long-term planning. These evaluations confirmed that the aging coal fleet is among the oldest in the nation and is experiencing deterioration of material condition and performance challenges. The performance challenges are projected to increase due to the coal fleet's advancing age and the difficulty of adapting the coal fleet's generation within the changing generation profile. TVA is evaluating the impact of retiring the balance of the coal-fired fleet by 2035, and that evaluation includes environmental review, public input, and TVA Board approval. Environmental reviews evaluating the potential retirement of the Cumberland Fossil Plant ("Cumberland") and Kingston Fossil Plant ("Kingston") and replacement with other generation are now underway, in addition to the public input process. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Optimum Energy Portfolio.

Diesel Generators

At September 30, 2022, TVA had one diesel generator plant consisting of five units, and this facility accounted for 9 MW of summer net capability. These units are not currently dispatched for generation to the transmission grid.

Raccoon Mountain Pumped-Storage Plant

At September 30, 2022, TVA had four units at Raccoon Mountain Pumped-Storage Plant ("Raccoon Mountain") with a total net summer capability of 1,654 MW. These units are utilized to balance the transmission system as well as generate power. TVA uses electricity generated by its fleet during periods of low demand to operate pumps that fill the reservoir at Raccoon Mountain. Then, during periods of high or peak demand, the water is released and the pumps reverse to work as power generating turbines. New hydroelectric pumped storage is one of several technologies that TVA is exploring as part of its decarbonization efforts to ensure the reliability and resiliency of the grid.

Renewable Energy Resources

As more consumers and businesses are seeking cleaner energy, the utility industry is evolving to meet those needs. As TVA also evolves, it will see impacts to the way it does business through the pricing of products, transmission of energy, and development of new products and services for its customers in support of changing customer preferences. Many companies are focusing on sustainability and requiring more energy efficiency and renewable energy options. In addition, TVA also seeks to obtain greater amounts of its power supply from clean resources to work towards carbon emission reductions. As a result, TVA is increasing its renewable energy portfolio, by investing in existing hydroelectric assets through the Hydro Life Extension Program and securing renewable power purchase agreements. New utility-scale solar is increasing, in part driven by customers' demand through TVA's Green Invest Program. TVA also encourages renewable power and offers renewable resources through various current programs and offerings. See below for information on renewable energy resources and *Power Purchase and Other Agreements* for information on TVA's power purchase agreements, including renewable agreements.

Conventional Hydroelectric Dams. At September 30, 2022, TVA's hydroelectric fleet consisted of 29 conventional hydroelectric dams throughout the Tennessee River system with 106 active generating units that accounted for 3,754 MW of summer net capability and three units at Wilbur Hydroelectric Facility: Units 1-3, that were in long-term outage and unavailable for service at September 30, 2022. The amount of electricity that TVA is able to generate from its hydroelectric plants depends on a number of factors, including the amount of precipitation and runoff, initial water levels, generating unit availability, and the need for water for competing water management objectives. When these factors are unfavorable, TVA must increase its reliance on higher cost generation plants and purchased power. In addition, a portion of energy generated by nine U.S. Army Corps of Engineers ("USACE") dams on the Cumberland River system contributes to the TVA power system, and electric generation from the USACE dams is dependent on the same factors that affect generation from the TVA-owned dams. See *Weather and Seasonality* below and Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Dam Safety Assurance Initiatives.

Hiwassee Hydro Unit 2 has a unique reversible turbine/generator that acts as a pump and a turbine enhancing TVA's ability to balance baseload generation. At September 30, 2022, Hiwassee Hydro Unit 2 accounted for 86 MW of the conventional hydroelectric summer net capability.

Hydro Life Extension Program. TVA's Hydro Life Extension Program began in 2021 with a focus on recovering and preserving TVA's extensive hydroelectric fleet, improving efficiency and flexibility, and ensuring long-term reliability of this vital clean energy asset. Hydroelectric generation will continue to be an important part of TVA's energy mix in the future. It plays a vital role in carbon reduction initiatives, the ability to integrate other renewables into the power portfolio, and TVA's ability to meet changing customer preferences for cleaner energy sources.

Dam Safety Assurance Program. TVA has an established dam safety program, which includes procedures based on the Federal Guidelines for Dam Safety, with the objective of reducing the risk of a dam safety event. The program analyzes, evaluates, and manages risks through a systematic and thorough process that facilitates decision-making for the safety of a structure, identifying necessary actions to reduce risk, including remediation projects, and prioritization of actions for TVA's river dams. Prioritization is driven by reducing risk to the public and asset preservation. TVA also continues to provide routine care of the dams as part of the dam safety program through inspections, monitoring, and maintenance, among other activities.

Self-Directed Solar. During 2019, the TVA Board approved the opportunity for TVA to explore being directly involved in the development of a utility-scale solar project, contingent on the successful completion of environmental reviews under the National Environmental Policy Act ("NEPA") and other applicable laws. Mounting solar supply chain constraints are being seen in TVA's Self-Directed Solar project, which have resulted in a delay in the estimated completion date. Project cost increases are also anticipated due to cost escalations from the state of global supply chains. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Optimum Energy Portfolio — Self-Directed Solar*.

Other Renewable Energy Resources. In addition to the hydroelectric units above, TVA owns 13 solar installations that account for approximately one MW of summer net capability. Other renewable energy resources also include renewable energy purchases, a majority associated with TVA renewable programs. See *Power Purchase and Other Agreements* for information on renewable PPAs. TVA's current renewable programs and offerings include:

Small-scale Solutions. The Green Connect Program connects residential customers who are interested in on-site solar photovoltaic ("PV") and/or battery storage systems with qualified solar and battery storage installers who agree to install to Green Connect Program Standards. These qualified installers, who are members of TVA's Quality Contractor Network, are insured and licensed and have also completed special training on TVA guidelines. Participants have access to objective information and assurance that their solar PV system has met Green Connect Program Standards through installation verifications.

Utility-scale Solutions. The Green Invest Program matches customer demand with renewable supply through a Green Invest Agreement. The goal of the Green Invest Program is to meet the long-term sustainability needs of customers at scale. TVA procures the needed renewable supply through a diversified approach, which could include a competitive procurement process, strategic partnerships, or construction of renewable facilities to meet these needs. As of September 30, 2022, more than 2,000 MW of renewable PPAs have been matched to customers through the Green Invest Program. In addition, Generation Flexibility is a solution available to long-term LPC partners and supports the deployment of up to 2,000 MW of distributed solar to provide clean, local generation. See Note 17 — Revenue.

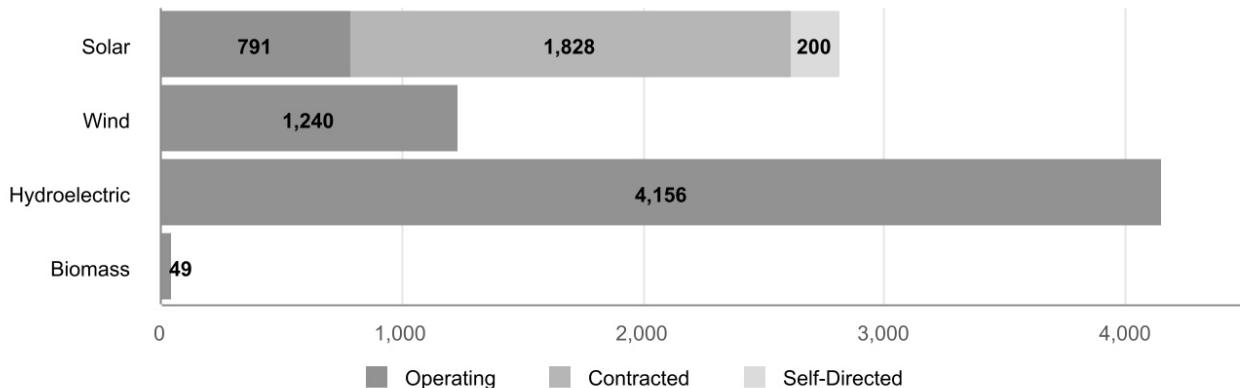
Other Renewable Solutions. The Green Switch Program allows customers to support solar renewable resources through purchasing renewable solar energy generated in the Tennessee Valley. The product is sold in blocks of 200 kWh or matches 100% of a customer's electricity usage (available through select LPCs). During the year ended September 30, 2022, participants purchased 82,097 MWh through the Green Switch Program. The Green Flex Program gives commercial and industrial customers the ability to meet sustainability goals and to make renewable energy claims through RECs from wind generation located outside TVA's service area. During the year ended September 30, 2022, participants purchased approximately one million RECs through the Green Flex Program.

TVA tracks its renewable energy commitments and claims through the management of RECs. The RECs, which each represent 1 megawatt-hour ("MWh") of renewable energy generation, are principally associated with wind, solar, biomass, and low-impact hydroelectric. TVA continues to evaluate ways to adjust to customer preferences and requirements for cleaner and greener energy, including the acquisition of RECs from renewable purchased power that can be sold to customers to meet their needs. Overall, TVA will procure needed renewable supply through a diversified approach, which could include a competitive procurement process, strategic partnerships, or construction of renewable facilities to meet these needs.

[Table of Contents](#)

Total Renewable Energy Resources. As of September 30, 2022, TVA's total renewable energy resources amounted to 8,264 MW. Of this amount, 6,236 MW are operating while 2,028 MW are contracted but not yet online, including the 200 MW from TVA's self-directed solar project. As of September 30, 2021, TVA's total renewable energy resources amounted to 8,269 MW, with 6,086 MW operating and 2,183 MW contracted but not yet online, which included TVA's self-directed solar project.

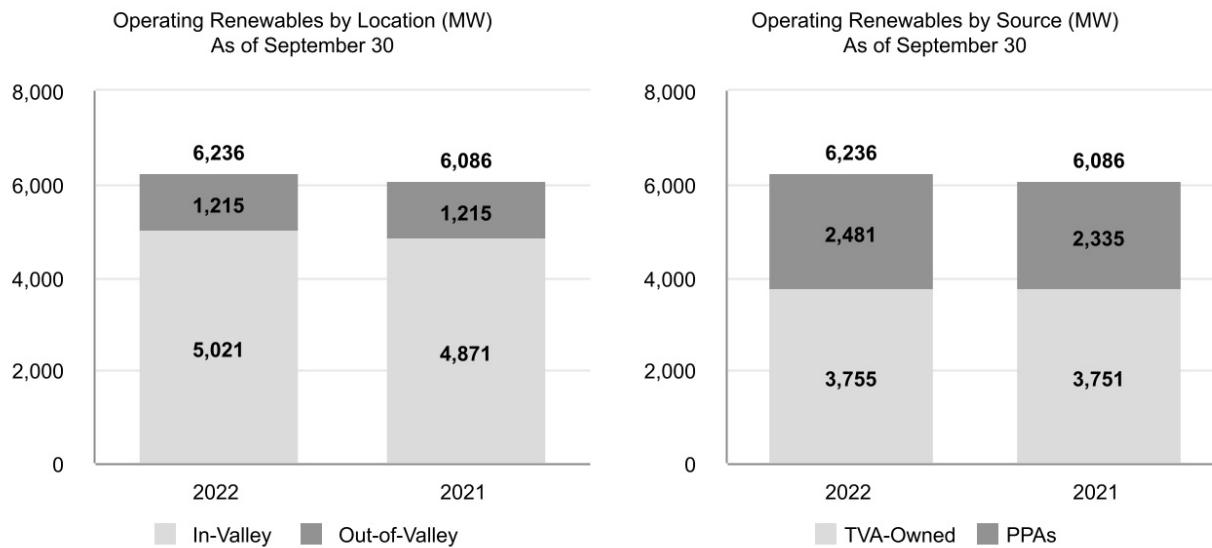
Total Renewable Energy Resources (MW)
As of September 30, 2022



Notes

- (1) Contracted resources are executed power purchase agreements expected to come online at a future date.
- (2) Hydroelectric power consists of 3,754 MW from TVA-owned conventional hydroelectric facilities and 402 MW from a renewable PPA.
- (3) TVA sells the RECs resulting from some of its purchased power to certain customers. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Optimum Energy Portfolio — Renewable Power Purchase Agreements.

TVA's operating renewables by location and by source are detailed below:



Notes

- (1) In-Valley refers to the renewable energy that is sourced within TVA's service territory. Out-of-Valley refers to the renewable energy that is sourced outside of TVA's service territory and solely consists of wind power.
- (2) See *Power Purchase and Other Agreements* below. PPAs also include capability from various historical renewable energy programs primarily with individuals and small businesses.
- (3) TVA sells the RECs resulting from some of its purchased power to certain customers. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Optimum Energy Portfolio — Renewable Power Purchase Agreements.

Energy Equity Programs

An equitable energy system is one where the economic, health, and social benefits of participation extend to all levels of society. TVA plans to address energy equity disparities through inclusive energy programming focused on expanding partnerships, improving program access, and catalyzing investment in communities where all individuals can benefit from TVA's resources. TVA's Low Income Energy Efficiency Programs include:

Home Uplift Program. Through the Home Uplift Program, TVA is partnering with LPCs, state and local governments, non-profit agencies, energy efficiency advocates, third-party contributors, and the Tennessee Valley Public Power Association ("TVPPA") to complete home evaluations and make high-impact home energy upgrades for qualifying homeowners. In addition, TVA and LPCs conduct workshops to educate homeowners about low and no-cost energy efficiency upgrades that improve their quality of life.

School Uplift Program. Through the School Uplift Program pilot, TVA is partnering with LPCs as well as state and local governments to assist schools with adopting strategic energy management practices. The engagement with each school includes monthly virtual workshops and fosters performance through competitions for energy efficiency grants and grants for learning environment improvements.

Community Centered Growth Program. Through the Community Centered Growth Program, TVA is partnering with LPCs to assist small businesses located within underserved communities with energy evaluations and energy improvement investments provided by TVA at no cost to the small business.

Distributed Energy Resources

Consumer desire for energy choice, among other things, is driving the expectation for flexible options in the electric industry. TVA and LPCs are working together to leverage the strengths of the Tennessee Valley public power model to provide distributed energy solutions that are economical, sustainable, and flexible. TVA will focus on the safety and reliability impacts of these resources as they are interconnected to the grid and will aim to ensure that the pricing of electricity remains as low as feasible. Additional regulatory considerations and analysis may be required as the distributed energy resources ("DER") market, technologies, and programs evolve.

In 2017, the TVA Board authorized up to \$300 million to be spent over the next 10 years, subject to annual budget availability and necessary environmental reviews, to build an enhanced fiber optic network that will better connect TVA's operational assets. Fiber is a vital part of TVA's modern communication infrastructure and is needed to help manage DER as they enter the market. The new fiber optic lines will also improve the reliability and resiliency of the generation and transmission system.

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

TVA is partnering with LPCs and others to support the electrification of transportation in the Tennessee Valley in a multi-year EV initiative. The initiative focuses on reducing or eliminating EV market barriers by setting EV policies, improving charging infrastructure availability, expanding EV availability and offerings, and spreading EV consumer awareness. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Electric Vehicles*.

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

Demand response systems that take advantage of the increasing sophistication in communication to homes, businesses, and distribution system assets also afford the opportunity for more granular control of system demand. Technologies can manage individual customer systems to shift usage from peak to off-peak periods and create significant reductions in the need for peak generation output or curtail usage for short periods to balance system demand. More sophisticated distribution control systems can also lower peak demand through control of excess voltage on the grid on either a dispatchable or continuous basis. Some large industrial customers also have the capacity to respond instantaneously and can augment operational flexibility by providing ancillary services.

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

[Table of Contents](#)

Power Purchase and Other Agreements

TVA acquires power from a variety of power producers generally through long-term and short-term PPAs as well as through spot market purchases. During 2022, TVA acquired approximately 94 percent of the power that it purchased through the long-term PPAs described below, including agreements for long-term renewable generation resources, approximately three percent through short-term PPAs, and approximately three percent on the spot market. During 2021, TVA acquired approximately 94 percent of the power that it purchased through long-term PPAs, approximately one percent through short-term PPAs, and approximately five percent on the spot market.

TVA's capability provided by PPAs is primarily provided under contracts that expire between 2022 and 2045 and are described in the table below.

Power Purchase Agreements⁽¹⁾
At September 30, 2022

Type of Facility	Location	Number of Contracts	Summer Net Capability (MW)	Contract Termination Date
Renewable PPAs				
<i>Operating</i>				
Solar ⁽²⁾	Tennessee	3	208	2032 - 2042
Solar	Alabama	2	302	2037 - 2041
Total Operating Solar		5	510	
Wind	Tennessee	1	25	2025
Wind	Iowa	2	299	2030 - 2031
Wind	Kansas	2	366	2032 - 2033
Wind	Illinois	3	550	2032 - 2033
Total Operating Wind		8	1,240	
Hydroelectric	Tennessee and Kentucky	1	402	Upon three years' notice
Landfill Gas	Tennessee	1	5	2031
Subtotal Operating		15	2,157	
<i>Contract Renewable Resources⁽³⁾</i>				
Total Renewable Operating PPAs			2,481	
<i>Contracted (not yet online)</i>				
Solar ⁽⁴⁾		15	1,828	
Total Renewable Contracted PPAs		15	1,828	
Nonrenewable PPAs				
<i>Operating</i>				
Diesel	Tennessee	4	59	2023 - 2032
Diesel	Alabama	1	10	2035
Diesel	Mississippi	2	46	2023 - 2028
Total Operating Diesel		7	115	
Natural Gas ⁽⁵⁾	Alabama	3	2,068	2022 - 2033
Natural Gas ⁽⁵⁾	Georgia	1	500	2022
Natural Gas ⁽²⁾	Illinois	1	495	2024
Total Operating Natural Gas		5	3,063	
Lignite	Mississippi	1	440	2032
Total Nonrenewable Operating PPAs		13	3,618	
<i>Contracted (not yet online)</i>				
Battery Storage ⁽⁴⁾		5	246	
Total Nonrenewable Contracted PPAs		5	246	

Notes

(1) TVA sells the RECs resulting from some of its purchased power to certain customers. See Part II, Item 7, Management's Discussion and Analysis of Financial

[Table of Contents](#)

- Condition and Results of Operations — *Key Initiatives and Challenges — Optimum Energy Portfolio — Renewable Power Purchase Agreements*.
(2) 150 MW of power delivery in Solar and 495 MW of power delivery in Natural Gas commenced in 2022. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives — Optimum Energy Portfolio — Renewable Power Purchase Agreements*.
(3) Contract Renewable Resources is capability from various historical renewable energy programs that consist of PPAs primarily with individuals and small businesses.
(4) Power delivery is expected to commence between 2023 - 2025. See challenges associated with contracted PPAs not yet online in Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives — Optimum Energy Portfolio — Renewable Power Purchase Agreements*.
(5) Included in the table above are 500 MW of power delivery in Alabama and 500 MW in Georgia that expired on September 30, 2022. The Alabama and Georgia contracts were replaced with 500 MW and 250 MW of Natural Gas, respectively, and both commenced on October 1, 2022. The two new contracts are not reported in the table above.

Under federal law, TVA is required to purchase energy from qualifying facilities (cogenerators and small power producers) at TVA's avoided cost of either generating this energy itself or purchasing this energy from another source. TVA fulfills this requirement through the Dispersed Power Production Program. At September 30, 2022, there were 642 generation sources, with a combined qualifying capacity of 278 MW, whose power TVA purchases under this program.

Fuel Supply

General

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

Nuclear Fuel

Current Fuel Supply. Converting uranium to nuclear fuel generally involves four stages: the mining and milling of uranium ore to produce uranium concentrates; the conversion of uranium concentrates to uranium hexafluoride gas; the enrichment of uranium hexafluoride; and the fabrication of the enriched uranium hexafluoride into fuel assemblies. TVA plans to continue using contracts of various products, lengths, and terms as well as inventory to meet the projected nuclear fuel needs of its nuclear fleet. The net book value of TVA's nuclear fuel was \$1.5 billion and \$1.6 billion at September 30, 2022 and 2021, respectively. See Note 15 — *Risk Management Activities and Derivative Transactions — Counterparty Risk*.

TVA, the DOE, and certain nuclear fuel contractors have entered into agreements, referred to as the Down-blend Offering for Tritium ("DBOT"), that provide for the production, processing, and storage of low-enriched uranium that is to be made using surplus DOE highly enriched uranium and other uranium. Low-enriched uranium can be fabricated into fuel for use in a nuclear power plant. Production of the low-enriched uranium began in 2019 and is contracted to continue through September 2025. Contract activity after that date will consist of storage and flag management. Flag management ensures that the uranium is free from foreign obligations, and unencumbered by policy restrictions, so that it can be used in connection with the production of tritium. Under the terms of the interagency agreement between the DOE and TVA, the DOE will reimburse TVA for a portion of the costs of converting the highly enriched uranium to low-enriched uranium. See Note 1 — *Summary of Significant Accounting Policies — Down-blend Offering for Tritium* for a more detailed discussion of the DBOT project.

Low-Level Radioactive Waste. Certain materials and supplies used in the normal operation of nuclear electrical generating units are potentially exposed to low levels of radiation. TVA sends shipments of low-level radioactive waste to burial facilities in Clive, Utah and Andrews, Texas. TVA is capable of storing some low-level radioactive waste at its own facilities for an extended period of time, if necessary.

Spent Nuclear Fuel. All three nuclear sites have dry cask storage facilities. Sequoyah will need additional capacity by 2029. Watts Bar will need additional capacity by 2039. Browns Ferry will need additional capacity by 2037. To recover the cost of providing long-term, onsite storage for spent nuclear fuel, TVA filed a breach of contract suit against the U.S. in the Court of Federal Claims in 2001. As a result of this lawsuit and related agreements, TVA has collected approximately \$414 million through 2022.

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

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

TVA has provided irradiation services using Watts Bar Unit 1 since 2003. Although the interagency agreement provides for irradiation services to be performed at Watts Bar and Sequoyah, TVA expects the Watts Bar site to provide sufficient capacity

to fulfill this agreement in the near term. The DOE notified TVA of future increased needs for tritium requiring the use of a second reactor. In 2019, TVA received approval from the Nuclear Regulatory Commission ("NRC") for a license amendment to authorize the irradiation of TPBARs in Watts Bar Unit 2. TVA began tritium production in Watts Bar Unit 2 in 2021. The DOE's decision also allows for irradiation of TPBARs at Sequoyah in the future; however, TVA does not have plans to employ Sequoyah units for tritium production in the near term. TVA does intend to increase its production within currently licensed limits beginning in November 2024 for Watts Bar Unit 1 and April 2025 for Watts Bar Unit 2, to align with a DOE request for increased tritium. TVA is currently working to submit a license amendment request with the NRC to fulfill this request.

Natural Gas and Fuel Oil

During 2022, TVA purchased a significant amount of its natural gas requirements from a variety of suppliers under contracts with terms of up to 2 years and purchased substantially all of its fuel oil requirements on the spot market. The net book value of TVA's natural gas inventory was \$54 million and \$22 million at September 30, 2022 and 2021, respectively. Natural gas inventory increased primarily due to higher gas prices, as well as an increase in the amount of stored gas to mitigate fuel price volatility. The net book value of TVA's fuel oil inventory was \$84 million and \$69 million at September 30, 2022 and 2021, respectively. At September 30, 2022, 80 of the combustion turbine assets were dual-fuel capable, and TVA has fuel oil stored on each of these sites as a backup to natural gas.

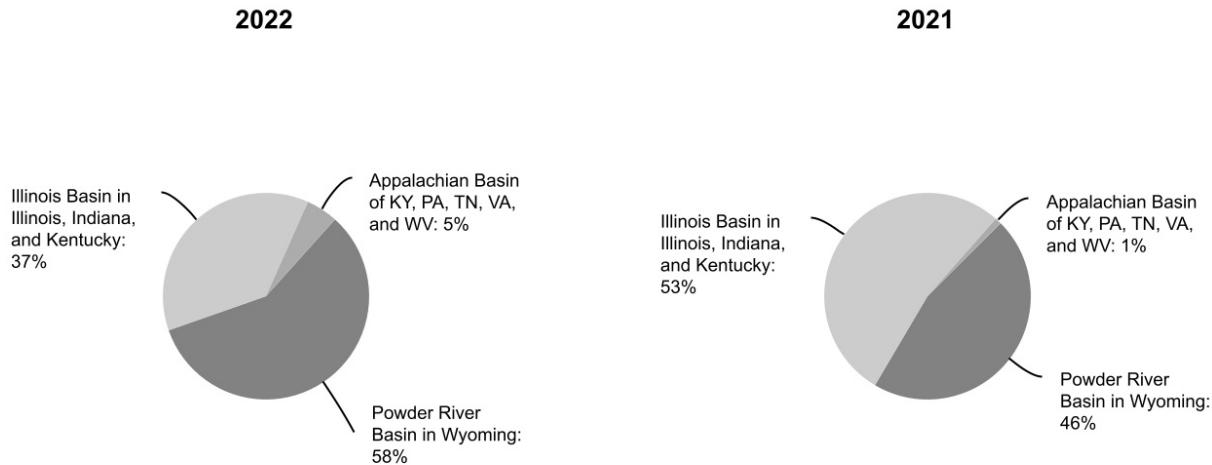
TVA purchases natural gas from multiple suppliers on a daily, monthly, seasonal, and term basis. During 2022, daily, monthly, seasonal, and term contracts accounted for 27 percent, 4 percent, 29 percent, and 40 percent of purchases, respectively. TVA plans to continue using contracts of various lengths and terms to meet the projected natural gas needs of its natural gas fleet. During 2022, TVA arranged for the transportation of natural gas on eight separate pipelines, with approximately 68 percent being transported on two pipelines. During 2022, TVA maintained a total of approximately 1,501,000 million British thermal unit(s) ("mmBtu") per day of firm transportation capacity on eight major pipelines, with approximately 66 percent of total firm transportation capacity being maintained on two pipelines.

TVA utilizes natural gas storage services at seven facilities with a total capacity of 7.25 billion per cubic feet ("Bcf") of firm service and 5.00 Bcf of interruptible service to manage the daily balancing requirements of the eight pipelines used by TVA, with approximately 59 percent of the total storage capacity being maintained at two facilities. During 2022, storage levels were generally maintained at between 40 and 80 percent of the maximum contracted capacity at each facility. As TVA's natural gas requirements grow, it is anticipated that additional storage capacity may need to be acquired to meet the needs of the generating assets. In 2023, TVA expects to increase its storage portfolio by approximately 10 percent.

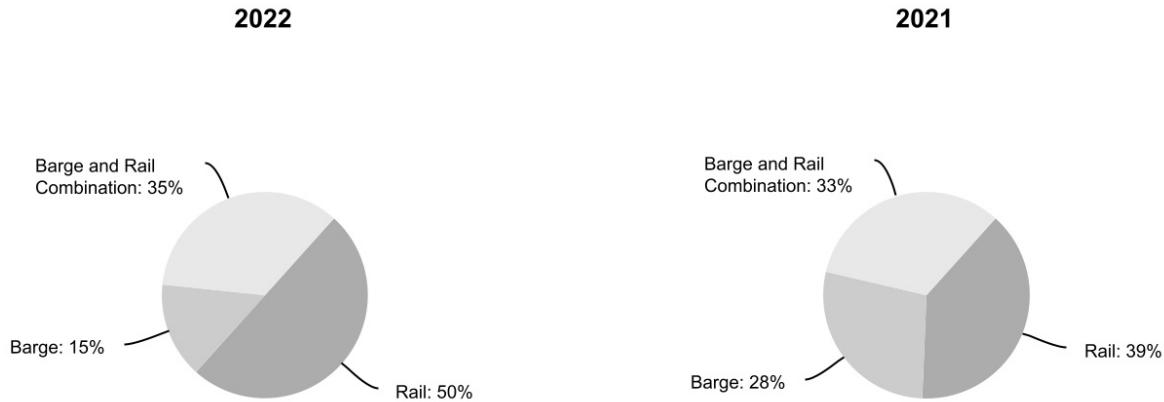
Coal

Coal consumption at TVA's coal-fired generating facilities during both 2022 and 2021 was approximately 12 million tons. At September 30, 2022 and 2021, TVA had 25 days and 21 days of system-wide coal supply at full burn rate, respectively, with net book values of \$165 million and \$107 million, respectively.

TVA utilizes both short-term and long-term coal contracts. During 2022, long-term contracts made up 92 percent of coal purchases, and short-term contracts accounted for the remaining 8 percent. TVA plans to continue using contracts of various lengths, terms, and coal quality to meet its expected consumption and inventory requirements. During 2022 and 2021, TVA purchased coal by basin as follows:



The following charts present the proportion of each delivery method TVA utilizes for its coal supply for the periods indicated:



Coal inventory increased at September 30, 2022 as compared to September 30, 2021. This increase was primarily due to higher costs of fuel, including transportation costs, coal conservation efforts, and an increase in inventory levels in preparation for winter inventory needs. The increased inventory levels will help mitigate expected constraints on fuel supply and continued natural gas price volatility which may cause coal to be a more favorable economic fuel choice during that period. However, total system coal inventories were lower than planned throughout 2022 primarily due to higher than forecasted coal generation and continued constraints on fuel supply. Higher coal generation was driven by an increase in sales of electricity, primarily due to economic growth in the Tennessee Valley region and weather patterns, and an increase in natural gas prices making coal a more favorable economic fuel choice. Fuel supply constraints were due to limited mine production, labor shortages, an increase in coal exports, and a reallocation of transportation capacity to support export sales and other commodities. TVA will continue to monitor these constraints and coal inventory levels, as TVA anticipates that these challenges will continue into 2023. See also Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Operational Challenges — Coal Supply*.

Transmission

The TVA transmission system is one of the largest high-voltage transmission systems in North America. TVA's transmission system has 69 interconnections with 13 neighboring electric systems and delivered approximately 163 billion kWh of electricity to TVA customers in 2022. In carrying out its responsibility for transmission grid reliability in the TVA service area, TVA has operated with 99.999 percent reliability since 2000 in delivering electricity to customers. See Item 2, Properties — *Transmission Properties*.

Pursuant to its Transmission Service Guidelines, TVA offers transmission services to eligible customers to transmit wholesale power in a manner that is comparable to TVA's own use of the transmission system. TVA has also adopted and operates in accordance with its published Transmission Standards of Conduct and separates its transmission function from its power marketing function. As a Balancing Authority, Distribution Provider, Generator Owner, Generator Operator, Planning Coordinator, Reliability Coordinator, Resource Planner, Transmission Owner, Transmission Operator, Transmission Planner, and Transmission Service Provider, as those terms are defined for purposes of North American Electric Reliability Corporation ("NERC") regulations, TVA is also subject to federal reliability standards that are set forth by the NERC and approved by FERC. See *Regulation*.

Additional transmission upgrades may be required to maintain reliability. Upgrades may include enhancements to existing lines and substations or new installations as necessary to provide adequate power transmission capacity, maintain voltage support, and ensure generating plant and transmission system stability. In addition to upgrades to maintain reliability, TVA's Grid of Tomorrow initiative aims to increase grid flexibility to enable greater use of renewable resources such as solar, wind, and other forms of distributed generation and includes making data and communications upgrades as demonstrated by investments in the new system operations center, energy management system, and fiber optic network. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Optimum Energy Portfolio*.

In addition, TVA is working on various projects with universities, EPRI, and others to help enable a dynamic and multi-directional grid. TVA is also working in partnership with LPCs to modernize their distribution systems by developing a shared vision and roadmap for transforming the Tennessee Valley's transmission and distribution systems into an integrated regional grid.

These initiatives support TVA's decarbonization efforts while helping ensure TVA continues to achieve its mission to deliver reliable power at the lowest feasible rate. Investments in a modernized grid will help enable enhanced monitoring and control of TVA's transmission and generation portfolio.

Weather and Seasonality

Weather affects both the demand for and the market prices of electricity. TVA's power system is generally a dual-peaking system in which the demand for electricity peaks during the summer and winter months to meet cooling and heating needs. TVA uses degree days to measure the impact of weather on its power operations. Degree days measure the extent to which the TVA system 23-station average temperatures vary from 65 degrees Fahrenheit. See Item 1, Business — Flood Control Activities, Item 1, Business — *Environmental Matters — Climate Change — Physical Impacts of Climate Change*, and Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Results of Operations — Sales of Electricity*.

Competition

TVA provides electricity in a service area that is largely free of competition from other electric power providers. This service area is defined primarily by provisions of law and long-term contracts. The region in which TVA or LPCs that distribute TVA power may provide power is limited and is often referred to as "the fence." Under the FPA, the Anti-Cherrypicking Amendment ("ACPA") limits the ability of others to use the TVA transmission system for the purpose of serving customers within TVA's service area. State service territory laws limit unregulated third parties' ability to sell electricity to consumers. All TVA wholesale power contracts are all requirements contracts; however, Power Supply Flexibility Agreements available to LPCs that have executed long-term contracts with TVA allow LPCs 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. In addition, other utilities may use their own transmission lines to serve customers within TVA's service area, and third parties are able to avoid the restrictions on serving end-use customers by selling or leasing generating assets to a customer rather than selling electricity. These threats underscore the need for TVA to design rates and strategically price its products and services to be competitive. There have also been some efforts to erode the ACPA, and the protection of the provision could be limited and perhaps eliminated by federal legislation at some time in the future. See Note 21 — *Commitments and Contingencies — Legal Proceedings — Challenge to Anti-Cherrypicking Amendment* for updates to a legal proceeding challenging the ACPA.

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

Finally, TVA and other utility companies are facing an evolving marketplace of increased competition driven by customer choice and behavior. As technology develops, consumers' demands for access to diverse products and services may increase, and customers could choose another utility to meet some or all of their power needs where available, pursue self-generation to meet some or all of their power needs, or move their operations outside of TVA's service territory.

Research and Development

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

Annual investments made in science and technological innovation help meet future business and operational challenges. Each year, TVA's annual research portfolio is updated based on a broad range of operational and industry drivers to assess key technology gaps, performance issues, or other significant issues, addressed through research and development. Core research activities directly support optimization of TVA's generation and transmission assets, air and water quality, energy utilization, and distributed/clean energy integration. TVA also provides research and development services on behalf of LPCs by helping optimize their distribution systems and helping minimize technology gaps in energy utilization and consumer technologies.

Beginning in 2020, TVA placed a high priority on providing research which aligns to and supports its six transformative initiatives: decarbonization, energy storage, electric vehicles, advanced nuclear, connected communities, and regional grid transformation. TVA has placed a special emphasis on research leading to the understanding and application of clean resources to support the reduction of carbon emissions from its power supply. This research supports both TVA and national strategic interests to reduce carbon emissions and will serve to both catalyze and support TVA's decarbonization initiative.

TVA is in the second year of a coalition of utilities and researchers, led by EPRI and Gas Technology Institute, whose purpose is to engage, inform, and support global low-carbon resources initiatives to develop the pathways for the advancement

of carbon reducing technologies for large scale utility deployment. This is a five-year program and includes research to support creating resource options, such as alternative fuels (hydrogen, ammonia, and methanized derivatives), carbon capture, electrification, and utilization of clean DER as part of the overall low-carbon resource mix. TVA has made progress understanding regional geology and carbon capture technologies and is evaluating both with an emphasis on the potential for carbon capture in TVA's future. TVA is also exploring the potential for hydrogen to serve as a tool in the decarbonization of the Tennessee Valley, both within the electrical sector and elsewhere. TVA and other major utility companies are working together to respond to the recently announced funding opportunity from the DOE with the intention of obtaining federal financial support for a Southeast Hydrogen Hub.

At the forefront of the energy storage initiative is deploying grid-scale battery energy storage technology to optimize the existing TVA generation assets and improve the resiliency of the transmission system. In 2020, TVA launched its first TVA-owned, grid scale, lithium-ion demonstration battery project and in 2022, TVA broke ground for the battery project, which will be located near Vonore, Tennessee. The system integration learnings from this project will guide future application of battery storage as part of the evolving bulk power system in the region.

TVA continues to develop potential electrification programs, in addition to the Fast Charge Network, that improve resource use and reduce environmental impacts (especially in the transportation sector). TVA programs are based on previous assessments, which included a multi-stakeholder vision and roadmap effort aimed at identifying the path forward for electric vehicles in Tennessee. The approach provides for broad engagement from industry, government, and utilities that could be applied in other states in the TVA service territory. In addition, TVA is continuing its evaluation of potential electric vehicle adoption strategies through coordination of activities with EPRI and state and industry stakeholders related to operational fleet requirements. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Electric Vehicles*.

TVA is committed to investing in the future of nuclear and continues to evaluate the licensing and design of emerging nuclear technologies, such as advanced light water SMRs and advanced non-light water reactors, as part of technology innovation efforts aimed at developing the energy system of the future. In December 2019, TVA became the first utility in the nation to successfully obtain approval for an early site permit from the NRC to potentially construct and operate SMRs at its Clinch River Site. Additionally, TVA is partnering with technology progressive organizations to evaluate the economic feasibility of advanced nuclear reactors. TVA has entered into memorandums of understanding and agreements that allow for mutual collaboration to explore advanced reactor designs as a next-generation nuclear technology while leveraging the expertise of federally funded research and development centers, utilities, vendors, and academic institutions. These partnerships are important steps in the early stages of evaluation as TVA considers the prospect of new nuclear. These partnerships are also leveraged to develop innovations to improve advanced nuclear designs, streamline licensing pathways, find efficiencies in construction methods, and optimize operating expenses. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Optimum Energy Portfolio — Small Modular Reactors* for additional discussion and total costs related to SMR work.

TVA established 13 connected communities pilot projects with stakeholders and has been engaging in advanced buildings research to support the initiative. Connected communities projects are aimed at addressing today's challenges with community-driven information and technology solutions to improve the quality of life in the Tennessee Valley. Research will continue to identify best practices, better understand challenges in the Tennessee Valley, and scale up the learnings from the pilots to broader application throughout the Tennessee Valley.

Finally, TVA and LPCs are engaged in several initiatives related to grid modernization. Research includes technologies and applications advancement in intelligent transmission and distribution systems. Smart meter technology has the potential to shift usage patterns away from peak demand times which could change costs significantly. Additionally, intelligent transmission systems would give TVA the ability to nearly instantaneously diagnose problems, make corrections, and engage transmission and generation resources quickly so that power would keep flowing. This could promote reduced emissions, lower energy costs, and add greater flexibility to accommodate the new consumer-generated sources under TVA's renewable energy programs. TVA also worked with LPC partners to execute a survey of LPC technology capabilities and plans, and the results are helping shape a realistic path toward TVA's long-term goals. See *Power Supply and Load Management Resources — Distributed Energy Resources and Transmission*.

Flood Control Activities

The Tennessee River watershed has one of the highest annual rainfall totals of any watershed in the U.S., averaging 51 inches per year. During 2022, approximately 55 inches of rain fell in the Tennessee Valley. TVA manages the Tennessee River system in an integrated manner, which includes managing minimum river flows and minimum depths for navigation, reducing flood damage, generating low-cost hydroelectric power, maintaining flows that support habitat for fish and other aquatic species, maintaining water supply, and providing recreational opportunities for the Tennessee Valley. In addition, having cool water available helps TVA to meet thermal compliance and support normal operation of TVA's nuclear and fossil-fueled plants, while oxygenating water helps fish species remain healthy. TVA spills or releases excess water through its dams in order to reduce flood damage to the Tennessee Valley. TVA typically spills only when all available hydroelectric generating turbines are operating at full capacity and additional water still needs to be moved downstream.

The Tennessee Valley experienced above normal rainfall during 2022 with rainfall and runoff at 108 percent and 106 percent of normal, respectively. The above normal rainfall and runoff during the period supported TVA's objective to generate low-cost hydroelectric power while also meeting its river system commitments, including flood mitigation, which is estimated to have prevented damages across the Tennessee Valley of approximately \$3 million in 2022 and \$9.7 billion over TVA's recorded history.

Environmental Stewardship Activities

TVA's mission includes managing the Tennessee River, its tributaries, and federal lands along the shoreline to provide, among other things, year-round navigation, flood damage reduction, affordable and reliable electricity, recreational opportunities, adequate water supply, improved water quality, and natural resource protection. There are 49 dams that comprise TVA's integrated reservoir system. Each dam may also have ancillary structures used to support or assist the main dam's function. The reservoir system provides approximately 800 miles of commercially navigable waterways and also provides significant flood reduction benefits both within the Tennessee River system and downstream on the lower Ohio and Mississippi Rivers. The reservoir system also provides a water supply for residential and industrial customers, as well as cooling water for TVA's coal-fired plants, combined cycle plants, and nuclear power plants. TVA's Environmental Policy provides objectives for an integrated approach related to providing reliable, affordable, and increasingly clean energy; engaging in proactive stewardship of the Tennessee River system and public lands; and supporting sustainable economic growth. The Environmental Policy also provides additional direction in several environmental stewardship areas related to reducing environmental impacts on the Tennessee Valley's natural resources, including reducing carbon intensity and air emissions; minimizing waste; and protecting water resources and cultural resources. TVA's Biodiversity Policy further builds on the TVA record of environmental stewardship by acknowledging the critical role of natural systems in achieving its mission of improving the quality of life in the region. The policy commits to seeking conservation opportunities within capital projects and improving current operational practices to help minimize impacts, reduce costs, and enhance biodiversity.

TVA serves the people of the TVA region through the integrated management of the Tennessee River system and public lands, which include approximately 11,000 miles of shoreline; 650,000 surface acres of reservoir water; and 293,000 acres of reservoir lands. TVA accomplishes this mission and supports the objectives of the TVA Environmental Policy through implementation of its natural resources stewardship strategy. Within this strategy, TVA confirms a desire to remain agile, balance competing demands, and be a catalyst for collaboration in order to protect and enhance biological, cultural, and water resources as well as create and sustain destinations for recreation and opportunities for learning and research. As part of the strategy, TVA intends to assist water-based community development with the issuance of permits, technical support, and land agreements using planning, clear regulations, meaningful guidelines, and consistent enforcement. Additional guidance for carrying out many of TVA's essential stewardship responsibilities is provided in TVA's Natural Resource Plan. The plan aligns TVA's mission through economic development, energy, and environmental stewardship and guides business planning. It includes ten focus areas, providing a comprehensive view of resource stewardship efforts.

Economic Development Activities

Economic development, along with energy production and environmental stewardship, is one of the primary statutory purposes of TVA. Economic development programs developed by TVA support all communities, including rural and economically distressed communities, across the Tennessee Valley. Through its economic development activities, TVA endeavors to recruit and retain companies in targeted business sectors, foster capital investment and job growth, and assist communities in the Tennessee Valley with economic growth opportunities.

TVA seeks to achieve these goals through a combination of initiatives and partnerships with LPCs, regional, state, and local agencies, and communities by providing financial incentives, technical services, industry expertise, and site-selection assistance to new and existing businesses in the Tennessee Valley. TVA's economic development incentive programs offer competitive incentives to new and existing power customers in certain business sectors that make multi-year commitments to invest in the Tennessee Valley. See Note 17 — *Revenue — Contract Balances — Economic Development Incentives* for total incentives recorded. In addition to providing financial support to businesses, TVA offers communities and economic developers site selection services, technical and project development assistance, and leadership training services.

In 2022, TVA's economic development efforts, reliability, and competitive rates helped attract or expand 245 companies into the TVA service area. These companies announced projected capital investments of over \$10.2 billion and are expected to create or retain approximately 66,500 jobs.

Regulation

TVA is required to comply with comprehensive and complex laws, regulations, and orders. The costs of complying with these laws, regulations, and orders are expected to be substantial, and costs could be significantly more than TVA anticipates.

Congress

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

Securities and Exchange Commission

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

Federal Energy Regulatory Commission

Under the FPA, TVA is not a "public utility," a term which primarily refers to investor-owned utilities. Therefore, TVA is not subject to the full jurisdiction that FERC exercises over public utilities under the FPA. TVA is, however, an "electric utility" and a "transmitting utility" as defined in the FPA and, thus, is directly subject to certain aspects of FERC's jurisdiction. Under the FPA, for example, TVA (1) must comply with certain standards designed to maintain transmission system reliability; (2) can be ordered to interconnect its transmission facilities with the electrical facilities of independent generators and of other electric utilities that meet certain requirements; (3) can be ordered to transmit wholesale power provided that the order (a) does not impair the reliability of the TVA or surrounding systems, (b) meets the applicable requirements concerning terms, conditions, and rates for service, and (c) does not implicate the ACPA; (4) could be subject to FERC review of the transmission rates and the terms and conditions of service that TVA provides; and (5) is prohibited from (a) reporting false information on the price of electricity sold at wholesale or the availability of transmission capacity to a federal agency with intent to fraudulently affect the data being compiled by the agency and (b) using manipulative or deceptive devices or contrivances in connection with the purchase or sale of power or transmission services subject to FERC's jurisdiction.

In addition, the FPA provides FERC with authority (1) to order refunds of excessive prices on short-term sales (transactions lasting 31 days or less) by all market participants, including TVA, in price gouging situations if such sales are through an independent system operator or regional transmission organization under a FERC-approved tariff; (2) to issue regulations requiring the reporting, on a timely basis, of information about the availability and prices of wholesale power and transmission service by all market participants, including TVA; (3) to investigate electric industry practices, including TVA's operations that are subject to FERC's jurisdiction; and (4) to impose civil penalties of up to \$1 million per day for each violation of the provisions of the FPA discussed in the prior paragraph that are applicable to TVA. Criminal penalties may also result from such violations.

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

NERC Compliance

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

Nuclear Regulatory Commission

TVA operates its nuclear facilities in a highly regulated environment and is subject to the oversight of the NRC, an

independent federal agency that sets the rules that users of radioactive materials must follow. The NRC has broad authority to impose requirements relating to the licensing, operation, and decommissioning of nuclear generating facilities. In addition, if TVA fails to comply with requirements promulgated by the NRC, the NRC has the authority to impose fines, shut down units, or modify, suspend, or revoke TVA's operating licenses. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges — Operational Challenges.

Environmental Protection Agency

TVA is subject to regulation by the Environmental Protection Agency ("EPA") in a variety of areas, including air quality control, water quality control, and management and disposal of solid and hazardous wastes. See *Environmental Matters* below and Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Key Initiatives and Challenges.

States

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

Other Federal Entities

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

Taxation and Tax Equivalents

TVA is not subject to federal income taxation. In addition, neither TVA nor its property, franchises, or income is subject to taxation by states or their subdivisions. The TVA Act, however, does require TVA to make tax equivalent payments to states and counties in which TVA conducts power operations or in which TVA has acquired properties previously subject to state and local taxation. The total amount of these payments is five percent of gross revenues from the sale of power during the preceding year excluding sales or deliveries to other federal agencies and off-system sales with other utilities, with a provision for minimum payments under certain circumstances. Except for certain direct payments TVA is required to make to counties, distribution of tax equivalent payments within a state is determined by individual state legislation.

Environmental Matters

TVA's activities, particularly its power generation activities, are subject to comprehensive regulation under environmental laws and regulations relating to air pollution, water pollution, and management and disposal of solid and hazardous wastes, among other matters. The environmental laws and regulations that have the largest impact on TVA's operations and financial condition are discussed below.

Clean Air Act Programs and Regulations

National Ambient Air Quality Standards. The CAA requires the EPA to set National Ambient Air Quality Standards ("NAAQS") for certain air pollutants. The EPA has set NAAQS for ozone, particulate matter, sulfur dioxide ("SO₂"), nitrogen oxides ("NO_x"), carbon monoxide, and lead. Over the years, the EPA has made the NAAQS more stringent. Each state must develop a plan to be approved by the EPA for achieving and maintaining NAAQS within its borders. These plans impose limits on emissions from pollution sources, which are applicable to certain TVA generating units, including fossil fuel-fired plants. Areas meeting a NAAQS are designated as attainment areas. Areas not meeting a NAAQS are designated as non-attainment areas, and more stringent requirements apply in those areas, including stricter controls on industrial facilities and more complicated and public permitting processes. TVA fossil fuel-fired plants can be impacted by these requirements. Currently, all TVA generating units are located in areas designated as attainment areas.

Revised Cross-State Air Pollution Rule. TVA power plants are subject to the EPA's Cross-State Air Pollution Rule ("CSAPR"). CSAPR addresses air pollution from upwind states in the United States that affect air quality in downwind states and is focused on NO_x and SO₂. To comply with CSAPR, TVA power plants must obtain one NO_x allowance for every ton of NO_x emitted during the ozone season. Under a revised version of CSAPR, the Shawnee Fossil Plant ("Shawnee") facility is subject to reduced ozone-season NO_x allowances and has been required to surrender most of its allowance inventory. TVA is monitoring forecasted needs and has purchased allowances for the Shawnee facility with plans to continue doing so as needed to comply with the rule in 2023. A longer-term compliance strategy for the facility is being developed that could include a combination of NO_x control upgrades, operational changes, and allowance purchases.

Proposed Federal Implementation Plan Addressing Regional Ozone Transport for the 2015 Ozone NAAQS. On April 6, 2022, the EPA issued a proposed Federal Implementation Plan ("FIP") to address cross-state air pollution with respect to the 2015 ozone NAAQS, and the comment period was subsequently extended on May 12, 2022. The proposed FIP establishes ozone-season NO_x allowance budgets that will apply to TVA electric generating units in Alabama, Kentucky, Mississippi, and Tennessee, beginning with the 2023 ozone season. It also establishes daily NO_x emissions limits applicable to TVA's individual coal-fired units. TVA is currently evaluating potential impacts from this proposal. A compliance strategy for affected facilities in Kentucky and Tennessee could include a combination of NO_x control upgrades, operational changes, and allowance purchases.

Mercury and Air Toxics Standards for Electric Utility Units. On January 31, 2022, the EPA proposed reaffirming that it is appropriate and necessary to regulate hazardous air pollutants ("HAP"), including mercury emitted from steam electric utilities. If adopted in its current form, the EPA's proposed rule addressing HAP would not change TVA's compliance requirements.

Environmental Agreements. In 2011, TVA entered into two substantively similar agreements, one with the EPA and the other with Alabama, Kentucky, North Carolina, Tennessee, and three environmental advocacy groups (collectively, the "Environmental Agreements"). To resolve alleged New Source Review claims, TVA committed under the Environmental Agreements to, among other things, take now-completed actions regarding coal units and invest \$290 million in certain TVA environmental projects. See Note 21 — *Commitments and Contingencies — Legal Proceedings — Environmental Agreements*, which discussion is incorporated herein by reference.

Acid Rain Program. The EPA's Acid Rain Program is intended to help reduce emissions of SO₂ and NO_x, which are the primary pollutants implicated in the formation of acid rain. The program includes a cap-and-trade emission reduction program for SO₂ emissions from power plants. TVA continues to reduce SO₂ and NO_x emissions from its coal-fired plants, and the SO₂ allowances allocated to TVA under the Acid Rain Program are sufficient to cover the operation of its coal-fired plants. In the TVA service area, the limitations imposed on SO₂ and NO_x emissions by the CSAPR program are more stringent than the Acid Rain Program. Therefore, TVA does not anticipate that the Acid Rain Program will impose any additional material requirements on TVA.

Regional Haze Program. The EPA issued the Clean Air Visibility Rule, which required certain older sources to install best available retrofit technology. No additional controls or lower operating limits are required for any TVA units to meet best available retrofit technology requirements. In 2017, the EPA published the final rule that changed some of the requirements for Regional Haze State Implementation Plans ("SIPs"). Specific impacts on TVA cannot be determined until future Regional Haze SIPs are developed for the next decennial review under the visibility haze provisions of the CAA. States were required to submit their Regional Haze SIPs to the EPA by July 31, 2021. In response to requests from state air pollution control agencies in Tennessee and Kentucky, TVA submitted regional haze analyses for its Cumberland and Shawnee facilities, respectively, to those state agencies. The reports evaluate SO₂ emission reduction options for these facilities and will be considered by these state agencies in preparing their Regional Haze SIPs. On August 25, 2022, the EPA issued a final action stating that 15 states, including Kentucky, failed to submit a complete SIP, which triggers a two-year deadline for the EPA to promulgate a FIP for the state unless Kentucky submits, and the EPA approves, a SIP satisfying the visibility protection requirements of the CAA. TVA cannot predict the outcome of the EPA's evaluation of the SIP submitted by Tennessee or the FIP to be developed by the EPA for Kentucky.

Start Up, Shutdown, and Malfunctions. Opacity, or visible emissions, measures the denseness or color of power plant plumes and has traditionally been used by states as a means of monitoring good maintenance and operation of particulate control equipment. Under some conditions, retrofitting a unit with additional equipment to better control SO₂ and NO_x emissions can adversely affect opacity emissions, and TVA and other utilities have addressed this issue. The evaluation of utilities' compliance with opacity requirements is coming under increased scrutiny, especially during periods of startup, shutdown, and malfunction. Historically, SIPs developed under the CAA typically excluded periods of startup, shutdowns, and malfunctions, but in June 2015, the EPA finalized a rule to eliminate such exclusions ("2015 Rule"). Environmental petitioners and several states filed petitions for judicial review of the 2015 Rule before the U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit"), and oral arguments were heard on March 25, 2022. Separately, on September 8, 2021, environmental petitioners filed a lawsuit to enforce the SIP calls under the 2015 Rule. On January 12, 2022, the EPA determined that Alabama and Tennessee (Shelby County) failed to submit a revised SIP as required by the 2015 Rule. On June 27, 2022, the EPA entered into a consent decree that would require the agency to take final action on SIP revisions submitted in response to the 2015 SIP call by dates ranging from 180 to 480 days from the date of the consent decree. TVA cannot predict the outcome of future SIP evaluations.

New York Petition to Address Impacts from Upwind High Emitting Sources. In 2018, the State of New York filed a petition with the EPA under Section 126(b) of the CAA to address ozone impacts on New York from the NO_x emissions from sources emitting at least 400 tons of NO_x in CY 2017 from nine states including Kentucky. The New York petition requests that the EPA require daily NO_x limits for utility units with selective catalytic reduction systems ("SCRs") such as Shawnee Units 1 and 4 and emission reductions from utility units without SCRs such as Shawnee Units 2, 3, and 5 - 9. Kentucky utility unit NO_x emissions are already limited under CSAPR and are declining, and current EPA modeling projects that no additional requirements to reduce Kentucky NO_x emissions are necessary. In 2019, the EPA finalized its denial of New York's petition. The State of New York filed a petition in the D.C. Circuit for judicial review of the EPA's denial of the petition, and in July 2020, the D.C. Circuit vacated the EPA's denial of the petition and remanded the petition to the EPA for reconsideration. Specific impacts to TVA cannot be determined until the EPA takes further action on the petition.

Affordable Clean Energy Rule. In 2019, the EPA finalized the Affordable Clean Energy ("ACE") rule addressing greenhouse gas ("GHG") emissions from existing fossil fuel-fired units. The ACE rule established guidelines, under Section 111(d) of the CAA, for GHG emissions from existing coal-fired units based on efficiency improvements that can be achieved at those units at reasonable cost. States were then required to adapt these guidelines into individual SIPs to be submitted to the EPA for its approval. Several industry, environmental, and state and local petitioners filed for judicial review of the ACE rule. On January 19, 2021, the D.C. Circuit vacated and remanded the ACE rule. On October 29, 2021, the U.S. Supreme Court accepted the request filed by a coalition of states and other parties to review the D.C. Circuit's decision to vacate the ACE rule. On June 30, 2022, the U.S. Supreme Court issued its decision in *West Virginia v. EPA*, in which it restricted the EPA's authority to regulate GHG from existing power plants under Section 111(d). The U.S. Supreme Court concluded that Congress did not grant the EPA authority under the CAA to demand generation-shifting to achieve reduction of GHG emissions, but the court did not hold that the EPA is limited in future rulemakings to just the heat-rate improvements that made up the ACE rule. The judgment of the D.C. Circuit was thus reversed and the case remanded for further proceedings consistent with the U.S. Supreme Court's opinion. TVA is unable to predict the future course of the litigation on remand, nor the direction that the EPA may take in the future to regulate GHG emissions from existing fossil fuel-fired units. As such, it is not possible at this time to predict the impacts the EPA's effort to develop a rule to replace the ACE rule will have on the level of GHG emissions control to be required at applicable TVA plants. On September 8, 2022, the EPA announced the opening of a non-rulemaking docket for public comments on the EPA's efforts to reduce GHG emissions from existing fossil-fuel fired electric generating units. Comments may be submitted to the EPA until March 27, 2023.

New Source Performance Standards. In 2018, the EPA proposed revisions to the 2015 GHG emission standards for new, modified, and reconstructed electric utility generating units required under Section 111(b) of the CAA. For coal-fired units, the EPA proposed to revise the current new source standards such that carbon capture and sequestration technology would no longer be necessary to meet the standards of performance that reflect the best system of emission reduction. The resulting limits are less stringent than limits under the 2015 rule and can be met by modern coal-fired units (e.g., supercritical steam generators) in combination with best operating practices, without carbon capture or sequestration. The EPA is not proposing to revise the new source performance standard in the 2015 rule for GHG emissions from gas-fired units. In January 2021, the EPA finalized a significant contribution finding for purposes of regulating source categories for GHGs under Section 111(b) of the Clean Air Act for electric generating units which was subsequently vacated and remanded. The 2015 GHG emission standards are currently in effect, and on September 8, 2022, the EPA announced the opening of a non-rulemaking docket for public comments on the EPA's efforts to reduce GHG emissions from new fossil-fuel fired electric generating units. Comments may be submitted to the EPA until March 27, 2023. Any formal rulemaking will have separate opportunities for public comment. In its spring 2022 Unified Regulatory Agenda, the EPA indicated that it is undertaking a comprehensive review of the new source performance standards for GHG emissions from electric utility steam generating units, including a review of all aspects of the 2018 proposed amendments and the requirements in the 2015 rule that the agency did not propose to amend in the 2018 proposal. TVA is unable to predict the direction that the EPA may take in the future to regulate GHG emissions from new, modified, or reconstructed fossil fuel-fired units.

Climate Change

Emissions. Though many of TVA's facilities continue to emit air pollutants, emissions from all TVA-owned and operated units (including small CTs of less than 25 MW) have been reduced from historic peaks. Emissions of NO_x and SO₂ began being regulated in 1995 and 1977, respectively. Emissions of NO_x and SO₂ have been reduced by 97 percent and 99 percent, respectively, since their initial year of regulation.

Emissions and Intensity Rates ⁽¹⁾		CY 2021	CY 2020
Nitrogen Oxide (NO_x)⁽²⁾			
Total NO _x Emissions (MT)		15,210	12,577
Total NO _x Emissions Intensity (MT/Net MWh)		0.000109	0.000094
Sulfur Dioxide (SO₂)⁽²⁾			
Total SO ₂ Emissions (MT)		25,226	17,082
Total SO ₂ Emissions Intensity (MT/Net MWh)		0.000181	0.000127
Mercury (Hg)			
Total Hg Emissions (kg)		22.3	17.5
Total Hg Emissions Intensity (kg/Net MWh)		0.0000002	0.0000001

Notes

(1) Intensity rates are calculated based on generation from TVA's most recent fiscal year for years indicated and emissions data from the most recent CYs.

(2) Emissions data is consistent with Edison Electric Institute Environmental, Social, Governance and Sustainability Report standards, which are based on metric tons ("MTs"), whereas overall CO₂ emission rates and baseline reductions from historical levels are based on short tons.

For CY 2021, TVA's emissions of carbon dioxide ("CO₂") from its owned and operated units, including purchased power and REC retirement adjustments which reduce the reportable CO₂ emissions, were 50 million tons, resulting in a TVA system average, as delivered, CO₂ emission rate of 638 lbs/MWh. This represents a 57 percent reduction in mass carbon emissions

from 2005 levels.

While TVA continues down the path of lowering emissions, including GHG emissions, there will be fluctuations in TVA's emission numbers. Between CY 2020 and CY 2021, TVA's GHG emissions reflect higher electricity usage in the Tennessee Valley as the region recovered from the effects of the Coronavirus Disease 2019 ("COVID-19") pandemic and experienced economic growth. Changes in the power supply mix between CY 2020 and CY 2021 also impacted the emissions fluctuation, as TVA continues to make operational decisions to keep the system reliable and deliver low-cost energy.

Executive Actions. President Biden has issued several executive orders relating to climate change.

On January 20, 2021, President Biden issued EO 13990, "Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis." EO 13990 directs federal agencies to review and revise regulations consistent with broad policy goals to improve public health and the environment, reduce GHG emissions, and prioritize environmental justice.

On January 27, 2021, President Biden issued EO 14008, "Executive Order on Tackling the Climate Crisis at Home and Abroad." EO 14008 seeks to promote safe global temperatures, increase climate resilience, and support low greenhouse gas emissions and climate-resilient development by, among other things, (1) using federal procurement authorities to achieve or facilitate (a) a carbon pollution-free electricity sector no later than 2035 and (b) clean and zero-emission vehicles for federal, state, local, and tribal government fleets, (2) putting the U.S. on a path to achieve net-zero emissions, economy-wide, by no later than 2050, and (3) establishing the Justice40 Initiative, instructing federal agencies to direct 40 percent of the benefit from eligible projects toward disadvantaged communities.

On May 20, 2021, President Biden issued EO 14030, "Climate-Related Financial Risk," which calls for a governmental-wide strategy on the disclosure of climate-related financial risk that includes, among other things, the measurement, assessment, mitigation, and disclosure of climate-related financial risk to federal government programs, assets, and liabilities in order to increase the long-term stability of federal operations.

On December 8, 2021, President Biden issued EO 14057, "Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability," which details the administration's policy to take a whole of government approach to lead by example to achieve a carbon pollution-free electricity sector by 2035 and net-zero emissions economy-wide by no later than 2050. Implementing Instructions for EO 14057 issued in August 2022 provided instructions to federal agencies regarding agency planning, reporting requirements, and accountability. Agencies must issue or revise existing agency policies, directives, and guidance, as appropriate, including employee training, to ensure alignment with the goals and requirements of EO 14057.

On September 12, 2022, President Biden issued EO 14082, "Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022." EO 14082 provides that in implementing the Inflation Reduction Act of 2022, federal agencies shall, as appropriate and to the extent consistent with law, prioritize, among other things, (1) driving progress to achieve the climate goals of the United States to reduce greenhouse gas emissions 50 to 52 percent below 2005 levels in 2030, achieve a carbon pollution-free electricity sector by 2035, and achieve net-zero emissions by no later than 2050, (2) advancing environmental and climate justice through an all-of-government approach, including through the Justice40 Initiative set forth in EO 14008, and (3) promoting construction of clean energy generation, storage, transmission, and enabling technologies through efficient, effective mechanisms that incorporate community engagement.

TVA is voluntarily pursuing multiple policies and programs in the Tennessee Valley that support the goals and policies of these executive orders. See *Actions Taken by TVA to Reduce GHG Emissions* below. TVA must consider executive orders within the context of statutory requirements imposed by Congress when carrying out its mission such as the TVA Act and the Energy Policy Act of 1992 that require power be sold at rates as low as feasible and the use of least-cost resource planning, respectively. TVA performs long-term least-cost resource planning through its Integrated Resource Plan process.

Paris Agreement. The United States is currently part of the Paris Agreement. The Paris Agreement tracks emissions targets through nationally determined contributions ("NDCs"). Each nation that is a party to the Paris Agreement is asked to prepare five-year, successive NDCs that it plans to achieve. On April 22, 2021, the Biden Administration announced its GHG NDCs for 2030 under the Paris Agreement, and these NDCs establish a new target for the U.S. to achieve a 50 to 52 percent reduction from 2005 levels in economy-wide net GHG pollution in 2030. Specific impacts to TVA cannot be determined at this time.

Litigation. Climate change issues have been the subject of a number of lawsuits, including lawsuits against TVA, and TVA may be subject to additional lawsuits in the future. See Note 21 — *Commitments and Contingencies — Legal Proceedings* for additional information.

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

Physical Impacts of Climate Change. Physical impacts of climate change may include, but not be limited to, changing weather patterns, extreme weather conditions, and other events such as flooding, droughts, wildfires, and snow or ice storms, and these events can impact TVA's system in terms of system operability, customer demand, and the health of regional economies. TVA has a Climate Change Action Plan which it updated in 2021 in support of EO 14008. TVA submitted its draft Climate Change Action Adaptation and Resiliency Plan to the White House in May 2021 and its final plan in August 2021. The goal of the action planning process is to ensure TVA continues to achieve its mission and program goals and to operate in a secure, effective, and efficient manner in a changing climate by integrating climate change adaptation efforts in coordination with state and local partners, tribal governments, and private stakeholders. TVA manages the risks proposed by climate change on its mission, programs, and operations within its environmental management processes, though such risks cannot be completely eliminated.

Actions Taken by TVA to Reduce GHG Emissions. TVA has reduced GHG emissions from both its generation facilities and its other operations. TVA Board actions have focused on further reducing GHG emissions from its generation fleet by evaluating the potential retirement of its coal-fired fleet, increasing its nuclear capacity, modernizing its hydroelectric generation system, increasing natural gas-fired generation, installing emission control equipment on certain of its coal-fired units, increasing its purchases of renewable energy, building solar facilities, and investing in energy efficiency initiatives to reduce energy use in the Tennessee Valley. Additionally, TVA has invested to increase energy efficiency in its operations and offers renewable energy programs. See *Power Supply and Load Management Resources — Renewable Energy Resources*. These changes support the broad electrification and carbon emission reduction efforts in other sectors of the economy. There are inherent challenges each year in both operations and asset changes. TVA will not sacrifice reliability at any time, which means that TVA must make certain operational decisions at times to keep the system reliable, possibly impacting annual performance on carbon emissions. Therefore, while TVA continues to strive to lower GHG emissions, there will be fluctuations in TVA's emission numbers resulting from changes in the power supply mix, weather impacts, economic conditions, and generating unit performance. As TVA evolves its generation portfolio, and after appropriate environmental review under NEPA, the TVA Board could make decisions about the timing, retirement, and replacement of aging fossil units or other expiring capacity, which may further TVA's CO₂ and other emissions reductions. The Environmental Policy also provides additional direction in several environmental stewardship areas related to reducing environmental impacts on the Tennessee Valley's natural resources, including reducing carbon intensity and air emissions.

Renewable/Clean Energy Standards

Thirty-eight states and the District of Columbia have established enforceable or mandatory requirements for electric utilities to generate a certain amount of electricity from renewable sources or have established a renewable goal. In 12 of those states and the District of Columbia, the requirement is for a 100% clean electricity standard or goal by 2050 or earlier. Two states within the TVA service area, North Carolina and Virginia, have mandatory renewable and clean energy goals that, while not applying directly to TVA, do apply to TVA's LPCs serving retail customers in those states. TVA's policy is to provide compliance assistance to any distributor of TVA power, and TVA is providing assistance to the covered LPCs that sell TVA power in North Carolina. In 2020, Virginia signed into law the Clean Economy Act. This act establishes a mandatory requirement for utilities to generate a certain amount of electricity from renewable sources. At this time, TVA is not impacted by the legislation due to the relatively small amount of electricity that TVA provides in Virginia compared to other utilities. Likewise, the Mississippi Public Service Commission adopted an energy efficiency rule applying to electric and natural gas providers in the state, and TVA is supplying information on participation in TVA's energy efficiency programs to support the covered Mississippi LPCs.

Water Quality Control Developments

Waters of the United States. In 2015, the EPA and the USACE issued the Clean Water Rule, which redefined waters of the United States ("WOTUS") in the agencies' regulations for the first time since the 1980s and was intended to clarify the regulatory jurisdiction of the EPA and the USACE ("2015 WOTUS Rule"). In April 2020, the USACE and the EPA issued the Navigable Waters Protection Rule ("NWPR"), which established a new regulatory definition of WOTUS and replaced the definition set forth in the 2015 WOTUS Rule. The NWPR was challenged in multiple courts. Two courts vacated the rule; two others declined to vacate it, instead remanding it to the EPA and the USACE. On June 9, 2021, the EPA and the USACE announced their intention to initiate a new rulemaking process to restore the definition of WOTUS that was in place prior to the 2015 WOTUS Rule and to develop a second new rule to establish a new definition of WOTUS. The rule to restore the pre-2015 WOTUS Rule definition was proposed in December 2021, and the EPA has not yet proposed a rule for a new definition of WOTUS. The impact of the rulemaking process cannot be ascertained at this time.

Cooling Water Intake Structures. In 2014, the EPA released a final rule under Section 316(b) of the CWA relating to cooling water intake structures ("CWIS") for existing power generating facilities. The rule requires changes in CWIS used to cool the vast majority of coal, gas, and nuclear steam-electric generating plants and a wide range of manufacturing and industrial facilities in the U.S. The final rule requires CWIS to reflect the best technology available ("BTA") for minimizing adverse environmental impacts, primarily by reducing the amount of fish and shellfish that are impinged or entrained at a CWIS. These new requirements will potentially affect a number of TVA's fossil- and nuclear-fueled facilities and will likely require capital upgrades to ensure compliance. Most TVA facilities are projected to require retrofit of CWIS with "fish-friendly" screens and fish return systems to achieve compliance with the new rule. The rule is being implemented through permits issued under the National Pollutant Discharge Elimination System ("NPDES") in Section 402 of the CWA. State agencies administer the NPDES

permit program in most states including those in which TVA's facilities are located. In addition, the responsible state agencies must provide all permit applications to the U.S. Fish and Wildlife Service for a 60-day review prior to public notice and an opportunity to comment during the public notice. As a result, the permit may include requirements for additional studies of threatened and endangered species arising from U.S. Fish and Wildlife Service comments and may require additional measures be taken to protect threatened and endangered species and critical habitats directly or indirectly related to the plant cooling water intake. TVA's review of the final rule indicates that the rule offers adequate flexibility for cost-effective compliance. The required compliance timeframe is linked to plant-specific NPDES permit renewal cycles (i.e., technology retrofits), and compliance activities have begun and are expected to continue through the 2028 - 2030 timeframe.

The EPA has never previously applied the requirements under Section 316(b) to hydroelectric facilities. However, on September 30, 2021, EPA Region 10, which covers an area outside TVA's service area, issued NPDES permits to four hydroelectric plants that include Section 316(b) requirements. In determining the BTA to minimize adverse impacts on the environment using best professional judgment, Region 10 analyzed the existing controls that the hydroelectric facilities were already implementing and concluded that those controls constitute BTA. It is not clear whether this approach will be adopted nationwide or how the BTA standard would be applied to TVA's hydroelectric facilities; accordingly, the specific impacts to TVA from the Region 10 permits cannot be determined at this time.

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

Steam-Electric Effluent Guidelines. In 2015, the EPA revised existing steam-electric effluent limitation guidelines ("ELGs"), which regulate water discharge pollutants and require the application of certain pollutant control technologies. The 2015 ELGs established more stringent performance standards for existing and new sources and required major upgrades to wastewater treatment options at all coal-fired plants. Compliance with new requirements was originally required in the CYs 2018 - 2023 timeframe, but the EPA delayed the compliance dates for flue gas desulfurization ("FGD") wastewater and bottom ash transport water until CYs 2020 - 2023 to allow the EPA time to review and potentially revise the ELGs with regard to these waste streams.

In October 2020, the EPA issued final revised ELGs for bottom ash transport water and FGD wastewater. The primary impact for TVA is on the operation of existing coal-fired generation facilities. The revised ELGs could impact long-term investment decisions being made relative to the long-term compliance and operability of these plants. The revisions may require TVA to install additional wastewater treatment systems for FGD wastewater and bottom ash transport water, and TVA could incur substantial costs to comply with the new rule. In addition, the revised ELGs could cause TVA to further reduce utilization of its coal-fired generation facilities or even to decommission such facilities. The revision also includes a subcategory for which Cumberland would qualify that provides TVA greater flexibility in meeting the ELGs. The revision includes two additional subcategories for low utilization units and units that cease coal combustion by the end of CY 2028. TVA is evaluating the applicability of those subcategories to its plants as appropriate. In October 2021, TVA filed Notices of Planned Participation preserving the option for TVA's Bull Run, Cumberland, and Kingston plants to participate in the subcategory for units that cease coal combustion by the end of CY 2028.

Petitions for judicial review of the October 2020 ELG rule were filed in the D.C. Circuit and the U.S. Court of Appeals for the Fourth Circuit (the "Fourth Circuit") and have been consolidated in the Fourth Circuit in the case *Appalachian Voices, et al. v. EPA*. On August 3, 2021, the EPA announced a supplemental rulemaking to revise the Steam Electric Power Generating Effluent Limitations Guidelines and Standards. As part of the rulemaking process, the EPA will determine whether more stringent limitations and standards are appropriate and consistent with the technology-forcing statutory scheme and the goals of the CWA. Because this rulemaking could result in more stringent ELGs, the EPA has requested that the *Appalachian Voices, et al. v. EPA* litigation in the Fourth Circuit be stayed pending the outcome of the supplemental rulemaking process.

Consistent with the 2020 rule, on January 8, 2021, TVA submitted requests to state regulatory authorities to modify NPDES permits for Kingston, Cumberland, Bull Run, Shawnee, and Gallatin Fossil Plant ("Gallatin") to incorporate into the permits limitations in the 2020 rule. The Kentucky Department for Environmental Protection issued a final revised permit for Shawnee in the fourth quarter of 2021 and an additional revision in the second quarter of 2022, and the Tennessee Department of Environment and Conservation ("TDEC") issued a final revised permit for Kingston in the first quarter of 2022. TDEC issued a final revised permit for Gallatin in May 2022, and TDEC issued a draft permit for Bull Run in August 2022. TVA anticipates TDEC will issue a draft permit for Cumberland later in 2022.

The Sierra Club and the Center for Biological Diversity administratively appealed the NPDES permit issued for Kingston. See Note 21 — *Commitments and Contingencies — Legal Proceedings — Administrative Proceeding Regarding National Pollutant Discharge Elimination System Permit for Kingston*.

Other Clean Water Act Requirements. As is the case in other industrial sectors, TVA and other utilities are also facing more stringent requirements related to the protection of wetlands, reductions in storm water impacts from construction activities,

new water quality criteria for nutrients and other pollutants, new wastewater analytical methods, and changes in regulation of pesticide application.

Cleanup of Solid and Hazardous Wastes

TVA Sites. TVA historical operations at certain facilities have resulted in releases of contaminants that TVA is addressing, including at TVA's Environmental Research Center at Muscle Shoals, Alabama. TVA has completed several removal, remedial, and characterization actions at the site, as required by a RCRA permit issued by the Alabama Department of Environmental Management ("ADEM"). At September 30, 2022, TVA's estimated liability for required cleanup and similar environmental work for those sites for which sufficient information was available to develop a cost estimate was approximately \$17 million and was included in Accounts payable and accrued liabilities and Other long-term liabilities on the Consolidated Balance Sheet. TVA has submitted an application for renewal of the RCRA permit. Although the current permit expired on September 27, 2022, ADEM has determined that TVA's permit application is complete, and the current permit will remain in effect until ADEM issues a new permit. Both the renewal process and the resulting renewed permit may include additional mandates for further remedial activities under RCRA's corrective action authorities. TVA has evaluated the potential impact that a permit renewal could have on its operations and does not believe that the renewal will have any adverse impacts at this time. In addition, the Environmental Research Center has an active groundwater monitoring program as part of a permitted corrective action plan.

Non-TVA Sites. TVA is aware of alleged hazardous-substance releases at certain non-TVA areas for which it may have some liability. See Note 21 — *Commitments and Contingencies — Environmental Matters*.

Coal Combustion Residuals. The EPA published its final rule governing CCR in 2015. The rule regulates CCR as nonhazardous waste under Subtitle D of RCRA and establishes standards for landfill and surface impoundment placement, design, operation, and closure; groundwater monitoring; corrective action; and post-closure care. While states may adopt the rule's requirements into their regulatory programs, the rule does not require states to adopt the requirements. The initial version of the rule provided for self-implementation by utilities and allowed enforcement through citizen suits in federal court. The Water Infrastructure Improvements for the Nation Act subsequently allowed state or federal-based permitting to implement the EPA's CCR rule instead of self-implementation and citizen suits. In 2020, the EPA issued the final Part A revision to its CCR rule. Among other things, the final Part A rule requires unlined CCR surface impoundments to stop receiving CCR and non-CCR wastestreams and to initiate closure or retrofit by no later than April 11, 2021. TVA ceased sending CCR and non-CCR wastestreams to, and initiated closure of, unlined CCR surface impoundments by the specified deadline. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Coal Combustion Residuals — Coal Combustion Residuals Facilities* for a discussion of the impact on TVA's operations, including the cost and timing estimates of related projects.

In addition to the requirements of the EPA's CCR rule, CCR landfills and surface impoundments will continue to be regulated by the states. In August 2015, TDEC issued an order that (1) established a process for TDEC to oversee TVA's implementation of the EPA's CCR rule and to ensure coordination and compliance with Tennessee laws and regulations that govern the management of CCR and (2) required TVA to investigate and assess CCR contamination risks at seven of TVA's eight coal-fired plants in Tennessee and to remediate any unacceptable risks. The TDEC order does not allege that TVA is violating any CCR regulatory requirements nor does it assess TVA penalties. The TDEC order sets out an iterative process through which TVA and TDEC will identify and evaluate any CCR contamination risks and, if necessary, respond to such risks. TVA submitted to TDEC an environmental assessment report ("EAR") for Allen in the fourth quarter of 2021 and an EAR for Cumberland in the third quarter of 2022. At TDEC's request, to address a potential data gap, TVA is conducting additional investigation work at Allen around the West Ash Disposal Area and will submit a revised EAR upon completion of that work. TVA is currently conducting environmental investigations for the remaining five sites in accordance with TDEC-approved Environmental Investigation Plans and will submit EARs to TDEC upon completion of the related investigations. Upon TVA's submittal of each EAR, TDEC will review the document and provide comments, and TVA will make revisions until TDEC approves a final EAR for each site. After the EARs are approved, TVA will submit Corrective Action/Risk Assessment Plans that will identify the unacceptable risks and TVA's proposed remediation. It is too early to accurately predict the scope of any remedial activities that may arise as a result of these pending investigations, and as such cost estimates for any required remedies are not possible to predict at this time.

In October 2019, TDEC released amendments to its regulations which govern solid waste disposal facilities, including TVA's active CCR facilities covered by a solid waste disposal permit and those which closed pursuant to a TDEC-approved closure plan. Such facilities are generally subject to a 30-year post-closure care period during which the owner or operator must undertake certain activities, including monitoring and maintaining the facility. The amendments, among other things, add an additional 50-year period after the end of the post-closure care period, require TVA to submit recommendations as to what activities must be performed during this 50-year period to protect human health and the environment, and require TVA to submit revised closure plans every 10 years.

Groundwater Contamination. The EPA, environmental groups, and state regulatory agencies are increasing their attention on alleged groundwater contamination associated with CCR management activities. As a result, TVA may have to change how it manages CCR at some of its plants, potentially resulting in higher costs. See Part II, Item 7, Management's

Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Coal Combustion Residuals — Coal Combustion Residuals Facilities* and — *Allen Groundwater Investigation* and Note 13 — Asset Retirement Obligations.

Environmental Investments

From 1970 to 2022, TVA spent approximately \$6.8 billion on controls to reduce emissions from its coal-fired power plants. In addition, TVA has reduced emissions by idling or retiring coal-fired units and relying more on cleaner energy resources including natural gas and nuclear generation.

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

SO₂ Emissions and NO_x Emissions. To reduce SO₂ emissions, TVA operates scrubbers on 18 of its coal-fired units and switched to lower-sulfur coal at certain coal-fired units. To reduce NO_x emissions, TVA operates SCRs on 18 coal-fired units, operates low-NO_x burners or low-NO_x combustion systems on 21 units, optimized combustion on all 25 units, and operates NO_x control equipment year round when units are operating (except during start-up, shutdown, and maintenance periods). TVA has also retired 34 of 59 coal-fired units. Except for seven units at Shawnee, the remaining coal-fired units in the TVA fleet have scrubbers and SCRs. See *Power Supply and Load Management Resources — Coal-Fired* above.

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

Greenhouse Gas Emissions. Various federal agencies, including the EPA and the Department of Commerce, may issue regulations establishing more stringent air and waste requirements, as well as GHG accounting requirements, and these requirements could result in significant changes in the structure of the U.S. power industry, especially in the eastern half of the country. There could be additional material costs if further reductions of GHGs, including CO₂, are mandated by legislative, executive, regulatory, or judicial actions and if more stringent emission reduction requirements for conventional pollutants are established. These costs cannot reasonably be predicted at this time because of the uncertainty of these actions.

Estimated Required Environmental Expenditures

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

	Estimated Potential Environmental Expenditures ⁽¹⁾⁽²⁾ As of September 30, 2022 (in millions)				Total
	2023	2024	2025 - 2027 ⁽³⁾⁽⁴⁾		
Coal Combustion Residual Program ⁽⁵⁾	\$ 286	\$ 382	\$ 232	\$ 900	
Clean Air Act control projects ⁽⁶⁾	24	33	71		128
Clean Water Act requirements ⁽⁷⁾	78	33	—		111

Notes

- (1) These estimates are subject to change as additional information becomes available and as regulations change.
- (2) These estimates include \$132 million, \$75 million, and \$41 million for 2023, 2024, and 2025 - 2027, respectively, in capital environmental expenditures. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Liquidity and Capital Resources — Cash Requirements*.
- (3) See Note 21 — *Commitments and Contingencies*.
- (4) These estimates do not include expenditures expected to be incurred after 2027.
- (5) Includes costs associated with the closure of facilities and landfill activities. TVA is continuing to evaluate the rules and their impact on its operations, including the cost and timing estimates of related projects. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Coal Combustion Residuals — Coal Combustion Residuals Facilities* and Note 13 — Asset Retirement Obligations.
- (6) Includes air quality projects that TVA is currently performing to comply with existing air quality regulations, but does not include any projects that may be required to comply with potential GHG regulations or transmission upgrades.
- (7) Includes projects that TVA is currently planning to comply with revised rules under the Clean Water Act regarding CWIS and ELGs for steam electric power plants.

Human Capital Management

People Strategy and TVA's Values

In 2022, TVA employees kept TVA's mission in focus and continued to create a culture that lives up to TVA's values - Safety, Integrity, Inclusion, and Service - all as pandemic headwinds persisted and as a competition for talent ensued. TVA employees collectively came together to address business needs and enable strong performance while serving the 10 million people of the Tennessee Valley.

As part of its People Advantage strategic priority, TVA strives to create a work environment that supports and responds

to the changing needs of the workforce. People Advantage is one of TVA's five strategic priorities and a multi-year commitment to evolve TVA's culture. The recent pandemic provided TVA the opportunity to demonstrate the importance of employee health, well-being, and retention by establishing action plans to address vaccine mandates and executive orders. TVA continues to strive to effectively demonstrate the value of its human capital and putting its people first by sustaining and evolving these programs.

The focus on People Advantage, along with the other four strategic priorities of Operational Excellence, Financial Strength, Powerful Partnerships, and Igniting Innovation, allows TVA to fulfill its daily mission of service to the people of the Tennessee Valley.

TVA's People Advantage priority is anchored on three specific pillars: (1) Inclusion with Diversity ("IwD"), (2) Talent, and (3) Engagement. To help shape an inclusive work environment that values all voices, TVA has intensified its efforts over the past few years to integrate diversity and inclusion into its culture and make its efforts and progress sustainable and a part of TVA's daily operations. Similarly, TVA has promoted a people-focused organization that amplifies and harnesses the energy, power, and creativity of an experienced and talented workforce - one that continues to bring about the best from its people - manifesting itself as a "destination for difference makers" for highly-skilled candidates. TVA is working to cultivate a positive employee experience to heighten workforce engagement. This work is focused on equipping leaders to champion engagement across the enterprise through the understanding and leveraging of employee surveys, workplace flexibility opportunities, and health, safety, and well-being programs.

Management illustrates its commitment to human capital by including a safety metric in its incentive compensation metrics that tracks serious injury incident rate and applies to all eligible participants in TVA's annual program. Compensation derived from this program is based on TVA performance and individual achievements. As a result, success in measures like safety and similar principles grounded in human capital matters helps TVA meet and exceed its goals in workforce engagement. TVA's transparency in this area was further illustrated by the inaugural release of its Diversity, Equity, Inclusion and Accessibility ("DEIA") report and appointment of its first-ever Chief Diversity and Inclusion Officer to help elevate the importance and visibility of inclusion and diversity both internally and externally. The DEIA report plays a critical role in TVA's ability to achieve its strategic priorities and to meet the objectives laid out by its People Advantage priorities discussed above, which are anchored in the pillars of IwD, Talent, and Engagement. The DEIA report builds upon TVA's transparency efforts by providing valuable insights into DEIA promotion in the workplace and DEIA promotion across the region and communities served. DEIA promotion in the workplace includes the establishment of TVA's first Chief Diversity and Inclusion Officer, IwD Council, Inclusion as a core value, and a dashboard for People Advantage metrics and for the facilitation of Employee Resource Groups ("ERGs") and union partnerships. DEIA promotion across the TVA region and communities served includes Home Uplift, School Uplift, the Community Care Fund, TVA's Supplier Diversity, and Diversity Alliance programs, among others.

Ethics

Ethics and integrity are highly valued at TVA. Since its establishment in 1933, a commitment to ethics has been a part of TVA's DNA. TVA's Ethics & Compliance office aims to help employees make the right decisions for the right reasons and offers guidance when the right decisions may not be clear. The office is focused on educating and creating awareness while also assisting employees with ethical decision-making inside and outside of the TVA workplace. Further, TVA requires all employees and certain contractors to take its annual ethics training and attest to its Code of Conduct, which sets forth standards for adhering to TVA's core values and conducting its affairs with openness, honesty, and integrity every day. In 2022, TVA contracted with Ethisphere® to take a deep dive review of TVA's corporate ethics and compliance program. After this review, TVA became the first federal agency to receive the Compliance Leader Verification™ certification.

TVA Board Governance and Oversight

The TVA Board's People and Governance Committee ("Committee") assists the TVA Board in fulfilling its responsibilities under the TVA Act by overseeing policies and strategies that affect a wide array of people-related programs inclusive of leadership development, culture, engagement, labor relations, safety, communications, compensation, performance incentives, benefits, and well-being. Specifically, the Committee advises the TVA Board in areas of overall Board governance, CEO goals, performance, compensation, and succession planning. Emergent people issues are discussed by this Committee, or in TVA Board briefings, as appropriate. The TVA Board's Audit, Finance, Risk, and Cybersecurity Committee oversees TVA's compliance and ethics programs.

Inclusion with Diversity

In 2020, TVA added Inclusion as one of its core values and adopted IwD as an enterprise-wide transformational strategic element. Since then, IwD has become increasingly integrated into TVA's daily operations. To accelerate the impact of IwD within TVA and the communities it serves, TVA is working to shape an inclusive work environment that values all voices, recognizes and sustains diversity as an imperative, and leverages the public power model to advance IwD in all TVA communities.

In 2022, TVA's initiatives and accomplishments in promoting diversity and inclusion included the following:

- Appointed TVA's first Chief Diversity and Inclusion Officer;
- Published TVA's inaugural DEIA Report;
- Affirmed a shift in performance goals for management and specialist employees for a second year from an "awareness" of inclusion to an action-oriented "demonstration of behaviors" of inclusion;
- Established Inclusion Councils, tasked with developing IwD strategies and plans within each of TVA's six strategic business units that align with IwD enterprise strategies and plans;
- Provided the business case for IwD to leaders, highlighting the proven business value of IwD;
- Released a "People Dashboard" to increase transparency into TVA's progress and performance;
- Initiated an independent assessment to identify people policies, processes, programs, and behaviors that could be improved to further drive inclusion and equity across TVA;
- Sustained TVA's inclusion score, which measures sense of belonging, at median of 72;
- Created leadership forums for safe and open conversations about diversity and inclusion, including the importance of leader commitment and ownership; and
- Maintained CEO accountability for reinforcement of IwD as an enterprise priority through assessment of the CEO's individual performance in 2022.

TVA continues to advance IwD in the communities it serves and is enhancing its economic development program support for women-, minority- and veteran-owned businesses. TVA has established a Supplier Diversity Stakeholder Advisory Council. One of the priorities of the council is the Supplier Diversity Mentoring Program, which is designed to support and position diverse suppliers seeking to do business with TVA. Specific skills enhancements include: inventory management, technology integration, accounting practices, program implementation, and continuous improvement. In addition, TVA has strengthened and focused IwD in the communities TVA serves, as part of advancing the public power model at TVA. This was accomplished through support of TVA's regional model, community engagement, and focused partnerships with deliberate outreach to LPCs and community-based organizations.

Employee Resource Groups. TVA is powered by its people and strengthened by its diversity. TVA supports eight ERGs to help strengthen an inclusive culture and make life better for the people it serves:

- ABLED Events — allows TVA employees to bring unique perspectives and gifts together as a united team to celebrate commonalities and differences through "Awareness Benefitting Leaders & Employees about disAbilities" in the workplace.
- ACTion — celebrates and honors the many Asian cultures represented within TVA, from Japan to India, and to the Philippines and beyond. It regularly highlights social events and supports career-enriching workshops.
- African American Voices — provides an avenue for African American and others interested in fellowship and smart career connections within TVA. It promotes mentoring and development opportunities, as well as group workshop events on such topics as personal branding, personal finance, and networking and negotiation skills.
- New Employee Network — makes life easier for new employees entering a large company. It provides organizational information and cross-functional connections not only on the front-end to new employees but throughout an employee's tenure at the company.
- Spectrum — highlights the open, accepting, and safe work environment TVA provides for all employees and focuses increasing visibility on educational and social opportunities on LGBTQ+ issues by offering employees a variety of community and professional networking opportunities within the Tennessee Valley.
- TVA & Amigos — provides an avenue for TVA's Hispanic employees and those interested in Latin culture to be involved in professional, educational, and service-oriented events.
- TVA Veterans Association — allows employees unique camaraderie opportunities as they support a wide array of local and national ceremonies and events and is one of the oldest and most active resource groups at TVA, with all branches of the military represented.
- Women Empowered — supports women at all stages of their careers and advocates for the equal rights of all

female employees across TVA. This extends externally as TVA supports inclusion, networking, and developmental opportunities for girls and young women in local communities.

Together, TVA and its employees collectively champion personal and professional growth through a network of professional, social, and volunteer opportunities made available by each ERG and TVA's diverse mix of employees.

Talent

To bring out the best from its people, TVA utilizes a set of business functions that operate together to address the enterprise's workforce needs around human capital talent selection, organization, development, engagement, and performance.

Attracting and Retaining Talent. TVA is enriched by the diversity of a talented, highly skilled workforce made up of people from all backgrounds. To achieve this, TVA endeavors to ensure that all qualified candidates receive fair consideration for open jobs at TVA and that all employees are encouraged, engaged, and empowered to contribute their talents and time while bringing their authentic selves to work each day. Recruiting efforts also support the strategic element of IwD to build a culture that lives up to TVA's values, as TVA actively recruits employees of all races, colors, sexual orientations, ethnicities, gender identities, abilities, religions, and ages. TVA continues to improve employment opportunities for underrepresented populations within TVA's workforce, to partner with colleges and universities for internships and recent graduates, and to maintain its status as a top industry employer for military veterans.

While TVA's voluntary attrition rate reflects a slight year-over-year rise, it aligns with TVA's historical rates over the past several years and further aligns with TVA's projection for 2023 at 2.4 percent. In addition, the TVA voluntary attrition rate in 2021 and 2022 fell well below the national, utility, and government benchmarks. The stability that results from retaining talent is an area of strength that is critical to TVA's success. TVA believes this is largely attributable to its People Advantage focus, which includes competitive compensation and comprehensive benefits programs, inclusion and well-being programs, flexible workplace practices, and an environment that promotes the retention of its complex and valuable workforce.

Competitive Total Rewards. TVA's total rewards package is a significant factor in attracting and retaining top talent. TVA's competitive benefits portfolio supports the values and needs of its employees. TVA provides market-based and competitive compensation which includes an annual incentive plan designed to reward accomplishments against established annual business and individual goals. All eligible employees participate in TVA's annual incentive plan, including TVA's represented employee population.

Additionally, in support of its cultural commitment to IwD, TVA periodically reviews compensation practices to promote fairness and equity. TVA has engaged third party vendors to conduct independent pay equity analyses and continues to monitor its pay practices and to provide its leaders with tools to assist in making equitable pay decisions.

To support and care for the well-being of employees and their families, examples of comprehensive and competitive benefits currently offered by TVA include:

- | | | |
|--|--|---|
| <ul style="list-style-type: none">• medical, vision, dental, life, accident, and disability insurance• behavioral and medical telemedicine• leave donation• paid time-off | <ul style="list-style-type: none">• flexible spending accounts• tuition reimbursement• 401(k) retirement• dependent scholarship program• flexible work schedules | <ul style="list-style-type: none">• well-being incentives• employee assistance programs• family caregiving benefits• family building benefits• health savings account |
|--|--|---|

Development and Training. As TVA continues to adapt to the evolving demands of the industry, it is imperative that it cultivate a work environment that motivates people to do their best work by aligning employee development, skills, and capabilities with what TVA needs to succeed now and in the future. TVA provides multiple training and development opportunities at all employee levels. Those opportunities include:

- | | | |
|--|---|---|
| <ul style="list-style-type: none">• individual learning-ability• career pathing, including rotational development | <ul style="list-style-type: none">• team learning• professional, technical, and leadership career pathways | <ul style="list-style-type: none">• mentoring• over 6,600 on-line learning courses |
|--|---|---|

TVA also invests in the development of its employees through tuition reimbursement for academic programs aligned with TVA's business and workforce development needs. In 2022, employees and contractors engaged in over 738,200 hours of training.

Leadership Development and Succession Planning. TVA encourages personal and professional development and has strategic leadership development programs designed to prepare employees to step into leadership positions and to accept the

additional responsibilities, expectations, and challenges faced by each level of leadership. TVA also has advanced leadership programs designed to further prepare leaders for executive level positions, which require an extensive interview and assessment process for selection. Through TVA's talent review and succession planning program, 98 percent of director and executive level roles have at least one succession candidate identified, with 94 percent having at least one ready-now succession candidate.

Continuous focus on and support of leadership development is maintained through means such as talent discussions at least annually at every level of the organization, which include attention to developing a diverse leadership pipeline. TVA has established goals for female and people of color representation in leadership and plans to update these goals to continuously improve this representation.

Engagement

Strong engagement levels impact all TVA strategic priorities. TVA's work in this key area is focused on enhancing the people experience by focusing on the whole person, maximizing engagement and organizational performance, equipping leaders to build an engaged workforce, and advancing the environment for active and ongoing communication between employees and leaders.

Employee Engagement Survey. TVA's Employee Engagement Survey is a key tool for understanding and leveraging the employee voice. The survey is administered a minimum of twice annually to all employees and measures overall engagement and drivers of engagement. The survey results provide real-time insights and analytics and are compared to a normative database comprised of other relative external benchmarks to help identify strengths and opportunities for improvement. Results from the surveys are shared with employees and used by TVA leadership and business units to improve and monitor progress against People Advantage objectives. Two scores are used as key People Advantage metrics: Engagement, which measures the sense of commitment and involvement, and Inclusion, which measures the sense of belonging at work.

Workplace Flexibility. As part of its People Advantage strategic priority, TVA strives to create a work environment that is welcoming, supportive, and responsive to the changing needs of the workforce. Recognizing the changing work environment, largely fostered by the COVID-19 pandemic, and the strength in performance that was achieved by the workforce in 2021, TVA continued "Reimagining How We Work" with the objective to maximize flexibility and performance. As TVA transitions out of the COVID-19 pandemic, it is exploring how to continue to work effectively and deliver on TVA's mission of service while providing flexibility to a workforce that includes on-site, field, and hybrid workers.

Safety, Employee Health, and Well-being. Safety is one of TVA's core values. TVA's safety program is based on the fundamentals of a safety management system, which includes management commitment, employee engagement, hazard recognition and control, worksite analysis, contractor safety management, training, review, and continuous improvement. TVA's safety training aims to educate employees on the elements of the safety program and foster a culture of awareness. In 2022, TVA launched an active shooter training series and enhanced existing programs regarding heat stress and various chemical awareness courses. Employees' tactical skills and knowledge are enhanced through participation in dynamic learning programs that teach employees how to work together safely.

Employee engagement is critical to the success of the program. TVA's vital safety behaviors are employee-driven and developed with the collaboration of represented employees, union leadership, and management. As a federal agency, TVA is also required to complete regulatory compliance inspections of its facilities on an annual basis.

In 2022, TVA Safety expanded efforts to recognize safety successes by recognizing contractors for the first time during the TVA Annual Safety Awards. TVA has also focused on engaging with industry leaders and developing internal safety talent through participation in Middle Tennessee Occupational Safety and Health Administration Council, the American Society of Occupational Safety Professional Executive Forum, and Edison Electric Institute, and appointment to the Department of Labor's Federal Advisory Council on Occupational Safety and Health.

TVA has provided support for its employees throughout the pandemic to ensure the retention of valuable talent and to enhance well-being. This support includes implementing emergency back-up care support for child and adult dependents, establishing a mental health advocacy program, providing unlimited Employee Assistance Program sessions, enhancing paid leave, and providing tutoring resources, onsite vaccination clinics, and wellness incentives for vaccinations. TVA's safety and well-being accomplishments in 2022 include a focus on psychological safety to enable a deeper understanding of how TVA's response to failure directly impacts employees and their ability to learn and improve, being a recipient of the Meritorious Award for work associated with the Middle Tennessee Federal Field Health and Safety Council, and maintaining top quartile serious injury performance.

Partnerships with Unions. TVA has a long-standing policy of acknowledging and working with recognized representatives of its employees, and that policy is reflected in long-term agreements to recognize the unions (or their successors) that represent TVA employees. TVA's labor construct is complex and unique. Primarily governed by the TVA Act, its labor population is different from private utility peers, with an influence that has the ability to reach national levels. Neither the federal labor relations laws covering most private sector employers, nor those covering most federal agencies, apply to TVA.

TVA's labor strategy is critical to the achievement of its strategic priorities as it prepares the workforce for the future. Its employees and contractors are represented by seven collective bargaining agreements and a total of 17 labor unions. This reflects 58 percent of TVA's workforce, or approximately 6,000 employees. TVA's partnerships with these unions go back more than 80 years and form the backbone of TVA and its ability to serve the people of the Tennessee Valley.

Recent accomplishments to strengthen the relationship between TVA and its labor unions include integrating union partners in TVA's comprehensive workforce optimization strategy, in alignment with operational and asset transition strategies that position TVA to meet strategic imperatives over the next decade; renewing the Collective Bargaining Agreement between TVA and the Engineering Association ("EA") through September 2024; establishing the Professionalism, Integrity, Excellence, Relationships, and Service team, which is a union-led partnership between the EA and TVA focused on enterprise issues that could be solved by leaders and employees; and collaborating with union partners in support of "We Work Everywhere to Serve" to provide structured flexibility to TVA's leaders and represented employees in how employees work.

Awards

Awards and other recognition help TVA understand its strengths, identify opportunities for improvement, bolster employee pride, and better attract and retain diverse talent. 2022 TVA recognition included:

- 2022 – Ethisphere® Compliance Leader Verification™ – first federal agency to receive certification
- Urban League of Greater Chattanooga, Inc. – Inclusion by Design Award
- 2022 VETS Indexes Employer Awards – VETS Indexes 5 Star Employer
- 2022 Military Friendly® Employers – Ranked No. 3
- 2022 Military Friendly® Supplier Diversity Program Award – Ranked No. 1; Top 10, three years in a row
- 2022 DiversityInc's – Top Companies for Utilities Award – Ranked No. 4
- Chief Learning Officer – 2022 Learning Elite Bronze
- 2022 Diversity Impact Award – Top 10 Diversity Action Award
- 2022 National Organization on Disability – Leading Disability Employer
- 2022 Forbes List of America's Best Employers by State – Ranked Top 15 in Tennessee for Fourth Consecutive Year
- One of the largest U.S. Contributor to Helmets to Hardhats Program

Key Metrics

TVA actively monitors internal metrics to remain aware of human capital trends and to strive to ensure that it is making measurable progress on its People Advantage objectives. Through monitoring sources such as data and performance dashboards, one-on-one engagements between leaders and employees, and engagement surveys, TVA obtains information that helps it understand its performance and make adjustments, as needed.

Key measures of success in TVA's People Advantage strategic priority are set forth below:

Performance Measure	Goal		Actual	
	2023	2022	2021	
People of color representation in leadership (%) ⁽¹⁾	11.0 %	10.4 %	9.6 %	
Female representation in leadership (%) ⁽¹⁾	20.0 %	19.2 %	18.0 %	
Diverse external hires (%) ⁽²⁾	40.0 %	41.4 %	39.4 %	
Voluntary attrition (%) ⁽³⁾	2.4 %	2.4 %	1.5 %	
Engagement (100-point scale) ⁽⁴⁾	Top Quartile (≥ 79)	81	82	
Inclusion (100-point scale) ⁽⁵⁾	Median (≥ 72)	72	74	
Recordable injuries (#) ⁽⁶⁾	32	54	30	
Serious injury incident rate ⁽⁷⁾	0.00	0.02	0.03	
Serious injury incidents ⁽⁷⁾	0	2	3	
Ethics violations	0	28	33	

[Table of Contents](#)

Notes

- (1) Defined as first line supervisors and above.
- (2) Defined as external hires who are female, persons of color, and persons with disabilities.
- (3) Voluntary Attrition measures and accounts for all employees who leave the business voluntarily during a fiscal year. The slight increase in voluntary attrition rates from 2021 to 2022 still aligns with historical TVA rates and remains significantly below those of the greater external market.
- (4) Based on score from Employee Engagement Survey defined as degree to which employees invest their cognitive, emotional, and behavioral energies toward positive organizational outcomes. The score of 82 reported in TVA's Annual Report on Form 10-K for the fiscal year ended September 30, 2021, was based on results from a February 2021 survey instead of results received later from a September 2021 survey (79). Benchmark data is provided by the third party administer of the survey, based on data collected from over 750 organizations. Benchmarks are updated at least annually using data from the previous 12-month period.
- (5) Based on score from Employee Engagement Survey defined as the degree to which employees sense they belong at work. The score of 74 reported in TVA's Annual Report on Form 10-K for the fiscal year ended September 30, 2021, was based on results from a February 2021 survey instead of results received later from a September 2021 survey (72). Benchmark data is provided by the third party administer of the survey, based on data collected from over 750 organizations. Benchmarks are updated at least annually using data from the previous 12-month period.
- (6) Retroactive cases may affect annual recordable injury counts as reported. The final number for 2021 reflects an adjustment from 29 to 30 due to a retroactive case submitted after filing the 2021 Annual Report.
- (7) Based on the Edison Electric Institute criteria developed by industry peers.

Workforce Demographics

Employee Demographics	2022	2021
Number of employees on September 30	10,390	10,192
Employees represented by collective bargaining unit	58% of employees represented, or approximately 6,000 employees	60% of employees represented, or approximately 6,000 employees
Trades and labor employees	3,198	3,261
Average tenure (years)	13	13
Average age	45.7	44.1

	All Employees		Leadership		New Hires	
	2022	2021	2022	2021	2022	2021
Female	2,159	2,076	288	270	276	211
People of Color	1,227	1,146	156	143	186	122
Military, Veteran	1,822	1,822	315	318	122	107
Disabled	773	779	114	112	38	24

Note

All data is based upon self-reported information provided to TVA.

In addition to the employees above, TVA also had approximately 16,200 and 15,500 contractors on September 30, 2022 and 2021, respectively, providing intermittent or full-time services. The majority of these contractors are managed by TVA suppliers that are providing services to TVA.

ITEM 1A. RISK FACTORS

The risk factors described below, as well as the other information included in this Annual Report on Form 10-K for the fiscal year ended September 30, 2022 (the "Annual Report"), should be carefully considered. Risks and uncertainties described in these risk factors could cause future results of TVA operations to differ materially from historical results as well as from the results anticipated in forward-looking statements. Although the risk factors described below are the ones that TVA considers material, additional risk factors that are not presently known to TVA or that TVA presently does not consider material may also impact TVA's business operations. See *Forward Looking Information* above for a description of some matters that could affect the below risks or generate new risks. The occurrence of any of the following could have a material adverse effect on TVA's cash flows, results of operations, or financial condition.

For ease of reference, the risk factors are presented in nine categories: (1) operational risks; (2) regulatory, legislative, and legal risks; (3) cybersecurity risks; (4) financial, economic, and market risks; (5) human capital and management risks; (6) risks related to the environment and catastrophic events; (7) accounting and financial reporting risks; (8) COVID-19 related risks; and (9) general risk factors.

OPERATIONAL RISKS

TVA may incur delays and additional costs in its major projects or may be unable to obtain necessary regulatory approval for them.

Among other projects, TVA is seeking to improve the reliability and resiliency of its transmission system, undertaking repairs at certain hydroelectric facilities and dams, building natural gas-fired facilities, and closing some coal-fired plants and their supporting infrastructure. These activities involve risks of overruns in the cost of labor and materials, as well

as potential delays, in beginning or completing these repairs, closures, or other projects. Further cancellation or delay of projects related to these activities may adversely affect TVA's cash flows, financial condition, and results of operations. Such cancellation or delays may result from, among other things, changes in market conditions, changes in laws or regulations, lack of productivity, human error, supply chain challenges, and the failure to schedule activities properly, TVA's inability to obtain the necessary regulatory approvals or licenses, TVA's decision to cancel construction of a facility or cancel another type of project, including due to delays, cost overruns, or changes in customer preferences, or changes in requirements applicable to how TVA conducts construction, repair, or closure activities.

Further, if projects are not completed according to specifications, TVA may suffer, among other things, delays in receiving licenses, reduced plant efficiency, reduced transmission system integrity and reliability, and higher operating costs.

TVA faces certain risks arising solely from its operation of nuclear units.

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

Hazard Risks. Hazards exist with the use of radioactive material in energy production, including management, handling, storage, and disposal. Further, a nuclear incident at one of TVA's facilities could have significant consequences including loss of life, damage to the environment, damage to or loss of the facility, and damage to non-TVA property. Although TVA carries certain types of nuclear insurance, the amount that TVA is required to pay in connection with a nuclear incident could significantly exceed the amount of coverage provided by insurance. 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 incident, per reactor. In addition, following an incident TVA may have to pay retrospective insurance premiums, and may experience a reduction in the availability of nuclear insurance, an increase in the cost of nuclear insurance, an increase in the costs of operating nuclear units, or increased regulation or restrictions on the construction, operation, and decommissioning of nuclear facilities. Moreover, federal legislation could impose revenue-raising measures on the nuclear industry to pay claims exceeding the limit for a single incident under the Price-Anderson Act. Further, the availability or price of insurance may be impacted by TVA's acts or omissions, such as a failure to properly maintain a facility, or events outside of TVA's control, such as an equipment manufacturer's inability to meet a guideline, specification, or requirement.

Decommissioning Costs. TVA maintains a Nuclear Decommissioning Trust ("NDT") for the purpose of providing funds to decommission its nuclear facilities. The NDT is invested in securities generally designed to achieve a return in line with overall equity and debt market performance. See Note 16 — *Fair Value Measurements — Investment Funds* for the NDT balance at September 30, 2022. TVA might have to make unplanned contributions to the NDT if, among other things:

- The value of the investments in the NDT declines significantly or the investments fail to achieve the assumed real rate of return;
- The decommissioning funding requirements are changed by law or regulation;
- The assumed real rate of return on plan assets, which is currently five percent, is lowered by the TVA Board or the actual real rate of return does not achieve the assumed rate;
- The actual costs of decommissioning are more than planned;
- Changes in technology and experience related to decommissioning cause decommissioning cost estimates to increase significantly;
- TVA is required to decommission a nuclear plant sooner than it anticipates; or
- The NRC guidelines for calculating the minimum amount of funds necessary for decommissioning activities are significantly changed.

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

Increased Regulation. The NRC has broad authority to adopt regulations related to the licensing, operating, and decommissioning of nuclear generation facilities and may adopt regulations as a result of events that occur at nuclear facilities in the U.S. or throughout the world, such as the events that occurred at Fukushima in 2011. These regulations can result in significant restrictions or requirements on TVA. For example, supplementary NRC rulemaking has been developed to mitigate beyond-design basis flooding and seismic events. To comply with existing, new, or modified regulations, TVA may be required to make substantial capital expenditures at its nuclear plants or make substantial contributions to the NDT. In addition, if TVA were to fail to comply with requirements promulgated by the NRC, the NRC has the authority to impose fines, shut down units, or modify, suspend, or revoke TVA's operating licenses.

Waste Disposal. TVA's nuclear operations produce various types of nuclear waste materials, including spent fuel. TVA has been storing the spent fuel in accordance with NRC regulations in anticipation that a final storage site for all such waste will be developed and put in operation by the U.S. government. If no such site is forthcoming or if no alternative disposal or reuse plan were developed, then TVA might be required to arrange for the safe and permanent disposal of the spent fuel itself. Such a requirement would cause TVA to incur substantial expense, including substantial capital expenditures, and could cause TVA to change how it operates its nuclear plants.

Availability of Components. Nuclear facilities require specialized components and access to intellectual property for operation. As the number of reliable suppliers of such components decreases and access to intellectual property is reduced, the availability of the components and access to the intellectual property also will likely decrease. If TVA were unable to secure either the original components, intellectual property, or replacements approved for use by the NRC, TVA might have to change how it conducts its operations, which may result in substantial expense. Further, limitations on global trade resulting from COVID-19 or limitations on global shipping could materially decrease the availability or increase the cost of necessary or desired equipment.

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

If operating issues were to develop with certain TVA nuclear power units that were not correctable, TVA may choose to shut down one or more units or be ordered to do so by the NRC. Returning the unit(s) to operation could be a lengthy and expensive process, or might not be feasible depending on circumstances. In either case, TVA's cash flows, results of operations, financial condition, and reputation may be negatively affected. As discussed below, TVA may retire certain fossil fuel facilities to achieve carbon reduction aspirations, which will likely cause TVA to be more reliant on nuclear generation. Further, as discussed below, not being able to operate all of TVA's nuclear units may cause TVA to rely more on forms of generation that produce more carbon, thus making it more difficult for TVA to meet its carbon reduction aspirations or meet reliability goals.

TVA's management and operation of CCR facilities expose it to additional costs and risks.

TVA operates coal-fired units which produce CCR as byproducts of the power production process. TVA contains its CCR in dedicated facilities operated by TVA. TVA has closed some of these facilities and is in the process of closing others. Many of these facilities do not have liners, as they were constructed prior to the requirement that such facilities be built with liners. TVA has been ordered by TDEC to undertake investigations at all CCR facilities in Tennessee. TVA has also been involved in litigation related to certain CCR facilities, and to resolve one such lawsuit, TVA agreed to remove or beneficially reuse some CCR material at Gallatin Fossil Plant ("Gallatin"). TVA could be subject to similar litigation or orders in the future and could be required to restrict or stop the use of some or all CCR facilities that were not required to be closed by the CCR Rule or relocate CCR material to lined facilities. Further, TVA has decided to move all CCR material at Allen Fossil Plant rather than closing the CCR facilities in place as originally planned, and moving the CCR material subjects TVA to additional costs and transportation-related risks. TVA may change its closure plans at other facilities depending on the particular facts of each situation, subject to the completion of any required environmental investigations or studies and any required approval of appropriate state regulators. The ultimate resolution of matters relating to CCR obligations could have a material adverse effect on TVA's cash flows, results of operation, and financial condition.

Physical attacks, threats, or other interference may damage or interfere with TVA's facilities and operations.

TVA has an extensive generation and transmission system and supporting infrastructure that includes, among other things, TVA's generation facilities and transmission infrastructure such as substations, towers, and control centers. Some of TVA's hydroelectric facilities include navigation locks for commerce along the Tennessee River system. TVA also operates flood control dams and supporting infrastructure. Because of TVA's status as a government corporation and TVA's role as predominantly the sole power provider for its service territory, individuals, groups, or nation states may target TVA with physical attacks or threats of such attacks. Although TVA's operations are protected by automated monitoring systems, designated TVA business units (TVA Police and Emergency Management), TVA employees, local law enforcement, or a combination thereof, it may not be possible to effectively deter or prevent such attacks. These attacks could pose health and safety risks, significantly disable or destroy TVA assets, interfere with TVA's operations, result in additional regulatory or security requirements, and otherwise negatively affect TVA's cash flows, results of operations, and financial condition.

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

Many of TVA's assets, including generation, transmission, navigation, and flood control assets, have been operating for several decades and have been in nearly constant service since they were completed. As such, they require regular maintenance, repair, and replacement in order to continue uninterrupted operation. Additionally, certain of TVA's newer assets utilize advanced technology that could experience technical or operating issues. The failure of TVA's assets or supporting infrastructure, including information technology systems, to perform as planned may cause health, safety, or environmental problems and may even result in events such as the failure of a dam, the inability to maintain a reservoir

at the normal or expected level, or an incident at a coal-fired, gas-fired, or nuclear plant or a CCR facility. If these assets or their supporting infrastructure were to fail to operate as planned, if necessary repairs or upgrades were delayed or could not be completed as quickly as anticipated, or if necessary spare parts were unavailable, TVA, among other things:

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

Any of these potential outcomes may negatively affect TVA's cash flows, results of operations, financial condition, and reputation.

TVA's operations present significant safety risks that are not able to be completely eliminated.

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

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

TVA's transmission facilities are directly interconnected with the transmission facilities of neighboring utilities and are thus part of the larger interstate power transmission grid. Certain of TVA's generation and transmission assets are critical to maintaining reliability of the transmission system. Additionally, TVA uses certain assets that belong to third parties to transmit power and maintain reliability. Accordingly, problems at other utilities as well as at TVA's facilities may cause interruptions in TVA's service to its customers, increase congestion on the transmission grid, or reduce service reliability. The increasing contribution of intermittent sources of power, such as wind and solar, as well as the retirement of coal-fired plants, may place additional strain on TVA's system, and additional transmission upgrades may be required to maintain reliability. Upgrades may include enhancements to existing lines and substations or new installations as necessary to provide adequate power transmission capacity, maintain voltage support, and ensure generating plant and transmission system stability.

TVA's supplies of fuel, purchased power, or other critical items may be disrupted or obtained at a higher cost than planned.

TVA purchases coal, uranium, natural gas, fuel oil, and electricity from a number of suppliers. TVA contracts for conversion of uranium into nuclear fuel and purchases other items, such as anhydrous ammonia, liquid oxygen, or replacement parts that are critical to the operation of certain generation assets. TVA also purchases power from other power producers when the purchase of such power is appropriate due to economic opportunities or operational concerns. TVA's reliance on purchased power may increase if the demand for power suddenly increases in TVA's service territory, and purchased power may become more costly, or perhaps be unavailable, if the demand for power also increases in surrounding service territories. The spike in natural gas prices in 2022 is a recent example of how external factors beyond TVA's control may significantly and unexpectedly increase the cost of an essential fuel resource. Examples of circumstances that may disrupt, or materially increase the cost of, the future delivery of fuel, purchased power, contracted services, or other critical supplies include but are not limited to physical attacks or cyber attacks; political developments, international trade restrictions or tariffs, or legal actions; mine closures or reduced mine production; increase in demand for power by other power systems which reduces the amount of power that is available for purchase by TVA; increases in fuel exports; environmental regulations affecting TVA's suppliers; or transportation or delivery constraints, including the failure of suppliers to timely deliver the services or supplies to TVA at budgeted costs due to force majeure events, shortages of raw materials, supply chain difficulties, increased cost of components and labor, availability of personnel being impacted by COVID-19, strikes, inflation, or similar events.

If one of TVA's suppliers were to fail to perform under the terms of its contract with TVA, TVA might have to purchase replacement fuel, power, or other critical supplies, perhaps at a significantly higher price than TVA is entitled to pay under the contract. In some circumstances, TVA may not be able to recover this difference from the supplier. In

addition, any disruption of TVA's supplies could require TVA to operate higher cost generation assets, thereby negatively affecting TVA's cash flows, results of operations, and financial condition. Moreover, if TVA were unable to acquire enough replacement fuel, power, or supplies, or were to have insufficient reserves to offset the loss, TVA may not be able to operate certain assets in the manner TVA determines is in its best interests or provide enough power to meet demand. As a result, power curtailments, brownouts, or even blackouts could occur.

Circumstances may arise that result in TVA changing its mix of generation assets.

TVA has determined that its power generation assets should consist of a mix of nuclear, coal-fired, natural gas-fired, and renewable power sources, including hydroelectric. In making this determination, TVA took various factors into consideration, including the anticipated availability of its nuclear units, the availability of non-nuclear facilities, the forecasted cost of natural gas and coal, the forecasted demand for electricity, achievement of its carbon reduction aspirations, and environmental compliance including the expense of adding air pollution controls to its coal-fired units. If any of these assumptions materially change or are impacted by subsequent events, TVA's generation mix may not address its operational needs in the most efficient and cost-effective manner. Additionally, reallocating the mix of power generation assets from the planned mix may result in additional capital and operational expense. Furthermore, achieving TVA's carbon reduction aspirations may require TVA to make significant capital investments, including investments in new technologies. TVA may retire coal-fired and natural-gas fired generation facilities sooner than planned in order to meet carbon reduction aspirations, which also may require significant capital expenditures or additional power purchases, potentially causing an adverse effect on TVA's cash flows, results of operations, financial condition, and reputation.

TVA may not be able to meet its carbon reduction aspirations, which may result in additional capital expenditures or higher operating expense.

The achievement of TVA's carbon reduction aspirations is subject to numerous risks beyond TVA's control that are difficult to predict and may prevent TVA from timely achieving such aspirations. Occurrences that may prevent TVA from achieving its carbon reduction aspirations in a timely manner include, but are not limited to, the following:

- Federal law or policy could restrict TVA's ability use natural gas or nuclear power, which are each essential for TVA to reduce its carbon emissions.
- TVA may not receive timely approval from federal and state regulators for construction and operation of new natural gas assets and attendant infrastructure (e.g., pipelines).
- TVA may have difficulty obtaining resources or labor needed to complete projects on time and within budget.
- Legal challenges may slow or restrict TVA's ability to replace coal generation with cleaner forms of energy. These challenges may, for instance, come in the form of direct legal challenges to TVA projects or through challenges to TVA's attempts to obtain necessary licenses and permits.
- Potential delays in projects, along with now-anticipated load growth, may force TVA to rely on coal powered generation more heavily, or longer, than it had previously projected.
- As to TVA's longer term carbon reduction aspirations, the development of new technology necessary to meet these aspirations may not occur as quickly, feasibly, or cost-effectively as necessary.
- TVA's unique federal least-cost planning obligations may prevent TVA from moving forward with carbon-free generation as quickly as utilities that do not have the same requirements.

REGULATORY, LEGISLATIVE, AND LEGAL RISKS

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

TVA is required to comply with comprehensive and complex laws, regulations, and orders. The costs of complying with these laws, regulations, and orders are substantial, and costs could be significantly more than TVA anticipates, especially with respect to environmental and nuclear compliance. In addition, TVA is required to obtain numerous permits and approvals from governmental agencies that regulate its business, and TVA may be unable to obtain or maintain all desired regulatory approvals. If there were a delay in obtaining desired regulatory approvals or if TVA were to fail to obtain or maintain any approvals or to comply with any law, regulation, or order, TVA may have to change how it operates certain assets, may be unable to operate certain assets, or may have to pay fines or penalties for continuing to operate the assets.

TVA's quasi-governmental status may interfere with its ability to quickly respond to the needs of its current or potential customers or to act solely in the interest of its ratepayers.

As a quasi-governmental entity, TVA has certain legal requirements that prevent it from responding as quickly to potential changes in the market or requests from current or potential customers as might be desired or in comparison to other utilities. For example, TVA is required to comply with the National Environmental Policy Act ("NEPA"), which

requires environmental reviews to be performed in connection with certain projects. The delay in responding to requests could damage relationships with current customers, deter potential customers from moving into TVA's service territory, or damage TVA's reputation.

TVA's nature as a quasi-governmental entity imposes additional pressures that most companies do not face, including most significantly the requirements to support economic development, simultaneously manage a river system for commerce, recreation, flood control, and power generation, and promote recreational opportunities within its service territory.

TVA funds these operations almost entirely from the sale of electricity. In addition, TVA must balance these obligations with the requirement to provide power at the lowest feasible rates. If TVA does not adequately communicate how it fulfills its various missions and the value it provides, its reputation may be harmed, which may result in political pressure to change its nature or operations as well as in the loss of public support.

TVA is involved in various legal and administrative proceedings, the outcomes of which may affect TVA's finances and operations.

TVA is involved in a wide range of legal and administrative proceedings and is likely to become involved in future additional proceedings in the ordinary course of business or as a result of, among other things, catastrophic events or environmental conditions arising from TVA property or areas where TVA has disposed of materials or property. The additional proceedings could involve, among other things, challenges to TVA's CCR facilities, challenges to TVA's natural gas-fired plants and related pipelines, nuisance suits involving TVA's coal-fired plants, challenges to the anti-cherrypicking provision, challenges under NEPA, and challenges to TVA's authority to set rates and enter into contracts. Although TVA cannot predict the outcome of the individual matters in which TVA is involved or will become involved, the resolution of these matters could require TVA to make expenditures in excess of established reserves and in substantial amounts. Similarly, resolution of any such proceedings may require TVA to change its business practices or procedures, incur additional capital or operational expense, change how it operates its fossil-fueled units, cease construction of new natural gas-fired plants, reduce emissions to a greater extent than TVA had planned, close existing CCR facilities sooner than planned, build new CCR facilities sooner than planned, build new CCR facilities that were not planned, cease operation of some coal-fired units, adjust its rates, or terminate or modify contracts. These events individually or in the aggregate could also have a material adverse effect on TVA's cash flows, results of operations, and financial condition. For a discussion of certain current material legal proceedings, see Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* and Note 21 — *Commitments and Contingencies — Legal Proceedings*.

New laws, regulations, or administrative or executive orders, or congressional actions or inactions, may negatively affect TVA's cash flows, results of operations, and financial condition, as well as the way TVA conducts its business in ways that are different from most other utilities.

Because TVA is a corporate agency and instrumentality established by federal law, it may be affected by a variety of laws, regulations, and administrative or executive orders that do not directly apply to other electric utilities. For example, federal legislation may expand or reduce TVA's activities, change its governance structure, require TVA to sell some or all of the assets that it operates, require TVA to take certain other operational or regulatory actions, reduce or eliminate the United States' ownership of TVA, or even liquidate TVA. Congress could act, or fail to take action, on various issues that may impact TVA, including but not limited to action or inaction related to the national debt ceiling or automatic spending cuts in government programs. Furthermore, federal administrative or executive orders could induce TVA to change the way it conducts its business. See Item 1, Business — *Environmental Matters — Climate Change — Executive Actions* for a discussion of recent executive orders regarding climate change.

Although it is difficult to predict new laws, regulations, or administrative or executive orders or congressional action or inaction, or how such laws, regulation, orders, actions, or inactions may impact TVA, some of the possible effects are described below.

TVA may lose its protected service territory.

TVA's service area is defined primarily by provisions of law and long-term contracts. The fence limits the region in which TVA or LPCs that distribute TVA power may provide power. The anti-cherrypicking provision precludes FERC from ordering TVA to transmit power for others if that power would be consumed within the TVA service area. State service territory laws limit unregulated third parties' ability to sell electricity to consumers. From time to time, there have been efforts to circumvent the protection of the anti-cherrypicking provision. For example, in 2021, four LPCs filed a complaint and petition with FERC to order TVA to provide transmission and interconnection service to the LPCs or other suppliers that want to serve them, although three of the four LPCs subsequently withdrew from the complaint and petition. See Note 21 — *Commitments and Contingencies — Legal Proceedings — Challenge to Anti-Cherrypicking Amendment*. In addition, the protections afforded by the anti-cherrypicking provision conceivably could be affected by future federal legislation. If FERC were to limit the application of the anti-cherrypicking provision or if federal legislation

were to eliminate or limit the application of the anti-cherrypicking provision without corresponding legislative modifications to the territorial limitations imposed by the fence, TVA's ability to respond to any resulting customer attrition would be constrained. Because TVA's ability to expand its customer base is constrained by the fence, reductions in demand have to be offset by such actions as reducing TVA's internal costs or increasing rates. Any failure of such measures to fully offset the reduced demand for power may negatively affect TVA's cash flows, results of operations, and financial condition.

TVA may become subject to additional environmental regulation.

New environmental laws, regulations, or orders may become applicable to TVA or the facilities it operates, and existing environmental laws or regulations may be revised or reinterpreted in a way that adversely affects TVA, including substantially increasing TVA's cost of operations, prompting the early retirement of generation facilities, or requiring significant capital expenditures. Possible areas of future laws or regulations include, but are not limited to, GHGs, CCR, ELGs, water quality, renewable energy portfolio standards, and natural gas production and transmission. See Item 1, Business — *Environmental Matters — Water Quality Control Developments* for a discussion of the EPA's new effluent limitation guidelines, Item 1, Business — *Environmental Matters — Cleanup of Solid and Hazardous Wastes — Coal Combustion Residuals* for a discussion of recent revisions to the EPA's CCR rule, and Item 1, Business — *Environmental Matters — Climate Change — Executive Actions* for a discussion of recent executive orders regarding climate change. Litigation may affect the timing and requirements of new regulatory proposals or may indirectly affect TVA, potentially even when TVA is not involved. Failure to comply with environmental 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.

TVA may become subject to additional NERC requirements.

TVA is subject to federal reliability standards that are set forth by NERC and approved by FERC. TVA recognizes that reliability standards and expectations continue to become more complex and stringent for transmission systems. Complying with these or additional requirements set forth by NERC may require significant capital expenditures and may negatively affect TVA's cash flows, results of operations, and financial condition.

TVA could become subject to other federal legislation aimed specifically at curtailing TVA's activities.

In addition to potential adverse impacts from changes to more general laws and regulations, because of TVA's federal-entity status, TVA could become subject to laws or other restraints specifically aimed at TVA, including but not limited to the following examples.

Divestment or Forced Sale of TVA Assets. From time to time, federal officials have suggested that the federal government should either divest TVA or require TVA to sell some or all of its assets, including its transmission system. Either event could trigger change of control provisions in certain material contracts or covenants in TVA's bond documents that concern the sale or disposal of a substantial portion of TVA's power properties. TVA may then, among other things, be required to pay off debt more quickly than anticipated, be unable to access credit facilities, or both. Additionally, the loss of the transmission system could interfere with TVA's operations and require TVA to contract for the transmission of electricity to customers, likely at a higher cost. These factors could negatively affect TVA's operations, change the way it conducts such operations, and increase costs.

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

Loss of TVA's Sole Authority to Set Rates. Under the TVA Act, the TVA Board has the sole authority to set the rates that TVA charges for electricity, and these rates are not subject to further regulation. This authority provides the TVA Board the flexibility to set rates at a level sufficient to generate adequate revenues to service TVA's financial obligations, properly operate and maintain its assets, and provide for reinvestment in its power program. If the TVA Board were to lose this authority, or if such authority were to be restricted, such as through becoming subject to an external review process or other regulatory oversight, such an occurrence could result in material adverse impacts on TVA's ability to meet financial obligations, operate its system in a manner that it considers most efficient or appropriate, and adapt its business to changing circumstances.

Loss of TVA's Authority to Manage the Tennessee River System. TVA's management of the Tennessee River system helps TVA effectively operate its power system. TVA's ability to integrate management of the Tennessee River system with power system operations increases power system reliability and reduces costs. Restrictions on how TVA manages the Tennessee River system could negatively affect its operations or increase costs.

Lowering of TVA's Debt Ceiling. The TVA Act provides that TVA may issue Bonds in an amount not to exceed \$30.0 billion outstanding at any time. On September 30, 2022, TVA had \$19.3 billion of Bonds outstanding (not including non-cash items of foreign currency exchange gain of \$150 million, unamortized debt issue costs of \$42 million, and net discount on sale of Bonds of \$82 million). Future federal legislation could lower TVA's debt ceiling or broaden the types of financial instruments that are covered by the ceiling, thus inhibiting TVA's ability to raise capital necessary for essential business functions or for investing in carbon free technologies.

Loss or Limitation of TVA's Authority to Manage Real Property Currently Entrusted to TVA. TVA's management of real property containing power generation and transmission structures, as well as that consisting of reservoir shorelines, is important for the effective operation of the power system. Restrictions on or the loss of the authority to manage these properties could negatively affect TVA's operations or increase costs.

CYBERSECURITY RISKS

TVA's facilities and information infrastructure may not operate as planned due to cyber threats to TVA's assets and operations.

TVA's operations are heavily computerized and include assets such as information technology and networking systems. As with all industries, the reliance on computerization and networking makes TVA a target for cyber attacks, and the risk of such attacks may increase as individual devices and equipment become accessible via the internet. TVA has been targeted by cyber attacks in the past and anticipates that it will be targeted in the future. These attacks may have been carried out, or in the future could be carried out, by individuals, groups, or nation states. Although TVA employs extensive cyber safeguards and works with industry specialists and relevant governmental authorities to deter, stop, or mitigate cyber attacks, it is possible that these measures might not prevent all attacks. Furthermore, as technology becomes more prevalent in energy infrastructure, TVA's infrastructure may be subject to increased cyber vulnerability in the future. Cyber attacks could come through one or more of a number of means, such as computer viruses, malicious or destructive code, phishing attacks, denial of service attacks, or ransomware. Cyber attacks may result in security breaches that may be detrimental to TVA operations, including third parties improperly accessing TVA's system and demanding ransom based on threats to expose sensitive data, including data from employees, customers, and financial parties, to gain operational control, or to expose security vulnerabilities specific to TVA's facilities. In such a case, a cyber attack could compromise sensitive data, significantly disrupt operations, require additional expenditures for cybersecurity, negatively affect TVA's cash flows, results of operations, financial condition, and reputation, and pose health and safety risks to TVA personnel and the customers and communities that TVA serves.

Because the investigation of any cybersecurity breach is inherently unpredictable and would require substantial time to complete, TVA may not be able to quickly remediate the consequences of any breach, which may increase the costs and enhance the negative consequences associated with a breach. Additionally, the theft, damage, or improper disclosure of sensitive data may subject TVA to penalties and claims from third parties or increased government oversight.

Cyber attacks on third parties could interfere with or harm TVA.

Many third parties on which TVA relies for services, including for transferring funds to non-TVA entities or receiving delivery of products in the ordinary course of business, are heavily computerized and use assets such as information technology and networking systems. If these third parties were to experience interferences from cyber attacks, which attacks have occurred and may continue to occur, the services they provide TVA could be disrupted. This disruption could interfere with TVA's ability to perform its obligations to others, transfer funds, obtain fuel or critical parts, supplies, or services, or make payments, which in turn could negatively affect TVA's cash flow, results of operation, financial condition, and reputation. Additionally, the theft, damage, or improper disclosure of sensitive data held by these third parties may subject TVA to further harm. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Safeguarding Assets — Cybersecurity* for a discussion of recent cyber attacks on third parties.

FINANCIAL, ECONOMIC, AND MARKET RISKS

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

On September 30, 2022, TVA's qualified pension plan had assets of approximately \$8.1 billion compared to liabilities of approximately \$10.5 billion. The plan is mature with approximately 22,000 retirees and beneficiaries receiving benefits of over \$700 million per year. The costs of providing benefits depend upon a number of factors, including, but not limited to, provisions of the plan; changing experience and assumptions related to terminations, retirements, and mortality; rates of increase in compensation levels; rates of return on plan assets; discount rates used in determining future benefit obligations and required funding levels; optional forms of benefit payments selected; future government regulation; and levels of contributions made to the plan.

The pension plan covers substantially all of TVA's full-time annual employees hired prior to July 1, 2014. Although the plan has been frozen to new participants since July 1, 2014, TVA's payment obligation under the pension plan is substantial and changes in any one or more of these factors could cause TVA's benefit expenditures under the plan to increase and significantly exceed TVA's planned contributions. Unfavorable financial market conditions, including those arising from the COVID-19 pandemic, may cause lower-than expected rates of return on plan assets, loss in value of the investments, and lower discount rates used in determining future benefit obligations. These changes would negatively impact the funded status of the plan and may require TVA to make contributions in excess of the amounts planned. Additional contributions to the plan and absorption of additional costs would negatively affect TVA's cash flows, results of operations, and financial condition.

TVA's reliance on debt markets may make TVA more vulnerable to being unable to meet cash requirements than private utilities that can issue equity securities.

TVA uses cash provided by operations together with proceeds from power system financings to fund its current cash requirements. TVA's power system financings consist primarily of the sale of Bonds and secondarily of alternative forms of financing, such as lease arrangements. It is critical that TVA continues to have access to the debt markets in order to meet its cash requirements. The importance of having access to the debt markets is enhanced by the fact that TVA, unlike most utilities, relies almost entirely on debt capital, since as a governmental instrumentality, TVA cannot issue equity securities. TVA's access to the debt markets could be negatively impacted by market disruptions, including disruptions that result from systemic risks to the banking system and the financial markets. Moreover, disruptions resulting from rapid increases in interest rates or expectations for future increases could impact TVA's ability to raise funds to finance its cash requirements.

TVA's debt ceiling could limit TVA's ability to carry out its business in the event that TVA were to approach or reach it.

Approaching or reaching the debt ceiling may negatively affect TVA's business by limiting TVA's ability to access capital markets and by increasing the amount of debt TVA must service without new debt capital. This occurrence may restrict TVA's ability to raise debt capital to acquire new power program assets or maintain existing ones, to carry out upgrades or improvements to existing assets or build new ones, to purchase power under long-term power purchase agreements, or to meet regulatory requirements. In addition, approaching or reaching the debt ceiling may lead to increased legislative or regulatory oversight of TVA's activities and could lead to negative rating actions by credit rating agencies.

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

TVA's current credit ratings are not based solely on its underlying business or financial condition but are based to a large extent on the legislation that defines TVA's business structure. Key characteristics of TVA's business defined by legislation include (1) the TVA Board's ratemaking authority; (2) the current competitive environment, which is defined by the fence and the anti-cherrypicking provision; and (3) TVA's status as a corporate agency and instrumentality of the United States. If Congress takes any action that effectively alters any of these characteristics, TVA's credit ratings could be downgraded. Although TVA Bonds are not obligations of the United States, TVA, as a corporate agency and instrumentality of the United States, may be impacted by a downgrade of the United States' sovereign credit ratings. Such a downgrade could, among other things, lead to a downgrade of TVA's credit rating. Additionally, future events that may negatively impact TVA's financial condition or reputation, including those discussed elsewhere in these Risk Factors, may lead to downgrades of TVA's credit ratings, and the criteria used by the credit rating agencies to assign ratings could be changed at any time, which could result in changes to TVA's ratings.

Downgrades of TVA's credit ratings may have material adverse effects on TVA's cash flows, results of operations, and financial condition, as well as on investors in TVA securities. Among other things, a downgrade could increase TVA's interest expense by increasing the interest rates that TVA pays on new debt securities that it issues. Such an increase may reduce the amount of cash available for other purposes, which may require TVA to borrow more, to reduce other expenses or capital investments, or to increase power rates. A downgrade may also result in TVA's having to post collateral under certain physical and financial contracts that contain ratings triggers. A downgrade below a contractual threshold may specifically prevent TVA from borrowing under four credit facilities totaling \$2.7 billion or posting letters of

credit as collateral under these facilities. As of September 30, 2022, there were \$704 million of letters of credit outstanding under these facilities. If TVA were no longer able to post letters of credit as collateral, TVA would likely have to post cash as collateral, which would negatively affect TVA's liquidity.

Further, a downgrade may lower the price of TVA securities in the secondary market, thereby negatively impacting investors who sell TVA securities after the downgrade and diminishing the attractiveness and marketability of TVA securities in the secondary market and for new TVA debt securities.

TVA relies on certain assumptions about the future that may turn out to be inaccurate.

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

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

The fence limits the area in which TVA or LPCs that distribute TVA power may provide power. Accordingly, TVA is limited in its ability to replace or attract new customers to offset reduced demand for electricity among its existing customers. Some of the factors that could reduce or change the demand for electricity include, but are not limited to, the following:

Economic Downturns or Recessions. The economic wake of the COVID-19 pandemic, as well as geopolitical developments involving Russia and/or China, could have adverse effects on the U.S. and global economies that may indirectly impact TVA's financial condition and results of operations due to the nature of TVA's business.

- Renewed economic downturns or a recession in TVA's service area or other parts of the United States could reduce overall demand for power and thus reduce TVA's power sales and cash flows, especially if TVA's industrial customers were to reduce their operations and thus their consumption of power.
- TVA could be further adversely affected by a downturn in the economy and financial markets, including differences in the recovery of specific economic sectors or regions of the Tennessee Valley and continued volatility in interest rates, commodity prices, investment performance, and foreign currency exchange rates.
- An extended slowdown in the recovery of the United States' economic growth, changes in the demand for commodities, or material changes in governmental policy could result in lower economic growth and thus lower demand for electricity in TVA's key markets.
- Contractual counterparties could be impaired in their ability to perform their obligations to TVA, or may choose to abandon contracts, which could result in more costly operation of TVA's facilities.

Loss of Customers. TVA could lose customers, particularly LPCs, if customers were to choose another utility to meet some or all of their power needs where available, pursue self-generation to meet some or all of their power needs, or move their operations outside of TVA's service territory. As of November 14, 2022, TVA had wholesale power contracts with 153 LPCs, and 80 LPCs had entered into Power Supply Flexibility Agreements with TVA that allow the LPCs 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. A significant portion of TVA's total operating revenues is concentrated in a small number of these LPCs. In May 2020, MLGW, which is TVA's largest LPC and accounts for nine percent of total operating revenues, published a draft Integrated Resource Plan to guide energy choices in the future, the outcome of which is uncertain. In addition, certain other LPCs are evaluating options for future energy choices. The loss of customers could have a material adverse effect on TVA's cash flows, results of operations, or financial condition, and could result in higher rates, especially because of the difficulty in replacing customers due to the fence. A significant loss of customers could also impact investor confidence, resulting in TVA paying higher rates on its securities.

Change in Demand for Electricity Generated from Renewable Sources. TVA has been adapting its generation mix to account for the growing preference for electricity generated by renewable sources, such as solar or wind. Demand by customers for power that is largely or exclusively generated from renewable sources may currently or in the future exceed TVA's ability to produce such power, and TVA might be compelled to change how it operates and may incur additional expense in meeting this demand.

Increased Utilization of DER. As the amount of DER grows on the TVA system, the need for TVA's traditional generation resources may be reduced, and the ability of the system to reliably and economically operate in conjunction with these DER may become more challenging. If TVA were unable to compensate for the resulting

decrease in demand for TVA electricity, TVA's cash flows, results of operations, and financial condition could be negatively impacted, likely resulting in higher rates and changes to TVA's operations.

Increased Energy Efficiency and Conservation. Increasingly efficient use of energy as well as conservation efforts and DER may reduce the demand for power supplied by TVA. Reductions, if TVA is unable to compensate for them by reducing its cost of production of electricity or by increasing rates, could negatively affect TVA's cash flows, results of operations, and financial condition and could result in changes to TVA's operations, especially if the reductions occur during an economic downturn or a period of slow economic growth. In addition, higher rates may lead to further reduced demand through increased conservation efforts and DER.

Changes in technology could affect relationships with customers, require TVA to change how it conducts its operations, or impact TVA's financial condition.

TVA's primary business is to sell power it produces, for the most part, from large facilities such as nuclear power plants, hydroelectric facilities, natural gas-fired facilities, and coal-fired units. TVA sells power to LPCs and directly served customers. Research and development activities are ongoing to improve existing and alternative technologies to produce or store electricity, including large-scale energy storage, gas or wind turbines, fuel cells, microturbines, solar cells, and distributed energy or storage resources. Advances in these or other alternative technologies could reduce the costs of such production methods to a level that will enable these technologies to compete effectively with traditional power plants such as those used by TVA. These technologies could be more appealing to customers and could lead them to pressure TVA to modify power contracts to allow customers to generate some of their own power requirements or purchase power from other suppliers. Other customers might also cease purchasing power from TVA altogether. To the extent that sales to such customers are reduced or eliminated, TVA's cash flows, results of operations, and financial condition could be negatively affected. TVA could also be required to modify how it operates its traditional plants or further modify its generation mix to reduce reliance on these facilities. Additionally, demand could change in terms of amount or timing as more devices and equipment become connected to the internet, allowing for real-time adjustments in consumption of power. Such increased control over power consumption could, among other things, affect how TVA operates its facilities or dispatches power, or require TVA to change its pricing structure or rates.

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

TVA is subject to a variety of market risks, including but not limited to the following:

Commodity Price Risk. TVA's rates may increase if prices of commodities critical to operations, including coal, uranium, natural gas, fuel oil, crude oil, construction materials, or emission allowances, were to increase. An increase in rates may reduce demand and negatively impact TVA's cash flows, results of operations, and financial condition.

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

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

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

Currency Exchange Rate Risk. Over the next several years, TVA expects to spend a significant amount of capital on various projects. A portion of this amount may be spent on contracts that are denominated in one or more foreign currencies. TVA's two issues of Bonds denominated in British pounds sterling are hedged by currency swap agreements. The value of the U.S. dollar compared with other currencies has fluctuated widely in recent years, including fluctuations in the U.S. dollar to British pound sterling exchange rate primarily driven by the

"BREXIT" vote for the United Kingdom to leave the European Union. If not effectively managed, foreign currency exposure could negatively impact TVA's counterparty risk, cash flows, results of operations, and financial condition.

The market for TVA Bonds might be limited.

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

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

Further, certain investors and underwriters use the environmental impact or sustainability of a company or industry as a criterion for deciding whether to invest in that company or industry. TVA's use of fossil fuels, among other things, could lead such investors or underwriters to not purchase TVA Bonds or reduce the attractiveness of TVA Bonds as compared to other investments, thereby limiting the market for TVA Bonds.

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

Payment of principal and interest on TVA securities is not guaranteed by the U.S government.

Although TVA is a corporate agency and instrumentality of the U.S. government, TVA securities are not backed by the full faith and credit of the United States. Principal and interest on TVA securities are payable solely from TVA's net power proceeds. Net power proceeds are the remainder of TVA's gross power revenues after deducting the costs of operating, maintaining, and administering its power properties and payments to states and counties in lieu of taxes, but before deducting depreciation accruals or other charges representing the amortization of capital expenditures, plus the net proceeds from the sale or other disposition of any power facility or interest therein. If TVA were to experience extreme financial difficulty and were unable to make payments of principal or interest on its Bonds, the federal government would not be legally obligated to prevent TVA from defaulting on its obligations. An inability to pay some or all of the principal or interest owed on a TVA security would likely have a negative impact on the market for TVA Bonds generally and TVA's financial condition, reputation, and relationship with the investment community, and could result in cross-defaults in other financial arrangements.

HUMAN CAPITAL AND MANAGEMENT RISKS

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

TVA's business depends on its ability to recruit and retain key executive officers as well as skilled professional and technical employees. Labor is subject to external factors that are beyond TVA's control, including the highly competitive market for skilled workers and leaders, inflation, the COVID-19 pandemic, and workforce participation rates. The inability to attract and retain an appropriately qualified, diverse, and inclusive workforce could adversely affect TVA's ability to, among other things, operate and maintain generation and transmission facilities, complete large construction projects, and successfully implement its continuous improvement initiatives. If Congress were to reduce the salary of TVA's CEO or otherwise amend TVA's compensation philosophy, TVA's ability to attract and retain key executives or other employees may be compromised.

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

Under the TVA Act, a quorum of the TVA Board is five members. Becoming a member of the TVA Board requires confirmation by the U.S. Senate following appointment by the President. This process has and could again in the future be subject to extended delays. The President may remove TVA Board members, and the TVA Board members may resign or otherwise leave office before a successor is commissioned. As a result, a delay in the appointment or confirmation of directors, or the removal of directors by the President, can threaten the TVA Board's quorum. The TVA

Board is responsible for, among other things, establishing the rates TVA charges for power as well as TVA's long-term objectives, policies, and plans. Accordingly, the loss of a quorum for an extended period of time would impair TVA's ability to change rates and to modify these objectives, policies, and plans. Such an impairment would likely have a negative impact on TVA's ability to respond to significant changes in technology, the regulatory environment, or the industry overall and, in turn, negatively affect TVA's cash flows, results of operations, financial condition, and reputation. The TVA Board currently has five members.

Changes in the membership of the TVA Board and TVA senior management could impact how TVA operates.

The TVA Board is comprised of up to nine part-time members serving staggered, five-year terms. One to two Board members' terms typically expire each year. In addition, there is always the possibility that one or more members of TVA's senior management may retire or otherwise leave TVA. The individuals filling either the TVA Board or senior management positions may wish to change how TVA operates in whole or in part. If the changes were not successful or TVA were unable to adapt properly to such changes, TVA's financial condition, results of operations, reputation, and relationship with customers could be negatively affected.

RISKS RELATED TO THE ENVIRONMENT AND CATASTROPHIC EVENTS

Weather conditions may hamper TVA's ability to supply power or negatively impact net revenue, and weather conditions may cause customers' demands for power to exceed TVA's then-present power supply capabilities.

Weather may have a material adverse effect on TVA's cash flows, results of operations, and financial condition, including through the following non-exclusive foreseeable scenarios:

- Extreme temperatures may increase the demand for power and require TVA to purchase power at high prices to meet customer demand, whereas unusually mild weather may result in decreased demand for power and lead to reduced electricity sales.
- In periods of below-normal rainfall or drought, TVA's low-cost hydroelectric generation may be reduced, requiring TVA to purchase power or use more costly means of producing power.
- Periods of either high or low levels of rainfall may impede river traffic, impacting barge deliveries of critical items such as coal and equipment for power facilities.
- High river water temperatures in the summer may limit TVA's ability to use water from the Tennessee or Cumberland River systems for cooling at certain of TVA's generating facilities, thereby limiting its ability to operate these generating facilities. This situation would be aggravated during periods of reduced rainfall or drought.
- Changes in the climate may make, or may be making, such shifts in weather more common or extreme. Climate change may cause catastrophic events like droughts, floods, wildfires, and snow or ice storms to occur more frequently in the Tennessee Valley region. In response, TVA may be required to, among other things, change its generation mix or change how it conducts its operations.

Events that affect the supply or quality of water from the Tennessee River system and Cumberland River system, or elsewhere, may interfere with TVA's ability to generate power.

An inadequate supply of water in the Tennessee River system and Cumberland River system could negatively impact TVA's cash flows, results of operations, and financial condition, including potentially reducing generation at TVA's hydroelectric plants, which may require TVA to increase reliance on more expensive generation sources or purchase more energy in the market likely at higher costs; negatively affecting generation at coal-fired and nuclear plants, which depend on water from the river systems near which they are located for cooling and for use in boilers where water is converted into steam to drive turbines; or negatively affecting generation at TVA's gas-fired facilities not located near a river, which nonetheless require alternative sources of water, such as from wells or local utility companies.

Further, the water for these purposes must be of a particular quality for use in TVA's equipment. When the available water is not of sufficient quality for TVA's use, TVA must either treat the water or obtain alternate sources. An inadequate supply of quality water could result, among other things, from periods of low rainfall or drought, the withdrawal of water from the river systems by governmental entities or others, incidents affecting bodies of water not managed by TVA, supply issues that affect water providers, or intrusive aquatic plants and animals such as eel grass, algae, and mussels that block cooling water intake pipes or otherwise interfere with the operation of TVA's generation facilities. While TVA manages the Tennessee River and a large portion of its tributary system to provide much of the water necessary for the operation of its power plants, the USACE operates and manages other bodies of water upon which some of TVA's facilities rely. Events at these bodies of water or their associated hydroelectric facilities may interfere with the flow of water and may result in TVA's having insufficient water quality to meet the needs of some of its generating plants. If TVA were to have insufficient water supply of the quality necessary to meet the needs of its plants, TVA may be required to reduce generation at its affected facilities to levels compatible with the available supply of quality water, or take additional steps that change how TVA conducts its operations or that otherwise cause TVA to incur additional expense.

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

TVA's cash flows, results of operations, and financial condition may be adversely affected, either directly or indirectly, by catastrophic events such as fires, earthquakes, explosions, solar events, electromagnetic pulses ("EMPs"), 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. These events, the frequency and severity of which are unpredictable, may, among other things, limit or disrupt TVA's ability to generate and transmit power; lead to legislative or regulatory changes that affect the construction, operation, and decommissioning of nuclear units and the storage of spent fuel; limit or disrupt TVA's ability to provide flood control and river management; reduce the demand for power; disrupt fuel or other supplies; require TVA to produce additional tritium; cause or exacerbate an economic downturn; require TVA to make substantial capital investments for repairs, improvements, or modifications; or cause or exacerbate instability in the financial markets.

These destructive or disruptive events may present special risks to TVA's nuclear plants. If public opposition to nuclear power were to make operating nuclear plants less feasible as a result of any of these events, TVA may be forced to shut down its nuclear plants. This would make it substantially more difficult for TVA to obtain greater amounts of its power supply from low or zero carbon emitting resources and to replace its generation capacity when faced with retiring or idling certain coal-fired units. Additionally, some studies have predicted that climate change may cause catastrophic events, such as droughts and floods, to occur more frequently or with greater intensity in the Tennessee Valley region, which could adversely impact TVA.

ACCOUNTING AND FINANCIAL REPORTING RISKS

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

TVA uses regulatory accounting to defer certain costs. To qualify for regulatory accounting, costs must meet certain accounting criteria and be approved for regulatory accounting treatment by the TVA Board in its capacity as TVA's regulator. When costs do not meet, or cease to meet, these criteria, or if the TVA Board were to disallow the treatment or were to cease to be TVA's sole regulator in such areas, TVA may not be able to defer those costs. Such an inability to defer costs would likely have a substantial impact on TVA's financial condition and results of operations and could impact the timing and amounts of TVA's rate recovery. For a discussion of regulatory accounting, see Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Critical Accounting Estimates*.

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

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

COVID-19 RELATED RISKS

The COVID-19 pandemic has adversely affected, and may continue to adversely affect, TVA's business, financial condition, and results of operations.

The extent to which the COVID-19 pandemic will impact TVA's business, financial condition, cash flows, and results of operations in the future is uncertain and will depend on numerous evolving factors beyond TVA's control including, among other things, the duration and severity of the pandemic, actions taken to contain its spread and mitigate its effects, including vaccination programs, and the broader impact of the COVID-19 pandemic on the country, the region's economy, and global trade. However, TVA reasonably anticipates that any of a prolonged outbreak, impacts of variants of COVID-19, and resulting commercial or social restrictions could have a material adverse impact on its business, financial condition, and results of operations, and could require TVA to change how it conducts certain operations, takes power under certain agreements, or dispatches its own facilities.

The economic wake of the COVID-19 pandemic could adversely impact TVA's ability to develop, construct, and operate facilities; could delay or prevent the completion of projects; or could lead to impairments of TVA's long-lived assets and accounts or loans receivable. Examples of potential impacts include delivery of force majeure notices from contractual counterparties, closure or reduced operation of global ports, or limitations on shipping key equipment as anticipated or at budgeted costs. These impacts could cause delays in construction projects or the performance of necessary maintenance to TVA's generation or transmission facilities, which could impact the availability of TVA's facilities for their intended operations.

GENERAL RISK FACTORS

TVA may not be able to implement its business strategy successfully.

TVA's financial condition and results of operations are largely dependent on the extent to which it can implement its business strategy successfully. TVA's strategy includes maintaining low rates, aligning operations and maintenance spending with revenues, being responsible stewards, living within its means, meeting reliability expectations, and providing a balanced portfolio, in light of TVA's strategic priorities. The strategic priorities are powerful partnerships, people advantage, operational excellence, igniting innovation, and financial strength. This strategy is subject to business, economic, and competitive uncertainties and contingencies, many of which are beyond TVA's control. Such uncertainties include customer energy-efficiency programs that are designed to reduce energy demand; energy-efficiency efforts by customers not related to TVA's energy-efficiency programs; increased customer use of DER, such as solar panels and other technologies, as well as the use of energy storage technologies; and macroeconomic factors impacting economic growth or contraction within TVA's service territory, which could affect energy demand. If TVA is unable to successfully implement its business strategy, TVA's financial condition and results of operations could be negatively affected. See Item 1, Business — *Environmental Matters and Human Capital Management*, Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges*, and Part III, Item 11, Executive Compensation — *Compensation Discussion and Analysis* for additional information regarding TVA's strategic objectives.

TVA's organizational structure may not adequately support TVA's anticipated business needs or enable it to meet the needs of its current or potential customers.

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

TVA may have difficulty adapting its business model to changes in the utility industry and customer preferences.

The traditional business model for power production, selling power from centrally located plants, is facing pressure from a variety of sources, including the potential for self-generation by current or potential customers, new technologies such as energy storage, and increased energy efficiency. These pressures may reduce the demand for TVA power. If TVA does not or cannot adapt to this pressure by adequately changing its business model, TVA's financial condition and results of operations could be negatively affected.

TVA's reputation may be negatively impacted.

As with any company, TVA's reputation is a vital element of its ability to effectively conduct its business. TVA's reputation could be harmed by a variety of factors, including: failure of a generating asset or supporting infrastructure; failure to effectively manage land and other natural resources entrusted to TVA; real or perceived violations of environmental regulations, including those related to climate change; real or perceived issues with TVA's safety culture or work environment; inability to meet its human capital management goals; inability to keep its electricity rates stable; involvement in a class-action or other high-profile lawsuit; significant delays in construction projects; occurrence of or responses to cyber attacks or security vulnerabilities; acts or omissions of TVA management or acts or omissions of a contractor or other third-party working with or for TVA, which actually or perceptively reflect negatively on TVA; measures taken to offset reductions in demand or to supply rising demand; or a significant dispute with one of TVA's customers.

Any deterioration in TVA's reputation may harm TVA's relationships with its customers and stakeholders, may increase its cost of doing business, may interfere with its ability to attract and retain a qualified, inclusive, and diverse workforce, may impact TVA's ability to raise debt capital, and may potentially lead to the enactment of new laws and regulations, or the modification of existing laws and regulations, that negatively affect the way TVA conducts its business.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

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

Generating Properties

At September 30, 2022, TVA-operated generating assets consisted of seven nuclear units, 25 active coal-fired units, 86 simple-cycle units (81 active units and five idled units), one cogeneration unit, 14 combined-cycle power blocks, 109 conventional hydroelectric units (106 active units and three units in long-term outage and unavailable for service), four pumped-storage hydroelectric units, five diesel generator units, and 13 solar installations. As of September 30, 2022, eight of the simple-cycle CTs and four of the combined-cycle power blocks were leased to special purpose entities ("SPEs") and leased back to TVA under long-term leases. See Note 11 — *Variable Interest Entities* and Note 14 — *Debt and Other Obligations — Lease/Leasebacks*. In addition, TVA is leasing the three Caledonia combined-cycle power blocks under a long-term lease. For a discussion of these assets, see Item 1, Business — *Power Supply and Load Management Resources*.

Net Capability

Net capability is defined as the ability of an electric system, generating unit, or other system component to carry or generate power for a specified time period. It does not include real-time bulk electrical system operating constraints such as transmission line loading limitations, fuel availability such as coal, gas, and seasonal river reservoir levels, fuel blend, severe weather events, intermittency of renewable resources associated with weather and other factors, environmental and/or other regulatory constraints, transmission system outages, generator outages, or generator derates. Summer net capability as presented in the table below reflects the expected output of individual resources at TVA's anticipated summer demand peak. The summation of those individual resources does not include the real-time bulk electrical system operating constraints previously noted. See also Item 1A, Risk Factors — *Operational Risks and Risks Related to the Environment and Catastrophic Events*.

[Table of Contents](#)

The following table summarizes TVA's summer net capability in MW at September 30, 2022:

SUMMER NET CAPABILITY At September 30, 2022					
Source of Capability	Location	Number of Units	Summer Net Capability (MW)	Date First Unit Placed in Service (CY)	Date Last Unit Placed in Service (CY)
TVA-Operated Generating Facilities					
Nuclear					
Browns Ferry	Alabama	3	3,662	1974	1977
Sequoyah	Tennessee	2	2,292	1981	1982
Watts Bar	Tennessee	2	2,278	1996	2016
Total Nuclear		7	8,232		
Coal-Fired					
Bull Run	Tennessee	1	765	1967	1967
Cumberland	Tennessee	2	2,470	1973	1973
Gallatin	Tennessee	4	976	1956	1959
Kingston	Tennessee	9	1,298	1954	1955
Shawnee	Kentucky	9	1,071	1953	1955
Total Coal-Fired		25	6,580		
Natural Gas and/or Oil-Fired⁽¹⁾⁽²⁾					
Simple-Cycle Combustion Turbine					
Allen ⁽³⁾	Tennessee	20	287	1971	1972
Brownsville	Tennessee	4	438	1999	1999
Colbert	Alabama	8	360	1972	1972
Gallatin	Tennessee	8	580	1975	2000
Gleason	Tennessee	3	455	2000	2000
Johnsonville	Tennessee	19	1,028	1975	2000
Kemper	Mississippi	4	292	2002	2002
Lagoon Creek	Tennessee	12	884	2001	2002
Marshall County	Kentucky	8	592	2002	2002
Subtotal Simple-Cycle Combustion Turbine		86	4,916		
Combined-Cycle Combustion Turbine					
Ackerman ⁽⁴⁾	Mississippi	1	713	2007	2007
Allen ⁽⁵⁾	Tennessee	1	1,106	2018	2018
Caledonia ⁽⁶⁾	Mississippi	3	765	2003	2003
John Sevier ⁽⁷⁾	Tennessee	1	871	2012	2012
Lagoon Creek ⁽⁸⁾	Tennessee	1	525	2010	2010
Magnolia	Mississippi	3	918	2003	2003
Paradise ⁽⁹⁾	Kentucky	1	1,100	2017	2017
Southaven	Mississippi	3	780	2003	2003
Subtotal Combined-Cycle Combustion Turbine		14	6,778		
Co-Generation					
Johnsonville	Tennessee	1	83	1975	2000
Total Natural Gas and/or Oil-Fired		101	11,777		
Hydroelectric					
Conventional Plants					
	Alabama	36	1,176	1925	1962
	Georgia	2	35	1931	1956
	Kentucky	5	223	1944	1948
	North Carolina	6	492	1940	1956
	Tennessee ⁽³⁾⁽¹⁰⁾	60	1,828	1912	1972
Pumped-Storage⁽¹¹⁾	Tennessee	4	1,654	1978	1979
Total Hydroelectric		113	5,408		
Diesel Generator					
Meridian	Mississippi	5	9	1998	1998
TVA Non-hydro Renewable Resources⁽¹²⁾					
TVA Other Nonrenewable Resources⁽¹²⁾			5		
Total TVA-Operated Generating Facilities			32,012		
Contract Renewable Resources⁽¹³⁾			324		
Power Purchase and Other Agreements - Renewable⁽¹⁴⁾			2,157		
Power Purchase and Other Agreements - Nonrenewable⁽¹⁴⁾			3,618		
Total Summer Net Capability			38,111		

Notes

- (1) See *Generating Properties* above for a discussion of TVA-operated natural gas and/or oil-fired facilities subject to leaseback and long-term lease arrangements.
- (2) As of September 30, 2022, 326 MW of peak firing short-term capability of simple-cycle combustion turbine units was not operational and would require additional investment for dependable use; therefore, this short-term capability is not presented in the table above.
- (3) As of September 30, 2022, TVA had five idled units at Allen Combustion Turbine Facility: Units 2, 3, 11, 17, and 18 and three units that were in long-term outage and unavailable for service at Wilbur Hydroelectric Facility: Units 1-3. These units are included in their respective locations in the table above; however, the capability from these units is excluded.
- (4) Ackerman Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).
- (5) Allen Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).
- (6) Caledonia Combined Cycle Plant ("Caledonia CC") is currently a leased facility operated by TVA.
- (7) John Sevier Combined Cycle Facility ("John Sevier CCF") is a single steam cycle unit driven by three gas turbines (3x1 configuration).
- (8) Lagoon Creek Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).
- (9) Paradise Combined Cycle Facility is a single steam cycle unit driven by three gas turbines (3x1 configuration).
- (10) Includes 86 MW of summer net capability associated with Hiwassee Hydro Unit 2. See Item 1, Business — *Power Supply and Load Management Resources* — *Conventional Hydroelectric Dams*.
- (11) See Item 1, Business — *Power Supply and Load Management Resources* — *Raccoon Mountain Pumped-Storage Plant* for a discussion of Raccoon Mountain Pumped-Storage Plant.
- (12) TVA owns approximately one MW of renewable solar capability among 13 solar installations and Allen Combined Cycle Facility has five MW of nonrenewable biomass capability that came online in 2022.
- (13) Contract Renewable Resources is capability from various historical renewable energy programs that consist of PPAs primarily with individuals and small businesses.
- (14) See Item 1, Business — *Power Supply and Load Management Resources* — *Power Purchase and Other Agreements* for information on renewable and non-renewable energy power purchase contracts. TVA sells the RECs resulting from some of this purchased power to certain customers. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Optimum Energy Portfolio* — *Renewable Power Purchase Agreements*.

Transmission Properties

TVA's transmission system interconnects with systems of surrounding utilities and, at September 30, 2022, consisted primarily of approximately 2,500 circuit miles of 500 kilovolt, 11,900 circuit miles of 161 kilovolt, and 2,000 circuit miles of other voltage transmission lines; 4,412 miles of fiber optic lines; 534 transmission substations, power switchyards, and switching stations; and 1,341 customer connection points (customer, generation, and interconnection).

Natural Resource Stewardship Properties

TVA operates and maintains 49 dams and manages approximately 11,000 miles of reservoir shoreline, 293,000 acres of reservoir land, 650,000 surface acres of reservoir water, and approximately 100 public recreation areas throughout the Tennessee Valley, including campgrounds, day-use areas, and boat launching ramps.

Additionally, TVA manages over 150 agreements for commercial recreation (such as campgrounds and marinas). As part of its stewardship responsibilities, TVA approval is required to be obtained before any obstruction affecting navigation, flood control, or public lands can be constructed in or along the Tennessee River and its tributaries. These public lands and waters managed by TVA provide both conservation and responsible recreation.

Buildings

TVA has a variety of buildings and structures located throughout its service area including generation and transmission facilities, corporate offices, customer service centers, power service centers, warehouses, visitor centers, and crew quarters. Two significant buildings are its Knoxville Office Complex and the Chattanooga Office Complex ("COC") in Tennessee.

TVA continues to study its real property portfolio as part of the Strategic Real Estate Plan, which is aimed at reducing cost, right-sizing the portfolio, and aligning real estate holdings with TVA's strategic direction. In addition, as a result of the COVID-19 pandemic, TVA continues to assess a hybrid work environment for those who do not have to be physically present at TVA offices. TVA is also assessing and reviewing the pandemic's long-term impacts to the real property portfolio, including the COC.

Disposal of Property

TVA has broad authority to dispose of personal property but only limited authority to dispose of real property. TVA's primary, but not exclusive, authority to dispose of real property is as follows: TVA has authority to dispose of surplus real property at a public auction; TVA may dispose of real property for certain specified purposes, including providing replacement lands for certain entities whose lands were flooded or destroyed by dam or reservoir construction, providing real property for recreational use, and granting easements and rights-of-way upon which are located transmission or distribution lines; TVA can dispose of real property in connection with the construction of generating plants or other facilities under certain circumstances; and TVA has authority to grant easements for rights-of-way and other purposes.

The Basic Tennessee Valley Authority Power Bond Resolution adopted by the TVA Board on October 6, 1960, as amended on September 28, 1976, October 17, 1989, and March 25, 1992 (the "Basic Resolution") prohibits TVA (1) from mortgaging any part of its power properties and (2) from disposing of all or any substantial portion of these properties unless TVA provides for a continuance of the interest, principal, and sinking fund payments due and to become due on all outstanding Bonds, or for the retirement of such Bonds.

ITEM 3. LEGAL PROCEEDINGS

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting 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 Legal Proceedings involving TVA, see Note 21 — *Commitments and Contingencies — Legal Proceedings*, which discussion is incorporated by reference into this Item 3.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

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

Not applicable.

ITEM 6. RESERVED

Not applicable.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

(*Dollars in millions except where noted*)

The following Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is intended to help the reader understand the Tennessee Valley Authority ("TVA"), its financial condition, results of operations, and cash flows, and its present business environment. The MD&A is provided as a supplement to, and should be read in conjunction with, TVA's consolidated financial statements and the accompanying notes thereto contained in Item 8, Financial Statements and Supplementary Data of this Annual Report on Form 10-K for the fiscal year ended September 30, 2022 (the "Annual Report"). See 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, 2021, filed with the Securities and Exchange Commission ("SEC") on November 12, 2021, for a discussion of variance drivers for the year ended September 30, 2021, as compared to the year ended September 30, 2020. The MD&A includes the following sections:

- Business and Mission — a general description of TVA's business, objectives, strategic priorities, and core capabilities;
- Executive Overview — a general overview of TVA's activities and results of operations for 2022;
- Results of Operations — an analysis of TVA's consolidated results of operations for 2021 and 2022;
- Liquidity and Capital Resources — an analysis of cash flows, a description of aggregate contractual obligations, and an overview of financial position;
- Key Initiatives and Challenges — an overview of current and future initiatives and challenges facing TVA;
- Critical Accounting Estimates — a summary of significant estimates, judgments, and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes;
- Legislative and Regulatory Matters — a summary of laws and regulations that may impact TVA; and
- Risk Management Activities — a description of TVA's risk governance and exposure to various market risks.

Business and Mission

Business

TVA operates the nation's largest public power system. At September 30, 2022, TVA had 58 directly served customers, which include seven federal agency customers, and 153 local power company customers ("LPCs") that serve approximately 10 million people in parts of seven southeastern states. TVA generates nearly all of its revenues from the sale of electricity, and in 2022 revenues from the sale of electricity totaled \$12.4 billion. As a wholly-owned agency and instrumentality of the United States ("U.S."), however, TVA differs from other electric utilities in a number of ways:

- TVA is a government corporation.
- The area in which TVA sells power is limited by the Tennessee Valley Authority Act of 1933, as amended (the "TVA Act") under a provision known as the "fence"; however, another provision of federal law known as the Anti-Cherrypicking Amendment ("ACPA") generally protects TVA from being forced to provide access to its transmission lines to others for the purpose of delivering power to customers within substantially all of TVA's defined service area.
- The rates TVA charges for power are set solely by the TVA Board of Directors ("TVA Board") and are not set or reviewed by another entity, such as a public utility commission. In setting rates, however, the TVA Board is charged by the TVA Act to have due regard for the primary objectives of the TVA Act, including the objective that power be sold at rates as low as feasible.

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

TVA's Mission of Service

TVA was built for the people, created by federal legislation, and charged with a unique mission - to improve the quality of life in a seven-state region through the integrated management of the region's resources. TVA's mission focuses on three key areas:



ENERGY

ENVIRONMENT

**ECONOMIC
DEVELOPMENT**

- Energy — Delivering reliable, low cost, clean energy;
- Environment — Caring for the region's natural resources; and
- Economic Development — Creating sustainable economic growth.

[Table of Contents](#)

While TVA's mission has not changed since it was established in 1933, the climate in which TVA operates continues to evolve. The business and economic environment has become more challenging due to economic conditions; tougher environmental standards; and the need to diversify its power supply and adapt to changing customer usage behaviors, new technologies, and emerging, non-traditional competition. To continue to deliver its mission of service while evolving for future success, TVA must realize five strategic priorities, which are comprised of several strategic elements each:

				
People Advantage	Operational Excellence	Financial Strength	Powerful Partnerships	Igniting Innovation
Accelerate the impact of inclusion with diversity within TVA and the communities TVA serves	Nation's top nuclear fleet by 2025	Deliver value to enhance prosperity in the Tennessee Valley	Enhance TVA's role as a community leader and trusted partner	Advance energy transformation in the Tennessee Valley through innovation
Create an enterprise talent strategy that will bring TVA's business priorities to life	Evolve TVA's reliable and clean energy supply into the energy system of the future	Balance commitments and obligations	Champion the unique value of the Tennessee Valley public power model	Establish a focused innovation framework and mindset
Cultivate a positive employee experience to heighten workforce engagement and performance as TVA works everywhere to serve	Lead the industry in reliable, resilient, cost-effective carbon reduction	Develop long-term business model	Region's top choice for business and industry	
	Build the integrated and reliable grid of tomorrow	Achieve sustainable debt level	Meet resource and environmental stewardship commitments	

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

Linking the Mission to Performance

TVA has formulated key performance measures to support its strategic priorities. The intent of these measures is to align employees to TVA's mission by focusing its collective efforts on operational excellence, fiscal responsibility, economic development, and environmental stewardship. The measures are designed to promote teamwork, encourage high performance behaviors, and motivate TVA employees to achieve goals aligned with TVA's mission and values. The 2022 corporate results compared with targets for these key measures are reflected in the chart below, and the subsequent chart reflects the 2023 approved corporate measures. See Part III, Item 11, Executive Compensation — *Compensation Discussion and Analysis* for information regarding how the measures are calculated.

2022 Corporate Measure	Weight	Actual	Threshold	Target	Stretch
TVA total spending (\$ millions)	40%	\$ 5,580	\$ 6,482	\$ 6,291	\$ 6,100
Load not served (system minutes)	30%	4.5	4.5	3.9	3.2
Annualized nuclear online reliability loss factor (%)	15%	1.13 %	3.73 %	2.71 %	1.69 %
Combined cycle equivalent availability factor (%)	10%	83.3 %	75.0 %	80.0 %	84.9 %
Coal equivalent availability factor (%)	5%	74.9 %	58.2 %	63.2 %	69.6 %

2023 Corporate Measure	Weight	Threshold	Target	Stretch
TVA total spending (\$ millions)	40%	Budget		
Load not served (system minutes)	30%	4.5	3.9	3.2
Annualized nuclear online reliability loss factor (%)	15%	3.14 %	2.00 %	1.26 %
Combined cycle equivalent availability factor (%)	10%	78.6 %	83.6 %	89.0 %
Coal equivalent availability factor (%)	5%	58.8 %	63.8 %	73.3 %

Executive Overview

TVA's operating revenues were \$12.5 billion and \$10.5 billion for the years ended September 30, 2022 and 2021, respectively. Operating revenues increased for the year ended September 30, 2022 as compared to 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 natural gas, coal, and purchased power market prices. In addition, higher sales volume primarily due to economic growth in the Tennessee Valley region and an increase in cooling degree days contributed to the increase in operating revenue. In May and June 2022, TVA experienced multiple record-setting peak and daily energy records for these months, and the TVA power system was able to deliver energy reliably through these demands.

Total operating expenses increased \$2.5 billion for the year ended September 30, 2022 as compared to the prior year, primarily due to increases in Fuel expense, Purchased power expense, and Depreciation and amortization expense. Fuel and purchased power expense contributed to \$1.8 billion of the increase primarily due to higher effective fuel rates and market prices of purchased power and less availability of lower cost TVA-operated generation due to the outage at Watts Bar Unit 2 for its steam generator replacement project and fewer significant rain events. Depreciation and amortization expense increased \$521 million as compared to the prior year. This increase was primarily driven by the implementation of a new depreciation study during the first quarter of 2022, which included a decline in the service life estimates of TVA's coal-fired plants based on current planning assumptions to potentially retire the remainder of the coal-fired fleet by 2035. In addition, increases in amortization expense of decommissioning costs recovered in rates and depreciation due to additions to completed plant also contributed to the increase.

In the second quarter of 2022, the TVA Board approved a programmatic approach to exploring advanced nuclear technology (the "New Nuclear Program"). The New Nuclear Program provides a systematic roadmap for TVA's exploration of advanced nuclear technology. It also coordinates TVA's collaborative efforts with other utilities, government agencies, research institutions, and organizations on advanced nuclear technologies.

In May 2022, Boone Dam was re-opened to the public, after a sinkhole was discovered near the base of the embankment in 2015, and the reservoir has now returned to normal operations. In July 2022, TVA returned Watts Bar Unit 2 to service after an outage to replace the originally installed steam generators was completed, which began in March 2022. The project included removal of all four original steam generators and installation of four new, more efficient steam generators that will support reliable, carbon-free generation in the Tennessee Valley. In addition, in 2022 TVA continued to make investments in and work on projects such as the new system operations center, energy management system, fiber optic network, and natural gas-fired units, among others.

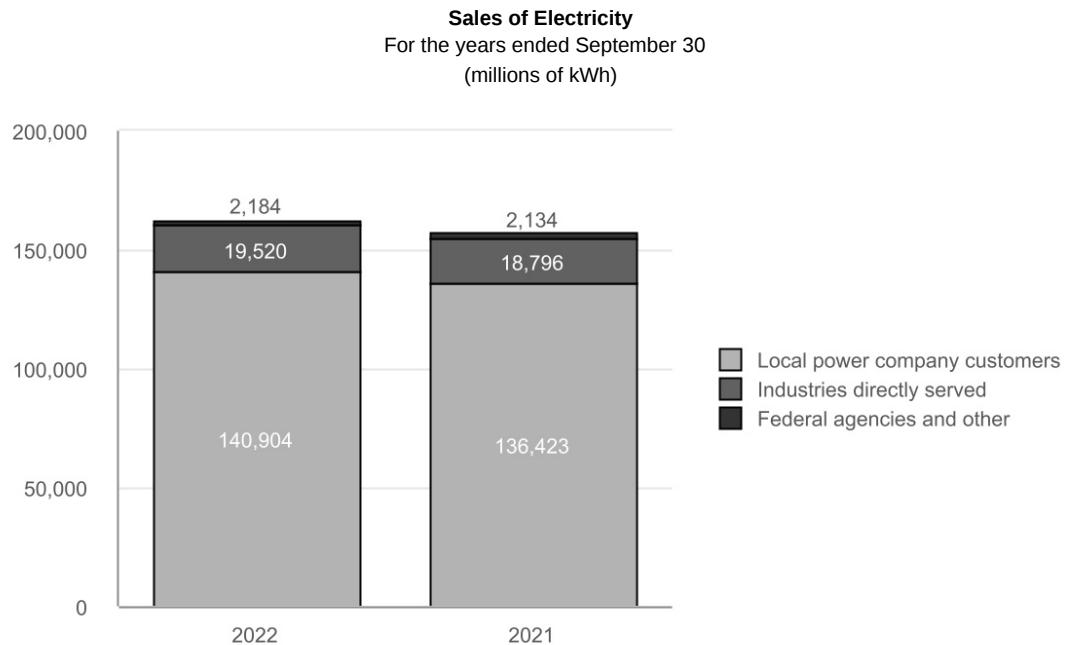
In 2022, TVA's economic development efforts, reliability, and competitive rates continued to help attract or expand businesses and industries in the Tennessee Valley. These companies announced projected capital investments of over \$10.2 billion and are expected to create or retain approximately 66,500 jobs. TVA also continued to achieve 99.999 percent reliability in delivering energy to its customers during 2022.

Results of Operations

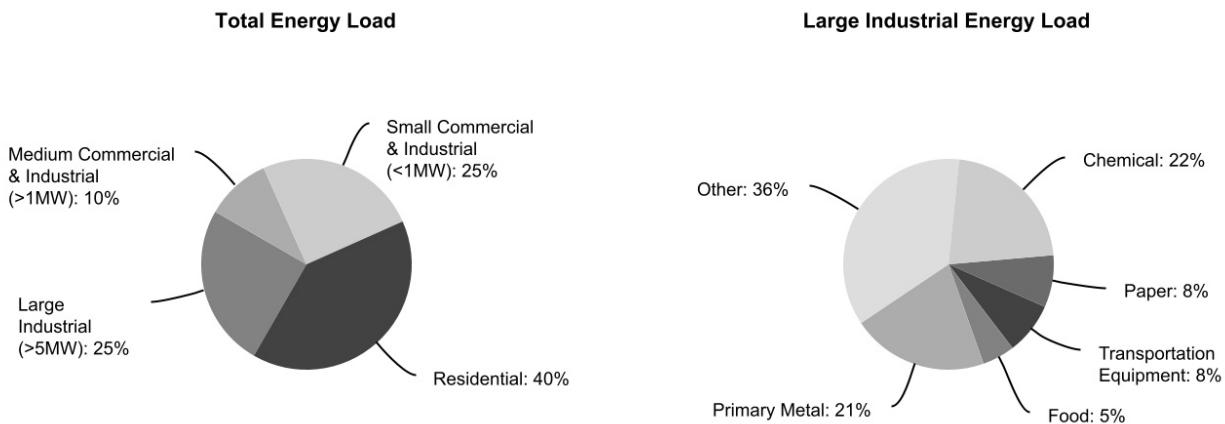
Sales of Electricity

Sales of electricity, which accounted for nearly all of TVA's operating revenues, were 162,608 million and 157,353 million kilowatt hours ("kWh") for 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 years ended September 30, 2022 and 2021:



The following charts show a breakdown of TVA's 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 2021, and these graphs will continue to be updated on a calendar year basis.

[Table of Contents](#)

Weather affects both the demand for TVA power and the price for that power. TVA uses degree days to measure the impact of weather on its power operations. Degree days measure the extent to which the TVA system 23-station average temperatures vary from 65 degrees Fahrenheit.

	Degree Days						
	Variation from Normal						Change from Prior Period
	2022	Normal	Percent Variation	2021	Normal	Percent Variation	
Heating Degree Days	3,031	3,360	(9.8)%	3,216	3,360	(4.3)%	(5.8)%
Cooling Degree Days	1,974	1,686	17.1 %	1,611	1,686	(4.4)%	22.5 %

Sales of electricity increased approximately three percent for the year ended September 30, 2022, as compared to the same period of the prior year. The increased sales volume was driven by both economic growth and weather impacts. TVA is seeing economic growth in the Tennessee Valley region primarily as a result of migration into the Tennessee Valley which has driven population growth and load growth. Cooling degree days increased approximately 23 percent for the year ended September 30, 2022, as compared to the same period of the prior year, also resulting in an increase in energy sales. In May and June 2022, TVA experienced multiple record-setting peak and daily energy records for these months.

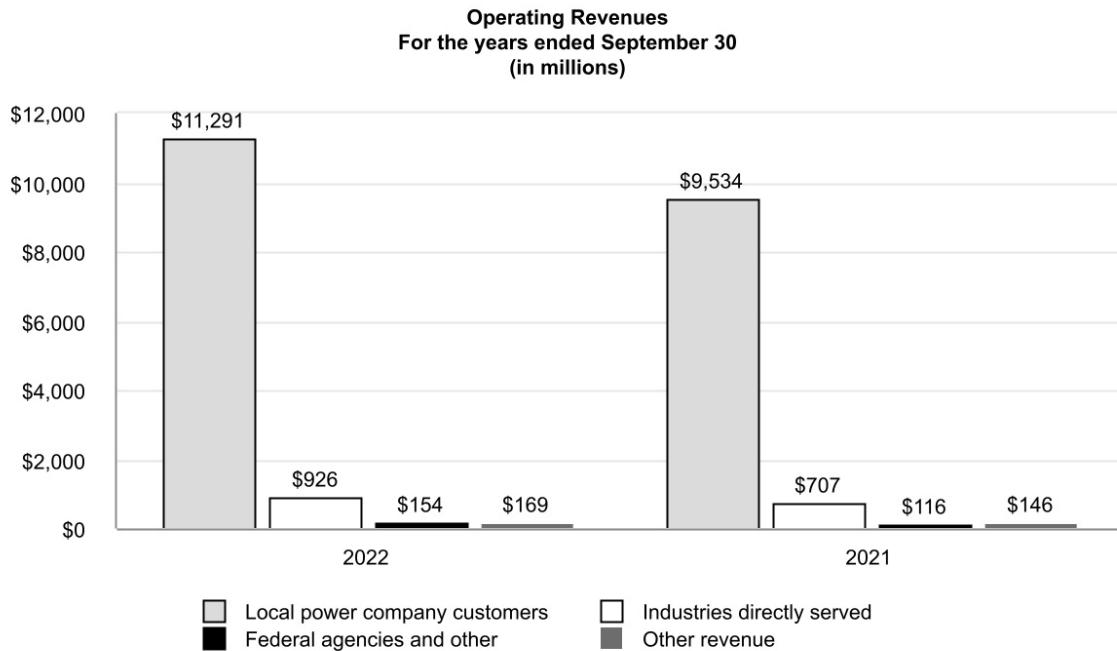
For LPCs, sales of electricity increased due to the weather impacts and also due to economic growth. For industries directly served, sales of electricity increased due to economic growth, as these industries directly served are not driven primarily by weather, but mainly from changes in the economy and respective industry sectors.

Financial Results

The following table compares operating results for 2022 and 2021:

Summary Consolidated Statements of Operations For the years ended September 30 (in millions)					
	2022	2021	Change	Percent Change	
Operating revenues	\$ 12,540	\$ 10,503	\$ 2,037	19.4 %	
Operating expenses	10,129	7,658	2,471	32.3 %	
Operating income	2,411	2,845	(434)	(15.3)%	
Other income, net	7	13	(6)	(46.2)%	
Other net periodic benefit cost	258	258	—	— %	
Interest expense	1,052	1,088	(36)	(3.3)%	
Net income	\$ 1,108	\$ 1,512	\$ (404)	(26.7)%	

Operating Revenues. Operating revenues for the years ended September 30, 2022 and 2021, were \$12.5 billion and \$10.5 billion, respectively. The following chart compares 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 accounted for nine percent and eight percent, respectively, of TVA's total operating revenues during both the years ended September 30, 2022 and 2021. Certain LPCs, including MLGW, are evaluating options for future energy choices.

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 and increase as the peak increases. 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 November 14, 2022, 147 LPCs had signed the 20-year Partnership Agreement with TVA.

In 2020, the TVA Board approved a Pandemic Relief Credit which was effective for 2021 as a 2.5 percent monthly base rate credit. In 2021, the TVA Board approved a 2.5 percent monthly base rate credit, the Pandemic Recovery Credit, which was effective for 2022. These pandemic credits apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers. For the years ended September 30, 2022 and 2021, pandemic credits totaled \$228 million and \$221 million, respectively. In addition, in November 2021 the TVA Board approved a 1.5 percent monthly base rate credit, which is an extension of the Pandemic Recovery Credit, to be effective for 2023, and on July 28, 2022, the TVA Board notationally approved increasing the credit from 1.5 percent to 2.5 percent. The 2023 credit is expected to approximate \$230 million, and it will be administered in a manner similar to the Pandemic Recovery Credit.

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. See Item 1, Business — Rates — Rate Methodology.

[Table of Contents](#)

The changes in revenue components are summarized below:

Changes in Revenue Components
For the years ended September 30
(in millions)

	2022	2021	Change
Base revenue			
Energy revenue	\$ 4,885	\$ 4,719	\$ 166
Demand revenue	3,610	3,478	132
Grid access charge	590	596	(6)
Long-term partnership credits for LPCs	(199)	(189)	(10)
Pandemic relief credits	(228)	(221)	(7)
Other charges and credits ⁽¹⁾	(673)	(631)	(42)
Total base revenue	7,985	7,752	233
Fuel cost recovery	4,379	2,601	1,778
Off-system sales	7	4	3
Revenue from sales of electricity	12,371	10,357	2,014
Other revenue	169	146	23
Total operating revenues	\$ 12,540	\$ 10,503	\$ 2,037

Note

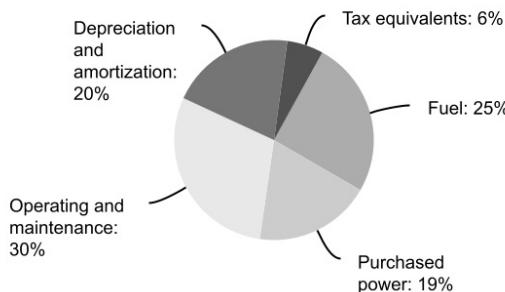
(1) Includes economic development credits to promote growth in the Tennessee Valley, hydro preference credits for residential customers of LPCs, and demand response credits allowing TVA to reduce industrial customer usage in periods of peak demand to balance system demand. See Note 17 — *Revenue*.

Operating revenues increased \$2.0 billion for the year ended September 30, 2022, as compared to the prior year, primarily due to a \$1.8 billion increase in fuel cost recovery revenue. The \$1.8 billion increase in fuel cost recovery revenue was driven by a \$1.7 billion increase attributable to higher fuel rates and an \$87 million increase attributable to higher sales volume during 2022. The higher fuel rates were primarily due to higher natural gas, coal, and purchased power market prices. In addition, there was a \$233 million increase in base revenue driven by an increase of \$259 million attributable to higher sales volume, partially offset by a decrease of \$26 million attributable to lower effective rates. Sales volume increased due to economic growth in the Tennessee Valley region and an increase in cooling degree days in 2022.

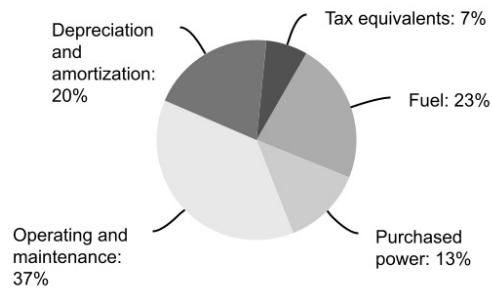
See *Sales of Electricity* above for further discussion of the change in the volume of sales of electricity and *Operating Expenses* below for further discussion of the change in fuel expense.

Operating Expenses. Operating expense components as a percentage of total operating expenses for 2022 and 2021 consisted of the following:

**2022 OPERATING EXPENSES:
\$10.1 BILLION**



**2021 OPERATING EXPENSES:
\$7.7 BILLION**



Operating Expenses
For the years ended September 30
(in millions)

	2022	2021	Change	Percent Change
Operating expenses				
Fuel	\$ 2,567	\$ 1,737	\$ 830	47.8 %
Purchased power	1,921	984	937	95.2 %
Operating and maintenance	2,986	2,890	96	3.3 %
Depreciation and amortization	2,054	1,533	521	34.0 %
Tax equivalents	601	514	87	16.9 %
Total operating expenses	\$ 10,129	\$ 7,658	\$ 2,471	32.3 %

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

Fuel Expense for TVA-Operated Facilities⁽¹⁾
For the years ended September 30

	Fuel Expense By Source		Cost per kWh ⁽⁴⁾	
	2022	2021	2022	2021
Coal ⁽²⁾	\$ 627	\$ 577	\$ 2.97	\$ 2.46
Natural gas and/or oil-fired ⁽³⁾	1,590	841	4.37	2.52
Nuclear fuel	329	363	0.51	0.55
Total fuel	\$ 2,546	\$ 1,781	\$ 2.08	\$ 1.44

Notes

(1) Excludes effects of the fuel cost adjustment in the amounts of \$21 million and \$(44) million for the years ended September 30, 2022 and 2021, respectively.

(2) Fuel expense related to oil consumed for startup at coal-fired facilities was \$30 million and \$18 million for the years ended September 30, 2022 and 2021, respectively.

(3) Fuel expense related to oil consumed for generation at natural gas and/or oil-fired facilities was \$2 million and \$4 million for the years ended September 30, 2022 and 2021, respectively.

(4) Total cost per kWh is based on a weighted average.

Fuel expense increased \$830 million for the year ended September 30, 2022, as compared to the prior year. This increase was primarily due to higher effective fuel rates of \$810 million resulting from higher natural gas and coal prices, as well as an increase in fuel cost recovery of \$66 million primarily due to higher natural gas prices toward the end of 2021 that were not included in fuel rates in the prior year but were recovered and expensed in the current year. Partially offsetting these increases was a decrease in fuel volume of \$46 million driven primarily by less availability of lower cost TVA-operated generation.

Purchased power expense increased \$937 million for the year ended September 30, 2022, as compared to the prior year. This increase was primarily due to higher purchased power market prices, resulting in an increase of \$458 million, and additional volume, resulting in an increase of \$479 million. The volume impacts were driven primarily by less availability of lower cost TVA-operated generation due to the outage at Watts Bar Unit 2 for its steam generator replacement project, decreased coal generation due to fuel supply constraints, and fewer significant rain events.

Operating and maintenance expense increased \$96 million for the year ended September 30, 2022 as compared to the prior year. This increase was primarily due to \$57 million of increased payroll and benefit costs primarily due to labor escalation for cost of living increases and additional headcount to support operational needs and work to support the company's strategic priorities, \$21 million of increased costs in information technology primarily due to investments in new technology and an increase in contract labor to support modernization efforts and enterprise technology business needs, an \$18 million net increase in inventory reserves and project write-offs for TVA's coal-fired plants, and \$18 million of increased costs primarily related to natural gas, hydroelectric, and coal maintenance projects. Additionally, there was an increase in nuclear outage expense of \$10 million driven by an increase in outage days. Partially offsetting these increases was a decrease of other post-employment benefit expense of \$19 million primarily due to the increase in the discount rate assumption used in the actuarial valuation of the liability related to workers' compensation claims and a reduction in capital write-offs of \$30 million due to asset decisions made in the prior year.

Depreciation and amortization expense increased \$521 million for the year ended September 30, 2022, as compared to the prior year. Implementation of a new depreciation study during the first quarter of 2022 resulted in approximately \$345 million more depreciation expense in 2022, as compared to 2021. The increase in depreciation expense as a result of the new depreciation study was primarily driven by a decline in the service life estimates of TVA's coal-fired plants based on current planning assumptions to potentially retire the remainder of the coal-fired fleet by 2035. Amortization expense of decommissioning costs recovered in rates increased \$65 million. Additionally, there was an increase due to depreciation of additions to completed plant. See Note 1 — *Summary of Significant Accounting Policies — Property, Plant, and Equipment, and Depreciation — Depreciation*.

[Table of Contents](#)

Tax equivalents expense increased \$87 million for the year ended September 30, 2022, as compared to the prior year. This change is primarily driven by an increase in the tax equivalents collected in the fuel cost recovery.

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 years ended September 30
(millions of kWh)

	2022		2021	
Nuclear	64,475	39 %	66,265	41 %
Natural gas and/or oil-fired	36,259	22 %	33,290	21 %
Coal-fired	20,999	13 %	23,391	15 %
Hydroelectric	13,934	8 %	16,354	10 %
Total TVA-operated generation facilities⁽¹⁾⁽²⁾	135,667	82 %	139,300	87 %
Purchased power (natural gas and/or oil-fired) ⁽³⁾	18,352	11 %	10,836	7 %
Purchased power (other renewables) ⁽⁴⁾	6,141	4 %	5,113	3 %
Purchased power (hydroelectric)	2,543	1 %	2,156	2 %
Purchased power (coal-fired)	2,753	2 %	2,373	1 %
Total purchased power⁽²⁾	29,789	18 %	20,478	13 %
Total power supply	165,456	100 %	159,778	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 year ended September 30, 2022, and the year ended September 30, 2021. See Item 1, Business — *Power Supply and Load Management Resources — Raccoon Mountain Pumped-Storage Plant* for a discussion of Raccoon Mountain Pumped-Storage Plant.
- (3) Purchased power (natural gas and/or oil-fired) includes generation from Caledonia CC, which is currently a leased facility operated by TVA. Generation from Caledonia CC was 4,797 million kWh and 4,255 million kWh for the years ended September 30, 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 RECs resulting from some of this purchased power to certain customers. See *Key Initiatives and Challenges — Optimum Energy Portfolio — Renewable Power Purchase Agreements*.

In addition to power supply sources included here, TVA offers energy efficiency programs that effectively reduced 2022 energy needs by about 2,200 GWh or 1.3%.

Interest Expense. Interest expense and interest rates for 2022 and 2021 were as follows:

Interest Expense and Rates
For the years ended September 30

	2022	2021	Percent Change
Interest expense ⁽¹⁾	\$ 1,052	\$ 1,088	(3.3)%
Average blended debt balance ⁽²⁾	\$ 20,596	\$ 20,916	(1.5)%
Average blended interest rate ⁽³⁾	4.96 %	5.06 %	(2.0)%

Notes

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

Total interest expense decreased \$36 million for the year ended September 30, 2022, as compared to the prior year. This was primarily driven by a decrease of \$22 million due to lower average debt balances, and the remaining decrease was primarily due to lower average long-term rates.

Other Income, Net

Other income, net decreased \$6 million for the year ended September 30, 2022, as compared to the prior year. This decrease was primarily driven by market losses on TVA's Investment funds. Partially offsetting this decrease was the 2021 court directed payment of \$28 million related to the sale of Bellefonte, and no such payments were made in 2022. See Note 21 — *Commitments and Contingencies — Legal Proceedings — Case Involving Bellefonte Nuclear Plant* for a discussion of the lawsuit filed by Nuclear Development, LLC.

Other Net Periodic Benefit Cost

Other net periodic benefit cost for the year ended September 30, 2022, was the same as compared to the prior year. Other net periodic benefit cost is subject to significant economic assumptions, such as changes in the discount rate used to measure the benefit plans, that can materially impact TVA. However, TVA uses regulatory accounting to recognize other net periodic benefit cost as a regulatory asset to the extent that the amount calculated under accounting principles generally accepted in the United States of America ("GAAP") as pension expense differs from the amount TVA contributes to the pension plan as pension plan contributions. See Note 20 — *Benefit Plans*.

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. See Note 14 — *Debt and Other Obligations — Credit Facility Agreements*. Other financing arrangements may include sales of receivables, loans, or other assets.

The TVA Act authorizes TVA to issue 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 September 30, 2022 and 2021, were \$19.3 billion (including current maturities) and \$19.4 billion (including current maturities), respectively. The balance of Bonds outstanding directly affects TVA's capacity to meet operational liquidity needs and to strategically use Bonds to fund certain capital investments as management and the TVA Board may deem desirable. Other options for financing not subject to the limit on Bonds, including lease financings (see *Lease Financings* below and Note 11 — *Variable Interest Entities*), 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 11 — *Variable Interest Entities*, and Note 14 — *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. TVA has maintained continued debt market access since the outbreak of the Coronavirus Disease 2019 ("COVID-19") pandemic.

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 September 30, 2022, the average maturity of long-term power bonds was 15.96 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 September 30, 2022. See *Lease Financing* below, Note 11 — *Variable Interest Entities*, and Note 14 — *Debt and Other Obligations* for additional information.

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

Under the rate test, TVA must charge rates for power which will produce gross revenues sufficient to provide funds for operation, maintenance, and administration of its power system; tax equivalents; debt service on outstanding Bonds; payments

to the U.S. Treasury in repayment of and as a return on the government's appropriation investment in TVA's power facilities (the "Power Program Appropriation Investment"); and such additional margin as the TVA Board may consider desirable for investment in power system assets, retirement of outstanding Bonds in advance of maturity, additional reduction of the Power Program Appropriation Investment, and other purposes connected with TVA's power business, having due regard for the primary objectives of the TVA Act, including the objective that power shall be sold at rates as low as are feasible. See Note 22 — *Related Parties*.

TVA fulfilled its requirement to repay \$1.0 billion of the Power Program Appropriation Investment in 2014; therefore, the repayment of this amount is no longer a component of rate setting.

The rate test for the one-year period ended September 30, 2022, was calculated after the end of 2022, and TVA met the test's requirements.

Under the bondholder protection test, TVA must, in successive five-year periods, use an amount of net power proceeds at least equal to the sum of the depreciation accrals and other charges representing the amortization of capital expenditures and the net proceeds from any disposition of power facilities, for either the reduction of its capital obligations (including Bonds and the Power Program Appropriation Investment) or investment in power assets.

The bondholder protection test for the five-year period ended September 30, 2020, was calculated after the end of 2020, and TVA met the test's requirements. TVA must next meet the bondholder protection test for the five-year period ending September 30, 2025, and expects to meet the test.

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

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

		Short-Term Borrowings (in millions)						
		At September 30, 2022	For the year ended September 30, 2022	At September 30, 2021	For the year ended September 30, 2021			
Gross Amount Outstanding (at End of Period) or Average Gross Amount Outstanding (During Period)								
Discount notes	\$	1,173	\$	1,014	\$	780	\$	876
Maximum Month-End Gross Amount Outstanding (During Period)								
Discount notes	N/A	\$	2,062		N/A	\$	1,598	
Weighted Average Interest Rate								
Discount notes		2.93 %		0.83 %		0.03 %		0.03 %

TVA ended the year at September 30, 2022, with a higher balance for both short-term debt and average short-term debt as compared to 2021. The increase was primarily due to the timing of cash flows in 2022 than 2021.

TVA generally uses proceeds from the issuance of power bonds to refinance maturing power bonds or other financing obligations, as necessary, or for other power system purposes. The total balance of power bonds may decline in periods where redemptions of power bonds exceed issuance due to net positive cash flow from operating and investing activities. In 2020, TVA achieved and surpassed its strategic goal of reducing debt to \$21.8 billion by 2023, and TVA made even further reductions in debt in 2021 and 2022. TVA anticipates the balance of Bonds and other financing obligations will increase in future years due to an expected increase in capital expenditures, consistent with TVA's strategic financial plan.

TVA issued \$500 million of power bonds during both 2022 and 2021. TVA redeemed \$1.0 billion and \$1.9 billion of Bonds during 2022 and 2021, respectively. For additional information about TVA debt issuance activity and debt instruments issued and outstanding at September 30, 2022 and 2021, including rates, maturities, outstanding principal amounts, and redemption features, see Note 14 — *Debt and Other Obligations — Debt Securities Activity and Debt Outstanding*.

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

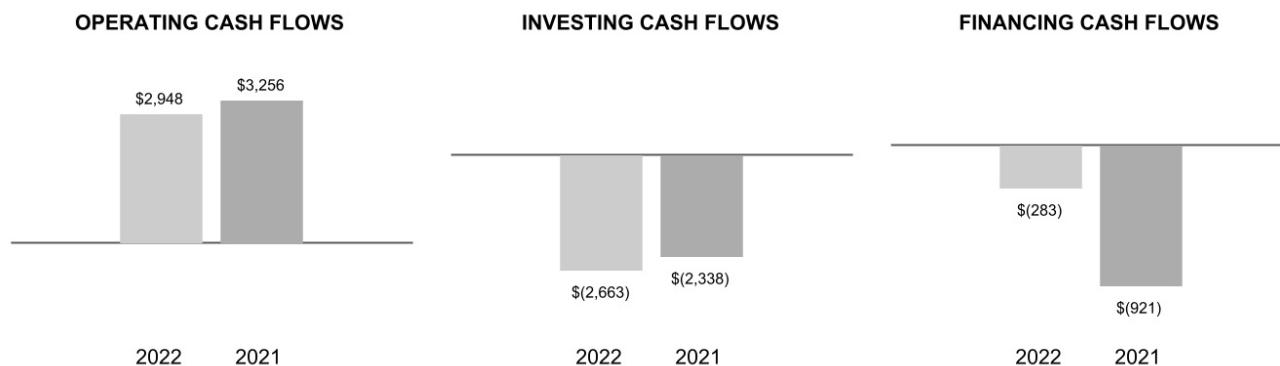
Although TVA Bonds are not obligations of the U.S., TVA, as a corporate agency and instrumentality of the U.S. government, may be impacted if the sovereign credit ratings of the U.S. are downgraded. Additionally, TVA may be impacted by how the U.S. government addresses situations of approaching its statutory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

Lease Financings. TVA has entered into certain leasing transactions with special purpose entities ("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 11 — *Variable Interest Entities* and Note 14 — *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 \$518 million at September 30, 2022 and 2021, respectively. A summary of cash flow components for the years ended September 30 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 \$308 million for the year ended September 30, 2022, as compared to 2021. The decrease was primarily due to increased fuel and purchased power payments as a result of higher natural gas, coal, and purchased power market prices coupled with an increase in fuel inventory; increased payroll and benefit costs due to labor escalation for cost of living increases; and higher cash used for asset retirement obligation ("ARO") settlements. These decreases were partially offset by a decrease in cash paid for interest.

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 \$325 million for the year ended September 30, 2022, as compared to the prior year primarily driven by the Watts Bar Unit 2 steam generator replacement project and combustion turbine projects. See *Key Initiatives and Challenges — Optimum Energy Portfolio — Natural Gas-Fired Units* and *Watts Bar Unit 2*. These increases were partially offset by decreased nuclear fuel expenditures for the year ended September 30, 2022, as compared to the prior year. 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 flows used in financing activities decreased \$638 million for the year ended September 30, 2022, as compared to the prior year, primarily due to a reduction in net debt redemptions and payments on leaseback transactions. Despite lower

[Table of Contents](#)

net cash flows from operating activities and higher net cash used in investing activities during the current year, TVA was able to maintain targeted cash balance levels without the need for additional net debt issuances. TVA may have a need to increase debt in the coming years as it continues to invest in power system assets, which may result in positive net cash flows provided by financing activities in future periods.

Cash Requirements

Actual capital expenditures and future planned capital expenditures for property, plant, and equipment additions, including environmental projects and new generation, and nuclear fuel are as follows:

	Capital Expenditures For the years ended September 30 (in millions)							
	Actual		Estimated Capital Expenditures ⁽¹⁾					
	2022	2023	2024	2025	2026	2027		
Capacity expansion expenditures	\$ 802	\$ 1,340	\$ 2,190	\$ 1,997	\$ 1,465	\$ 930		
Environmental expenditures	79	132	75	36	5	—		
Nuclear fuel	274	263	284	252	387	321		
Transmission expenditures	642	653	551	570	528	527		
Other capital expenditures ⁽²⁾	817	857	764	801	816	816		
Total capital expenditures	<u>\$ 2,614</u> ⁽³⁾	<u>\$ 3,245</u>	<u>\$ 3,864</u>	<u>\$ 3,656</u>	<u>\$ 3,201</u>	<u>\$ 2,594</u>		

Notes

(1) TVA plans to fund these expenditures with cash from operations and proceeds from power program financings. Estimated capital expenditures only include expenditures that are currently planned. Additional expenditures may be required, among other things, for TVA to meet growth in demand for power in its service area or to comply with new environmental laws, regulations, or orders.

(2) Other capital expenditures are primarily associated with short lead time construction projects aimed at the continued safe and reliable operation of generating assets.

(3) The numbers above include the change in construction in progress and nuclear fuel expenditures included in Accounts payable and accrued liabilities of \$30 million.

TVA continually reviews its capital expenditures and financing programs. The amounts shown in the table above are forward-looking amounts based on a number of assumptions and are subject to various uncertainties. Amounts may differ materially based upon a number of factors, including, but not limited to, changes in assumptions about system load growth, environmental regulation, rates of inflation, total cost of major projects, and availability and cost of external sources of capital. See *Forward-Looking Information* and Part I, Item 1A, Risk Factors.

TVA has certain obligations and commitments to make future payments, including contracts executed in connection with certain of the planned construction expenditures. TVA estimates total commitments and contingencies at September 30, 2022, are approximately \$5.5 billion for the year ended September 30, 2023, and \$45.6 billion for the years thereafter. Of these amounts, \$3.6 billion and \$21.6 billion of TVA's estimates for future payments are set forth in the table below. See Note 8 — *Leases*, Note 11 — *Variable Interest Entities*, Note 14 — *Debt and Other Obligations*, and Note 20 — *Benefit Plans* for the obligations and commitments attributable to leases, VIEs and membership interests of VIEs subject to mandatory redemption, debt and leaseback obligations, and the retirement plan, respectively, for remaining amounts.

	Other Commitments and Contingencies Payments due for the years ending September 30 (in millions)													
	2023		2024		2025		2026		2027		Thereafter		Total	
	Interest payments relating to debt ⁽¹⁾	\$ 958	Interest payments relating to debt of VIEs	\$ 47	Interest payments relating to membership interests of VIEs subject to mandatory redemption	\$ 1	Purchase obligations							
Interest payments relating to debt ⁽¹⁾	\$ 958	\$ 957	\$ 45	\$ 44	\$ 1	\$ 1	Power ⁽²⁾	336	344	249	218	191	1,198	2,536
Interest payments relating to debt of VIEs	47	45	44	42	1	1	Fuel ⁽³⁾	2,165	891	500	324	268	1,000	5,148
Interest payments relating to membership interests of VIEs subject to mandatory redemption	1	1	1	1	1	1	Other ⁽⁴⁾	105	55	35	27	19	165	406
Flood response commitment to NRC	—	—	—	—	—	—	Total	<u>\$ 3,612</u>	<u>\$ 2,293</u>	<u>\$ 1,756</u>	<u>\$ 1,485</u>	<u>\$ 1,331</u>	<u>\$ 14,707</u>	<u>\$ 25,184</u>

Notes

(1) Includes the effects of interest rate derivatives employed to manage interest rate risk.

(2) Includes commitments for energy and/or capacity under power purchase agreements ("PPAs") from coal-fired, hydroelectric, diesel, renewable, and gas-fired facilities, as well as transmission service agreements to support purchases of power from the market. Certain PPAs are accounted for as leases and have lease

and non-lease components. For these contracts, the lease component is included in lease obligations (see Note 8 — *Leases*) and the non-lease component is included in power purchase obligations in the table above. For PPA contracts containing a lease component that have not commenced, the entire contract amount is included in the table above.

(3) Includes commitments to purchase nuclear fuel, coal, and natural gas, as well as related transportation and storage services.

(4) Primarily includes long-term service contracts, contracts that contain minimum purchase levels for the purchase of limestone along with related storage and transportation, and contractual obligations related to TVA's load control program.

EnergyRight® Program. TVA purchases certain loans receivable from its LPCs in association with the EnergyRight® program. Depending on the nature of the energy-efficiency project, loans may have a maximum term of five years or 10 years. The loans receivable are then transferred to a third-party bank with which TVA has agreed to repay in full any loan receivable that has been in default for 180 days or more or that TVA has determined is uncollectible. At September 30, 2022, the total carrying amount of the loans receivable, net of discount, was \$62 million. Such amounts are not reflected in the Other Commitments and Contingencies table above. The total carrying amount of the financing obligation was \$72 million at September 30, 2022. See Note 9 — *Other Long-Term Assets* and Note 12 — *Other Long-Term Liabilities* for additional information.

Off-Balance Sheet Arrangements

At September 30, 2022, TVA had no off-balance sheet arrangements.

Key Initiatives and Challenges

Optimum Energy Portfolio

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. TVA is considering plans for additional generating facilities to replace retiring or expiring capacity and to support a low cost, reliable, flexible, and increasingly clean power system. As TVA continues to evaluate the impact of retiring its coal-fired fleet by 2035, it is also evaluating adding flexible lower carbon-emitting gas plants as a strategy to maintain reliability. TVA is making investments in its generating portfolio and its infrastructure to both modernize its fleet and ensure a flexible energy grid of the future. In addition, TVA is committed to investing in the future of nuclear with the evaluation of emerging advanced nuclear technologies, such as small modular reactors ("SMRs"), and is increasing its renewable energy portfolio by securing PPAs and developing projects such as TVA's Self-Directed Solar.

TVA plans to initiate work no later than 2024 to develop a new Integrated Resource Plan ("IRP"). The IRP will be a comprehensive study, with extensive engagement from the public and stakeholders, and will provide TVA direction on how to best meet future electricity demands from now to 2050. The process to develop a new IRP, while complex, will be designed to be inclusive, transparent, and comprehensive. TVA anticipates the process will take approximately two years to complete.

Coal-Fired Fleet. Based on results of assessments presented to the TVA Board in 2019, the retirement of Bull Run by December 2023 was approved. See Note 7 — *Plant Closures*. TVA is also evaluating the impact of retiring the balance of the coal-fired fleet by 2035. TVA will prepare environmental reviews pursuant to the National Environmental Policy Act ("NEPA") prior to making a decision on retiring or building any plant. Environmental reviews evaluating the potential retirement of the Cumberland Fossil Plant ("Cumberland") and Kingston Fossil Plant ("Kingston") and replacement with other generation are now underway. On April 25, 2022, TVA made available to the public a draft environmental impact statement ("EIS") to assess the impacts associated with the potential retirement of Cumberland and the construction and operation of facilities to replace part of that generation. TVA received public input on the draft EIS during the 45-day public comment period of April 29, 2022 through June 13, 2022. TVA is currently reviewing comments submitted on the draft EIS, and a final EIS is expected to be published in December 2022. In addition, on November 10, 2021, the TVA Board authorized the Chief Executive Officer to evaluate, decide upon, and complete, if necessary, the retirements of Cumberland and Kingston and replacement generation projects, subject to completing all required environmental reviews, periodically updating the TVA Board on plans and actions, and notifying the TVA Board before making final decisions. The TVA Board approved costs up to \$3.5 billion for these projects to develop generation and transmission assets and complete required demolition activities.

Natural Gas-Fired Units. During 2019, the TVA Board approved an expansion of approximately 1,500 MW of peaking gas replacement capacity at two combustion turbine gas facilities to coincide with the retirement of Allen CTs 1-20 and Johnsonville CTs 1-16, contingent on the successful completion of environmental reviews under NEPA and other applicable laws. In 2020, detailed design and engineering work began at TVA's Paradise and Colbert sites to further scope out the projects and supply information needed for the NEPA review. In 2021, environmental reviews under NEPA and other applicable laws were complete, and TVA received the air permits for the Paradise and Colbert facilities. Each project is expected to increase combustion turbine generation capacity by 750 MW. As of September 30, 2022, TVA had spent approximately \$545 million on these expansions, and TVA expects to spend an additional \$424 million. Both projects are anticipated to enter commercial operations by the end of CY 2023.

A 500 MW aeroderivative CT project at TVA's Johnsonville site has been approved for \$599 million, contingent on the successful completion of environmental reviews under NEPA and other applicable laws. In 2020, detailed design and engineering work began to further scope out the project and supply information needed for the NEPA review. In July 2022,

environmental reviews under NEPA and other applicable laws were complete, and TVA received the air permits for the Johnsonville facility. As of September 30, 2022, TVA had spent approximately \$325 million on this project. TVA expects to spend an additional \$274 million on this project and anticipates the project to enter commercial operations by the end of CY 2024.

Watts Bar Unit 2. During 2014, the TVA Board approved a project for the replacement of the steam generators at Watts Bar Unit 2. During the refueling outage in 2021, TVA identified degraded steam generator conditions on Watts Bar Unit 2. Watts Bar Unit 2 remained at or below 95 percent of rated thermal output until the outage to replace the originally installed steam generators was completed, which began in March 2022. Watts Bar Unit 2 was returned to service in July 2022. As of September 30, 2022, TVA had spent \$572 million related to this project and expects to spend less than \$1 million in 2023.

Renewable Power Purchase Agreements. In recent years, TVA has issued requests for proposals ("RFPs") in order to meet customer preferences and requirements for cleaner energy. TVA will procure the renewable energy and sell the resulting Renewable Energy Certificates ("RECs") to specific customers, allowing TVA to increase its renewable energy portfolio without additional costs to other TVA customers. These agreements help to align the core values of TVA and the public power model with the desire of TVA's customers for renewable energy. Additionally, TVA issued an RFP during 2021 for up to 200 MW of new renewable energy and anticipates making selections in the first quarter of 2023.

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, threatening project delays, cancellations, and price increases. These challenges are affecting contracted PPAs from previous RFPs that are not yet online and were reflected in submissions to TVA's 2021 RFP.

TVA issued a carbon-free RFP in July 2022 for up to 5,000 MW of carbon-free and renewable energy projects. This RFP includes a broad range of potential generation sources, including nuclear, green gas, solar, storage, and wind, among others. TVA anticipates making selections for the carbon-free RFP in the second half of 2023.

Self-Directed Solar. During 2019, the TVA Board approved the opportunity for TVA to explore being directly involved in the development of a utility-scale solar project, contingent on the successful completion of environmental reviews under the NEPA and other applicable laws. In 2021, TVA purchased land for this development. In 2022, environmental reviews were complete. As of September 30, 2022, TVA had spent approximately \$27 million on the project and expects to spend an additional \$290 million. The mounting solar supply chain constraints affecting TVA's RFPs are also being seen in TVA's Self-Directed Solar project. This has resulted in a delay in the estimated completion, with the project now expected to be complete in 2025. Project cost increases are also anticipated due to cost escalations from the state of global supply chains.

In November 2022, the TVA Board approved the opportunity for TVA to explore the development of an additional utility-scale solar project, contingent on the successful completion of environmental reviews under the NEPA and other applicable laws, including state permits. The project would utilize TVA-owned land, deploying a solar cap system on the closed coal ash management unit at the TVA Shawnee Fossil Plant in Paducah, Kentucky. The project is in early project development stage and is approved for \$216 million.

Small Modular Reactors. In December 2019, TVA became the first utility in the nation to successfully obtain approval for an early site permit from the Nuclear Regulatory Commission ("NRC") to potentially construct and operate SMRs at TVA's Clinch River Nuclear Site. The permit is valid through 2039 and therefore provides TVA a great deal of flexibility to make new nuclear decisions based on energy needs and economic factors. In 2021, TVA initiated a Programmatic EIS ("PEIS") that evaluates a variety of alternatives for a proposed advanced nuclear technology park at the Clinch River Nuclear Site and will provide additional flexibility for future decision making. The PEIS was issued for public comment in March 2022 and the Record of Decision was signed in September 2022.

In 2022, the TVA Board approved the New Nuclear Program and approved up to \$200 million to explore advanced reactor technology options. Of this amount, TVA had spent approximately \$13 million as of September 30, 2022. The New Nuclear Program provides a systematic roadmap for TVA's exploration of advanced nuclear technology. Collaboration with other interested parties will be an important aspect of this program, and TVA has entered into several agreements with technology progressive organizations that allow for mutual collaboration to explore advanced reactor designs as a next-generation nuclear technology. One of the first tasks the New Nuclear Program is pursuing is a project to develop an NRC construction permit application at the Clinch River Nuclear Site. In addition, while evaluating alternatives for potential advanced nuclear at the Clinch River Nuclear Site, TVA is exploring the feasibility of applying a similar approach that could deploy additional SMRs.

The decision to potentially build SMRs continues to be part of the ongoing discussion as part of the asset strategy for TVA's future generation portfolio, and any future decision to construct any reactor, advanced or otherwise, would require approval by the TVA Board and the NRC. As of September 30, 2022, TVA had spent \$104 million on work regarding SMRs, including work to complete the early site permit application for the Clinch River Nuclear Site and work associated with the New Nuclear Program above. Of these amounts, DOE had reimbursed TVA \$29 million. Additional expenditures will be determined based on future project development.

Fiber Optic Network. In 2017, the TVA Board authorized up to \$300 million to be spent over the next 10 years, subject

to annual budget availability and necessary environmental reviews, to build an enhanced fiber optic network that will better connect TVA's operational assets. Fiber is a vital part of TVA's modern communication infrastructure. The new fiber optic lines will improve the reliability and resiliency of the generation and transmission system while enabling the system to better accommodate DER as they enter the market. As of September 30, 2022, TVA had spent \$197 million on installation of the fiber optic lines and expects to spend an additional \$103 million through 2027.

System Operations Center. A new system operations center has been approved for \$297 million. The new secured facility is being built to accommodate a new energy management system and adapt to new regulatory requirements, and will improve reliability, have improved physical security from the previous center, and be flexible to help accommodate operational growth requirements, including future renewables. The facility is expected to be constructed by the end of CY 2023 and fully operational in 2025. As of September 30, 2022, TVA had spent approximately \$167 million on the project and expects to spend an additional \$130 million.

Energy Management System. A new energy management system has been approved for \$90 million. As the current energy management system is nearing the end of its life cycle, this project will replace the existing analog system with a digital system. The new digital system will have higher capacity and speed, for communications with the TVA grid and for inputs from monitoring equipment, which will also network the new control center with existing locations and enable better remote visibility and control to help mitigate reliability implications of climate change. The system is expected to be complete in 2026. As of September 30, 2022, TVA had spent approximately \$44 million on the project and expects to spend an additional \$46 million.

Automated Energy Exchange Platform. In October 2021, an automated energy exchange, the Southeast Energy Exchange Market ("SEEM"), took effect. The exchange was created to facilitate more short-term power exchanges and will be an enhancement to the existing market. TVA's participation is subject to certain TVA Board approvals and the completion of appropriate environmental reviews. TVA has completed the appropriate environmental reviews and during the third quarter of 2022, the TVA Board approved the creation of a zero-cost, non-firm transmission service to allow TVA to participate in SEEM and authorized the Chief Executive Officer ("CEO") to amend the TVA Transmission Service Guidelines to offer the zero-cost, non-firm transmission service and to develop a methodology for calculating a loss rate for SEEM transactions. In September 2022, the CEO amended the TVA Transmission Service Guidelines to offer the service, and a methodology for calculating a loss rate for SEEM transactions was developed. In November 2022, the SEEM market began transacting.

Inflation Reduction Act. On August 16, 2022, President Biden signed into law the Inflation Reduction Act of 2022 ("Inflation Reduction Act"). Among other things, the Inflation Reduction Act makes certain tax-exempt entities, including TVA, eligible for a direct-pay option for certain tax credits that encourage investment in clean energy. In addition, on September 12, 2022, President Biden issued Executive Order 14082, Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022, which provides policy guidance to federal agencies on implementation and prioritization of the Inflation Reduction Act, establishes a new office within the White House charged with implementing the energy and infrastructure provisions of the Inflation Reduction Act, and makes a series of edits to previous executive orders to implement personnel and policy changes. TVA is currently evaluating the Inflation Reduction Act to determine whether it will be able to benefit from any these tax credits.

Electric Vehicles

TVA is partnering with LPCs and others to support the electrification of transportation in the Tennessee Valley in a multi-year electric vehicle ("EV") initiative. The initiative focuses on reducing or eliminating EV market barriers by setting EV policies, improving charging infrastructure availability, expanding EV availability and offerings, and spreading EV consumer awareness. In 2021, the TVA Board approved new policies and an optional wholesale EV rate aimed at encouraging the development of charging infrastructure in the Tennessee Valley. The updated policies enable LPC investment in public charging infrastructure and allow for the conditional resale of electricity, for transportation purposes only, by any charging developer on a \$/kWh basis. The optional wholesale rate was developed with high power EV charging in mind and provides a stable option for those developing charging infrastructure.

TVA is also working with LPCs, state agencies, and third-party charging developers to create the Fast Charge Network. This will be a foundational network of public fast charging stations at least every 50 miles along interstates and major highways across its seven-state service area. In 2021, TVA began a partnership with the State of Tennessee for the development and funding of Fast Charge Tennessee, the portion of the Fast Charge Network that covers Tennessee, and in 2022 TVA launched the Fast Charge Network. As of September 30, 2022, four sites were complete and operational with 28 additional sites under contract for development. TVA had spent less than \$1 million on fast charging network charging stations as of September 30, 2022. TVA also plans to electrify 100% of its light-duty and 50% of its medium-duty vehicles in the TVA fleet. The adoption of EVs in the Tennessee Valley continues to grow, and TVA is working to ensure that the benefits of this rapid growth are secured, while also helping LPCs proactively avoid issues in their distribution systems. Also in 2021, TVA and five other major utilities formed the Electric Highway Coalition to develop a network of fast charging stations along all major highway routes within their service area. Since formation, the Electric Highway Coalition has gained significant interest from additional utilities and other EV collaboratives. In 2022, the Electric Highway Coalition merged with the Midwest Electric Vehicle Charging Infrastructure Collaboration to create the National Electric Highway Coalition with members committed to coordinate the development of EV charging infrastructure across the central U.S.

Sustainability and Social Responsibility

Sustainability has been and continues to be a focus in support of TVA's mission to deliver affordable and reliable energy, steward the environment, and create sustainable economic growth. TVA has a Chief Sustainability Officer ("CSO") who oversees an Enterprise Wide Environmental Executive Council, a Sustainability Steering Committee, and a Sustainability Working Group, which together are responsible for the governance of sustainability at TVA. The CSO is also a member of TVA's Risk Management Steering Committee.

TVA's sustainability work is categorized into four areas:

- Economic Impact — Partnering to build the region's clean energy economy
- Environment — Stewarding the region's resources
- Social — Serving people and communities across the region
- Governance — Driving progress through accountability and transparency

Economic Impact	Environment	Social	Governance
Energy affordability	Climate change and resilience	Health and safety	Transparency
Reliability and resiliency	Air quality	Environmental justice	Board and executive diversity
Jobs created and retained	Water quality and availability	Community vitality and engagement	Systemic risk management
Flood and drought management	Waste management	Reservoir and stewardship benefits	Ethics
Energy innovations	Habitat and biodiversity protection	Local power company partnerships	Cyber and physical security
Renewable energy	Cultural resource management	Diversity and inclusion	Sustainable financing framework
Investor relations		Labor relations	
Supplier partners		Recruitment, development, and retention	
		Skilled workforce availability	

In 2021, TVA highlighted its sustainability efforts with issuances of its Corporate Sustainability Report, a supplemental Carbon Report, and an Edison Electric Institute Environmental, Social, Governance ("EEI ESG") Sustainability Report, among others. TVA continued to highlight its sustainability efforts in 2022 and released its 2021 Corporate Sustainability Report in May 2022 and its 2021 EEI ESG Sustainability Report in September 2022. In 2022, TVA also issued its first Diversity, Equity, Inclusion and Accessibility ("DEIA") Report. The report highlights the actions TVA has taken in the DEIA area, the results achieved, and the plans to continue to focus and improve.

Operational Challenges

Coal Supply. Coal supply challenges continued in 2022 as a result of supply limitation and transportation constraints, and are anticipated to continue into 2023. Total system coal inventories were lower than planned throughout 2022 primarily as a result of higher than forecasted coal generation and continued constraints on fuel supply. Coal inventory increased at September 30, 2022, as compared to September 30, 2021, due to higher costs of fuel, including transportation costs, coal conservation efforts, and an increase in inventory levels in preparation for winter inventory needs. The increased inventory levels will help mitigate expected constraints on fuel supply and continued natural gas price volatility which may cause coal to be a more favorable economic fuel choice during that period. Supply constraints are driven by both domestic and export demand, limited production capacity, and market volatility. Rail service continues to limit TVA's ability to receive contracted supply due primarily to continued crew and congestion issues; however, TVA is actively working to acquire alternate routes and arrangements for transport. TVA is also monitoring potential strikes that could affect rail transportation should they occur. In addition, TVA is seeing significant supply constraints and price increases for reagents, diesel fuel, and fuel surcharges associated with coal transport, which are also expected to continue. TVA is seeking additional reagent sources to diversify the supply base and improve resiliency. TVA will continue to monitor the coal supply challenges and utilize its contracting strategy and diverse generation portfolio to balance needs and ensure adequate fuel supplies.

Aquatic Vegetation. In 2020, the unprecedented growth and breakaway of aquatic vegetation in Wheeler Reservoir challenged the Browns Ferry intake structures and impacted the source of cooling water for the plant. Two units were removed from operation and power was reduced on the third unit to accommodate the decreased capability of the cooling systems. Nuclear safety was not challenged during the event. Breakaway of aquatic vegetation will continue to be a concern until a permanent solution is finalized. However, mitigation solutions have been identified to reduce marine biofouling of the plant intake system, and permanent design solutions are expected to be implemented by the end of CY 2025.

Thermal Compliance. TVA is subject to requirements of the Clean Water Act ("CWA") for maintaining discharge water temperatures and pollutant concentrations below certain limits. In the latter part of June 2022 and beginning of July 2022, TVA experienced abnormally high air temperatures, which, combined with fewer significant rain events during this time as compared to previous years, caused river temperatures to warm. This sustained heat, along with lower rainfall, can create a challenge for TVA's plants which depend on water from the river systems for cooling while maintaining compliance with thermal requirements. TVA has had and will continue to have temporary reductions of generation at affected plants to ensure compliance with thermal requirements and anticipates water temperature will continue to pose a risk during times of higher air temperatures and fewer significant rain events. See Item 1A, Risk Factors – *Risks Related to the Environmental and Catastrophic Events – Events that affect the supply or quality of water from the Tennessee River system and Cumberland River system, or elsewhere, may interfere with TVA's ability to generate power.*

Extreme Flooding Preparedness. Updates to the TVA analytical hydrology model completed in 2009 indicated that under "probable maximum flood" conditions, some of TVA's dams might not have been capable of regulating the higher flood waters. A "probable maximum flood" is an extremely unlikely event; however, TVA has a responsibility to provide protection for its nuclear plants against such events. As a result, TVA installed a series of modifications at four dams.

Since 2009, TVA has performed further hydrology modeling of portions of the TVA watershed using updated modeling tools. The revised hydrology models were reviewed and approved by the NRC for Watts Bar Nuclear Plant ("Watts Bar") Units 1 and 2. However, TVA identified an error in the modeling that will require the models for Watts Bar Units 1 and 2 to be resubmitted. TVA plans to resubmit models for Watts Bar Units 1 and 2 in 2023. In addition, TVA submitted models for Sequoyah Nuclear Plant ("Sequoyah") Units 1 and 2 in 2020. As a result of the recently identified necessary changes to dam stability assumptions, TVA will submit a revision to the Sequoyah model in 2023. TVA will subsequently address conditions at Browns Ferry Nuclear Plant ("Browns Ferry") as needed. As of September 30, 2022, TVA had spent \$155 million on the modifications and improvements related to extreme flooding preparedness. TVA is deferring the decision on the need for additional modifications until after the modeling work is complete.

Dam Remediation. In 2015, a sinkhole was discovered near the base of the earthen embankment at Boone Dam, and a small amount of water and sediment was found seeping from the river bank below the dam. TVA identified underground pathways contributing to the seepage and prepared a plan to repair the dam, which consists of the construction of a composite seepage barrier wall in the dam's earthen embankment. The site was re-opened to the public in May 2022, and the reservoir has returned to normal operations. As of September 30, 2022, TVA had spent \$325 million related to this project and expects to spend an additional \$1 million in 2023.

In addition, reassessments of Pickwick Landing Dam ("Pickwick") found low safety factors for post-earthquake stability indicating that the dam is at significant risk for slope stability failure following a seismic event in portions of the south embankment. Slope stability failure could lead to a breach of the south embankment and loss of the reservoir, resulting in loss of life and damage to property downstream, disruption to navigation, and loss of generation and recreation. The remaining remediation work is estimated to be complete by the third quarter of 2023. As of September 30, 2022, TVA had spent \$127 million related to this project and expects to spend an additional \$1 million in 2023.

Decarbonization

TVA's decarbonization initiative is aimed at understanding and applying clean resources to support the reduction of carbon emissions from its power supply. Related to its carbon reduction efforts, TVA has established six guiding principles which are as follows:

- Prioritize the needs of Tennessee Valley stakeholders as TVA works to achieve its goals by maintaining low rates and high reliability, and attracting new jobs in the Tennessee Valley.
- Use best-available science and support research and policies that further carbon-free dispatchable technologies.
- Partner with long-term LPCs and other customers and communities to support economy-wide decarbonization efforts and the strategic electrification of other sectors, such as transportation.
- Maintain nuclear generation, hydro generation, and a strong transmission grid as key enabling assets.
- Be transparent with stakeholders in measuring and sharing TVA's progress, and listen and work effectively with all its stakeholders to understand their priorities and needs.

- Adapt to new technologies and changing policies, and be willing and open to changing TVA's plans and projects to achieve deep carbon reduction.

As part of the decarbonization efforts, in 2022, the TVA Board approved a programmatic approach to exploring advanced nuclear technology, which is one of several technologies TVA is exploring. Other decarbonization technologies TVA is exploring in addition to advanced nuclear include battery storage, carbon capture, carbon sequestration and utilization, new hydroelectric pumped storage, electrification, and hydrogen. TVA also is increasing its renewable energy portfolio to work towards carbon emission reductions and meet customer preferences by investing in existing assets, encouraging renewable power through various current programs and offerings, and securing renewable PPAs through RFPs, among others. See *Optimum Energy Portfolio* above, Item 1, Business — Power Supply and Load Management Resources — Renewable Energy Resources, and Item 1, Business — Research and Development for further discussion. See also Item 1, Business — Environmental Matters — Climate Change for a discussion on the impact of executive actions and climate-related regulations on TVA.

Coal Combustion Residuals

Coal Combustion Residuals Facilities. TVA has committed to a programmatic approach for the elimination of wet storage of coal combustion residuals ("CCR") within the TVA service area. Under this program ("CCR Program"), TVA performed stability remediation, completed the conversion of all operational coal-fired plants to dry CCR storage, and is now closing all remaining wet storage facilities.

Dry generation and dewatering projects. TVA has accomplished the conversion from wet to dry handling of CCR materials at all operating coal plants with the completion of dry generation and/or dewatering projects at Bull Run, Cumberland, Gallatin Fossil Plant ("Gallatin"), Kingston, and Shawnee Fossil Plant ("Shawnee").

Landfills. TVA has made strategic decisions to build and maintain lined and permitted dry storage facilities on TVA-owned property at some TVA locations, allowing these facilities to operate beyond existing dry storage capacity. Lined and permitted landfills are operational at Bull Run, Gallatin, Kingston, and Shawnee; TVA received the permit for the construction of a new lined landfill at Gallatin and construction started in 2022; and TVA continues to work through the permitting process for a new landfill at Cumberland and expects construction to begin in 2023. Construction of additional lined and dry permitted storage facilities may occur to support future business requirements.

CCR facilities closures. TVA is working to close CCR facilities in accordance with federal and state requirements. Closure project schedules and costs are driven by the selected closure methodology (such as closure-in-place or closure-by-removal). Closure initiation dates are driven by environmental regulations. TVA's predominant closure methodology is closure-in-place, with exceptions at certain facilities. TVA issued an EIS in June 2016 that addresses the closure of CCR impoundments at TVA's coal-fired plants. TVA issued its associated Record of Decision in July 2016. Although the EIS was designed to be programmatic in order to address the mode of impoundment closures, it specifically addressed closure methods at 10 impoundments. TVA subsequently decided to close those impoundments. The method of final closure for each of these facilities will depend on various factors, including approval by appropriate state regulators and applicable closure requirements of state and federal regulations. Additional site-specific NEPA studies will be conducted as other facilities are designated for closure. See Note 13 — Asset Retirement Obligations.

Groundwater monitoring. 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 and possible remedies, there is the potential for additional costs for investigation and/or remediation. These costs cannot reasonably be predicted until investigations and evaluations are complete and a final remedy is selected where required.

The final Part A revision to the CCR Rule became effective September 28, 2020. Among other things, the final Part A rule requires unlined CCR surface impoundments to stop receiving CCR and non-CCR waste streams and to initiate closure or retrofit by no later than April 11, 2021. TVA ceased sending CCR and non-CCR waste streams to, and initiated closure of, unlined CCR surface impoundments by the specified deadline.

In compliance with the CCR Rule, TVA published the results of 2021 groundwater testing at its CCR facilities during the second quarter of 2022. Similar to prior years, the tests identified several CCR units with constituents at statistically significant levels above site-specific groundwater protection standards. TVA has completed an assessment of corrective measures ("ACM"), which analyzes the effectiveness of potential corrective actions, and has published ACM reports to its CCR Rule Compliance Data and Information website. Based on the results of the ACM, TVA is required to select a remedy as soon as feasible. TVA continues to investigate and evaluate remedies and will continue posting semi-annual progress reports on the status of remedy selection until the final remedy is selected. The cost of these final remedies cannot reasonably be predicted until investigations and evaluations are complete and remedial methods are selected.

As of September 30, 2022, TVA had spent approximately \$2.6 billion on its CCR Program. Through 2027, TVA expects to spend an additional \$900 million on the CCR Program. Estimates for these amounts and costs after 2027 may change

depending on the final closure method selected for each facility. While the conversion portion of the CCR Program is completed, TVA will continue to undertake CCR closure and storage projects, including building new landfill cells under existing permits and closing existing cells once they reach capacity.

TVA was involved in two lawsuits concerning the CCR facilities at Gallatin. One of these cases was decided in TVA's favor by the Sixth Circuit, and the other case was resolved by the entry of a consent order and agreement in Davidson County Chancery Court that became effective July 24, 2019. Under the consent order, TVA agreed to close the existing ash facility by removal, either to an onsite landfill or to an offsite facility. TVA may also consider options for beneficial reuse of the CCR. TVA has submitted the removal plan for approval to the Tennessee Department of Environment and Conservation ("TDEC") and other applicable parties pursuant to the consent order. See Note 13 — *Asset Retirement Obligations*.

In October 2019, TDEC released amendments to its regulations which govern solid waste disposal facilities, including TVA's active CCR facilities covered by a solid waste disposal permit and those which closed pursuant to a TDEC approved closure plan. Such facilities are generally subject to a 30-year post-closure care period during which the owner or operator must undertake certain activities, including monitoring and maintaining the facility. The amendments, among other things, add an additional 50-year period after the end of the post-closure care period, require TVA to submit recommendations as to what activities must be performed during this 50-year period to protect human health and the environment, and require TVA to submit revised closure plans every 10 years.

Allen Groundwater Investigation. The CCR Rule required TVA to implement a comprehensive groundwater monitoring program at units subject to the rule. As a result of this groundwater monitoring program, TVA reported to TDEC in 2017 elevated levels of arsenic, lead, and fluoride in groundwater samples collected from two shallow-aquifer groundwater monitoring wells around the Allen East Ash Disposal Area. TVA, under the oversight of TDEC, conducted a remedial investigation into the nature and extent of the contamination.

The remedial investigation confirmed that the high arsenic, fluoride, and lead concentrations are limited to the shallow alluvial aquifer in the north and south areas of the Allen East Ash Disposal Area. These areas are not adversely impacting the Memphis aquifer, which is the source of the public drinking water supply. All samples taken from the Memphis aquifer through TVA production wells were within the EPA drinking water standards. As the result of a pumping test conducted on TVA production wells at the nearby Allen Combined Cycle Plant ("Allen CC") by the United States Geological Survey and the University of Memphis, TVA has committed to not using these production wells until additional data is generated that supports safe use. TVA constructed water tanks on site and is purchasing cooling water from MLGW in lieu of utilizing the projection wells. Purchasing cooling water in combination with the use of water tanks, rather than wells, could impose some operational limitations, such as limitations on capacity, on the Allen CC due to lower availability of cooling water.

Pursuant to a remedial action plan that has been approved by TDEC, TVA has begun installing a groundwater extraction system and treatment system at the East Ash Disposal Area. In addition, TVA is taking steps to close both the East Ash Disposal Area and the nearby West Ash Disposal Area. On November 29, 2021, after obtaining the necessary approvals from TDEC, TVA began removing CCR materials to an offsite, lined landfill, and removal activities are expected to continue through 2029.

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. See Note 21 — *Commitments and Contingencies — Contingencies*.

Real Property Portfolio

TVA continues to study its real property portfolio as part of the Strategic Real Estate Plan, which is aimed at reducing cost, right-sizing the portfolio, and aligning real estate holdings with TVA's strategic direction. In addition, as TVA continues to explore a hybrid work environment for those whose physical presence is not required, it is also assessing and

reviewing long-term impacts to and plans for its current real estate holdings.

The Knoxville regional consolidation, including consolidation of the centralized field offices in Norris, Tennessee, and Greenway Transmission Service Center, has been completed. As part of TVA's initiative to ensure appropriate workspaces for employees to carry out their mission of service now and into the future, TVA has signed a lease for office space in a building located near downtown Nashville. Occupancy is expected for early 2024. In addition, TVA is continuing to evaluate its real property portfolio, including the Chattanooga Office Complex.

Supply Chain and Inflation Pressures

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. TVA is actively managing costs to mitigate inflationary pressures; however, broader inflationary pressures are expected to persist in 2023. TVA is also managing supplier impacts through existing contracts and increased lead times and communications with suppliers. TVA has been able to manage these challenges with limited business disruptions at this time; however, should pressures continue long-term, TVA could experience more significant disruptions.

Board Quorum

The terms of John L. Ryder and Kenneth E. Allen as members of the TVA Board ended January 3, 2022, with the adjournment of the most recent session of Congress. There are currently five TVA Board members; however, the terms of two additional TVA Board members – Jeff W. Smith and A.D. Frazier – expired on May 18, 2022, although they are permitted under the TVA Act to remain in office until the earlier of the end of the current session of Congress or the date a successor takes office. Under the TVA Act, a quorum of the TVA Board is five members. The TVA Board is responsible for, among other things, establishing the rates TVA charges for power as well as TVA's long-term objectives, policies, and plans. Accordingly, loss of a quorum for an extended period of time would impair TVA's ability to change rates and to modify these objectives, policies, and plans. See Item 1A, Risk Factors — *Human Capital and Management Risks — Loss of a quorum of the TVA Board could limit TVA's ability to adapt to meet changing business conditions.*

Safeguarding Assets

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

TVA works with the North American Electric Reliability Corporation ("NERC"), the SERC Reliability Corporation, the North American Transmission Forum, and other utilities to implement industry approved recommendations and standards.

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

Cybersecurity. TVA operates in a highly regulated environment with respect to cybersecurity. TVA's cybersecurity program aligns or complies with the Federal Information Security Management Act, the NERC Critical Infrastructure Protection requirements, and the NRC requirements for cybersecurity, as well as industry best practices. As part of the U.S. government, TVA coordinates with and works closely with the U.S. Department of Homeland Security's Cybersecurity and Infrastructure Security Agency ("CISA") and the U.S. Computer Emergency Readiness Team ("US-CERT"). CISA serves as the agency assisting other federal entities in defending against threats and securing critical infrastructure. US-CERT functions as a liaison between the U.S. Department of Homeland Security and the public and private sectors to coordinate responses to security threats.

The risk of cybersecurity events such as malicious code attacks, unauthorized access attempts, and social engineering attempts continues to intensify across all industries, including the energy sector. Over the last few years, TVA has observed a significant increase in malicious activity including phishing campaigns, malicious websites, distributed denial of service attacks, and activity specific to the COVID-19 pandemic, among others. These types of malicious activity have also been observed by TVA's external vendors, stakeholders, and partners, which has caused the need for heightened awareness and preparedness. In addition, TVA has increased cybersecurity efforts as a precautionary measure due to Russia's invasion of Ukraine. TVA has also observed an increase in activity from Russia.

On May 12, 2021, President Biden signed EO 14028, "Improving the Nation's Cybersecurity." This EO is intended to improve the nation's cybersecurity posture and protect federal government networks by improving information-sharing between the U.S. government and the private sector on cyber issues and strengthening the United States' ability to respond to incidents

when they occur. This EO is focused on specific goals and requirements including actions for zero trust architectures; cloud services; FedRAMP programs; supply chain and contracts; secure software development; endpoint detection and response, standardized vulnerability, and incident response operational plans; threat and vulnerability analysis; assessment and threat-hunting; event logging, monitoring, and retention; and information sharing. TVA continues to evaluate and respond to the EO, associated Office of Management and Budget memorandums, and other emerging requirements in alignment with the order. TVA has submitted all reports as required, established response teams and an oversight structure, and initiated projects as necessary to address the required actions.

In December 2021, TVA was notified of a potential cyber vulnerability, known as Log4j, that had the ability to impact many applications and services. TVA immediately responded and through its vulnerability and patch management program, implemented remediations and mitigations to address potential impact. TVA is continuing to work with vendors to ensure all services and applications are secure. At this time, this event has not impacted TVA's ability to operate as planned.

TVA is leveraging federal and other partners to better identify, detect, protect, and respond to these potential attacks. TVA also has a vulnerability and patch management program in place; when vulnerabilities are identified, the program is utilized to identify and prioritize remediation and mitigation activities to reduce the risk to TVA. While TVA and its third-party vendors and service providers have been, and will likely continue to be, subjected to such attacks and attempts to disrupt operations, to date the attacks have not had a significant or material impact on business or operations and have not impacted TVA's ability to operate as planned. See Item 1A, Risk Factors — *Cybersecurity Risks — TVA's facilities and information infrastructure may not operate as planned due to cyber threats to TVA's assets and operations.*

Critical Accounting Estimates

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

TVA believes that its most critical accounting estimates relate to AROs, fair value measurements, and pension and other post-retirement benefits.

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

Asset Retirement Obligations

TVA recognizes legal obligations associated with the future retirement of certain tangible long-lived assets. These obligations relate to TVA's generating facilities, including coal-fired, nuclear, hydroelectric, and natural gas and/or oil-fired. They also pertain to coal ash impoundments, transmission facilities, and other property-related assets. Activities involved with the retirement of these assets could include decontamination and demolition of structures, removal and disposal of wastes, and site restoration. TVA periodically reviews its estimated ARO liabilities. Revisions to the ARO estimates are made whenever factors indicate that the timing or amounts of estimated cash flows have changed. Any change to an ARO liability is recognized prospectively as an equivalent increase or decrease in the carrying value of the capitalized asset. Any accretion or depreciation expense related to these liabilities and assets is charged to a regulatory asset. See Note 10 — *Regulatory Assets and Liabilities — Nuclear Decommissioning Costs and Non-Nuclear Decommissioning Costs* and Note 13 — *Asset Retirement Obligations* for explanations of changes in estimates.

The initial obligation is measured at its estimated fair value using various judgments and assumptions. Fair value is developed using an expected present value technique that is based on assumptions of market participants and that considers estimated retirement costs in current period dollars that are inflated to the anticipated decommissioning date and then discounted back to the date the ARO was incurred. Changes in assumptions and estimates included within the calculations of the value of the AROs could result in different results than those identified and recorded in the financial statements, including amortization of the regulatory assets.

Nuclear Decommissioning. Decommissioning cost studies are updated for each of TVA's nuclear units long-lived assets at least every five years. At September 30, 2022, the estimated future nuclear decommissioning cost recognized in the financial statements was \$3.6 billion and was included in AROs, and the unamortized regulatory asset related to nuclear decommissioning ARO costs of \$821 million was included in Regulatory assets.

The following key assumptions can have a significant effect on estimates related to the nuclear decommissioning costs reported in TVA's nuclear ARO liability:

Timing and Method – In projecting decommissioning costs, two assumptions must be made to estimate the timing of plant decommissioning. First, the date of the plant's retirement must be estimated. At Browns Ferry and Sequoyah, the estimated retirement date is based on the unit with the longest license period remaining. At Watts Bar, the estimated retirement date is based on each unit's license period. Second, an assumption must be made on the timing of the decommissioning. TVA has ascribed probabilities to two different decommissioning methods related to its nuclear decommissioning obligation estimate: the DECON method and the SAFSTOR method. The DECON method requires that radioactive contamination be removed from a site and safely disposed of or decontaminated to a level that permits the site to be released for unrestricted use shortly after it ceases operation. The SAFSTOR method allows nuclear facilities to be placed and maintained in a condition that allows the facilities to be safely stored and subsequently decontaminated to levels that permit release for unrestricted use. TVA bases its nuclear decommissioning estimates on site-specific cost studies, which are updated for each of TVA's nuclear units at least every five years. TVA completed new cost studies in 2022. The studies were approved and implemented in September 2022. An increase of \$58 million was recorded to the nuclear AROs as a result of the updates. Changes in probabilities ascribed to the assumptions or the timing of decommissioning can significantly change the present value of TVA's obligations.

Cost Estimates – There is limited experience with actual decommissioning of large nuclear facilities. Changes in technology and experience as well as changes in regulations regarding nuclear decommissioning could cause cost estimates to change significantly. TVA's cost studies assume current technology and regulations.

Cost Escalation Rate – TVA uses expected inflation rates over the remaining timeframe until the costs are expected to be incurred to estimate the amount of future cash flows required to satisfy TVA's decommissioning obligations.

Discount Rate – TVA uses its incremental borrowing rate over a period consistent with the remaining timeframe until the costs are expected to be incurred to calculate the present value of the weighted estimated cash flows required to satisfy TVA's decommissioning obligations.

The actual decommissioning costs may vary from the derived estimates because of changes in current assumptions, such as the assumed dates of decommissioning, changes in regulatory requirements, changes in technology, and changes in the cost of labor, materials, and equipment. A 10 percent change in TVA's forecasted costs for nuclear decommissioning activities at September 30, 2022, would have affected the liability by approximately \$364 million.

Non-Nuclear Decommissioning. At September 30, 2022, the estimated future non-nuclear decommissioning cost recognized in the financial statements was \$3.5 billion and was included in AROs, and the unamortized regulatory asset related to non-nuclear decommissioning ARO costs of \$2.9 billion was included in Regulatory assets.

This decommissioning cost estimate involves estimating the amount and timing of future expenditures and making judgments concerning whether or not such costs are considered a legal obligation. Estimating the amount and timing of future expenditures includes, among other things, making projections of the timing and duration of the asset retirement process and predicting how costs will escalate with inflation. These costs are predominantly CCR closure, CCR post-closure care and monitoring, and plant powerhouse asbestos removal. CCR closure estimates are primarily closure-in-place except for specific ponds located at Allen and Gallatin, which are closure-by-removal. CCR post-closure care and monitoring primarily includes costs for grounds maintenance, cover system and mechanical maintenance, inspections, and groundwater monitoring costs. Asbestos removal is based on cost per square foot to remove and dispose of asbestos-containing materials. TVA revises estimates of CCR closure on a project by project basis when updated cost information becomes available that causes management's expectation of cost to change materially.

The following key assumptions can have a significant effect on estimates related to the non-nuclear decommissioning costs:

Timing and Method – In projecting non-nuclear decommissioning costs, the date of the asset's retirement must be estimated. In instances where the retirement of a specific asset will precede the retirement of the generating plant, the anticipated retirement date of the specific asset is used. Additionally, TVA expects to incur certain ongoing costs subsequent to the initial asset retirement. TVA develops its cost estimates based on likelihood of decommissioning method where options exist in fulfilling legal obligations (e.g. closure-in-place or closure-by-removal for coal ash impoundments). The decommissioning method is determined based on several factors including available technologies, environmental studies, cost factors, resource availability, and timing requirements. As these factors are considered and decommissioning methods are determined, the detailed project schedules and estimates are adjusted. Non-nuclear decommissioning cost estimates, including CCR post-closure care and monitoring costs and asbestos removal, are studied for revision at least every five years, but revised more frequently if updated cost information becomes available that causes management's expectation of cost to change materially. See Note 10 — *Regulatory Assets and Liabilities — Non-Nuclear Decommissioning Costs*.

TVA implemented revised depreciation rates during the first quarter of 2022 applicable to its completed plant as a result of the completion of a new depreciation study. The study includes a decline in the service life estimates of TVA's coal-fired plants

based on current planning assumptions to potentially retire the remainder of the coal-fired fleet by 2035. As a result of the accelerated retirements reflected in the depreciation study, TVA performed an assessment of the assumptions used in the timing of cash flows related to its non-nuclear AROs. Based on the assessment, TVA identified changes to its projections of timing of certain asset retirement processes that were recorded in 2022.

Technology and Regulation – Changes in technology and experience as well as changes in regulations regarding non-nuclear decommissioning could cause cost estimates to change significantly. TVA's cost estimates generally assume current technology and regulations. In April 2015, the EPA published its final rule governing CCR, which regulates landfill and impoundment location, design, and operations; dictates certain pond-closure conditions; and establishes groundwater monitoring and closure and post-closure standards. As a result of this ruling, in 2015 TVA made revisions to the assumptions and estimates used to calculate its CCR AROs. TVA continues to evaluate the impact of the rule on its operations, including cost and timing estimates of related projects. As a result, further adjustments to its ARO liabilities may be required as estimates are refined.

Cost Escalation Rate – TVA uses expected inflation rates over the remaining timeframe until the costs are expected to be incurred to estimate the amount of future cash flows required to satisfy TVA's decommissioning obligations.

Discount Rate – TVA uses its incremental borrowing rate over a period consistent with the remaining timeframe until the costs are expected to be incurred to calculate the present value of the weighted estimated cash flows required to satisfy TVA's decommissioning obligations.

The actual decommissioning costs may vary from the derived estimates because of changes in current assumptions, such as the assumed dates of decommissioning, changes in the discount or escalation rates, changes in regulatory requirements, changes in technology, and changes in the cost of labor, materials, and equipment. A 10 percent change in TVA's forecasted costs for non-nuclear decommissioning activities at September 30, 2022, would have affected the liability by approximately \$352 million.

Fair Value Measurements

Investments. Investment funds are comprised of equity securities and debt securities and are classified as trading. These securities are held in the Nuclear Decommissioning Trust ("NDT"), Asset Retirement Trust ("ART"), Supplemental Executive Retirement Plan ("SERP"), Deferred Compensation Plan ("DCP"), and qualified benefit pension plan.

Investment Funds. The assets in the NDT, ART, SERP, and DCP are generally measured at fair value based on quoted market prices or other observable market data such as interest rate indices. These investments are primarily U.S. and international equities, real estate investment trusts, fixed income investments, high-yield fixed income investments, U.S. Treasury Inflation-Protected Securities ("TIPS"), treasuries, currencies, derivative instruments, and other investments. TVA has classified all of these trading securities as either Level 1, Level 2, or Investments measured at net asset value ("NAV"). 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 are valued at NAV as a practical expedient for fair value. 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. See Note 16 — *Fair Value Measurements — Valuation Techniques* for a discussion of valuation levels of the investments.

Plan Investments. TVA's qualified benefit pension plan is funded with qualified plan assets. These investments are primarily global public equities, private equities, fixed income securities, public real assets, and private real assets. See Note 20 — *Benefit Plans — Fair Value Measurements* for disclosure of fair value measurements for investments held by the TVA Retirement System ("TVARS") that support TVA's qualified defined benefit pension plan.

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

For investment funds, TVA additionally performs its own analytical testing on the change in fair value measurements each period to ensure the valuations are reasonable based on changes in general market assumptions. TVA also performs pricing tests on various portfolios comprised of securities classified in Levels 1 and 2 on a quarterly basis to confirm accuracy of

the values received from the investment portfolio trustee. For plan investments, TVARS reviews the trustee's Service Organization Controls report and the pricing policies of the trustee's largest pricing vendor.

Derivatives. TVA has historically entered into various derivative transactions, including commodity option contracts, forward contracts, swaps, swaptions, futures, and options on futures, to manage various market risks. Other than certain derivative instruments included in investment funds, it is TVA's policy to enter into these derivative transactions solely for hedging purposes and not for speculative purposes. See Note 10 — *Regulatory Assets and Liabilities* and Note 15 — *Risk Management Activities and Derivative Transactions* for explanations of changes in estimates.

Currency and Interest Rate Derivatives. TVA has two currency swaps and two "fixed for floating" interest rate swaps. The currency swaps protect against changes in cash flows caused by volatility in exchange rates related to outstanding Bonds denominated in British pounds sterling. TVA uses interest rate swaps to fix variable short-term debt to a fixed rate. The currency and interest rate swaps are classified as Level 2 valuations as the rate curves and interest rates affecting the fair value of the contracts are based on observable data.

Commodity Derivatives. TVA enters into commodity contracts for natural gas that require physical delivery of the contracted quantity of the commodity. The natural gas derivative contracts are classified as Level 2 valuations based on market approaches which utilize short-term and mid-term market-quoted prices from an external industry brokerage firm.

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

Commodity Derivatives under the Financial Hedging Program ("FHP"). In November 2021, the TVA Board approved the elimination of the Value at Risk aggregate transaction limit for the FHP and authorized the use of tolerances and measures that will be reviewed annually by the TVA Board. The tolerances will address counterparty exposure, liquidity risk, and reduction in fuel cost volatility. In addition, the TVA Board approved certain administrative changes to the FHP. In December 2021, TVA reinstated the FHP, and hedging activity began under the program in the second quarter of 2022. The commodity derivatives under the FHP are classified as Level 2 valuations based on market approaches which utilize short-term and mid-term market-quoted prices from an external industry brokerage firm.

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

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

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

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

Nonperformance risk for most of TVA's derivative instruments is an adjustment to the initial asset/liability fair value. TVA adjusts for nonperformance risk, both of TVA (for liabilities) and the counterparty (for assets), by applying a CVA. TVA determines an appropriate CVA for each applicable financial instrument based on the term of the instrument and TVA's or the counterparty's credit rating as obtained from Moody's. For companies that do not have an observable credit rating, TVA uses internal analysis to assign a comparable rating to the company. TVA discounts each financial instrument using the historical default rate (as reported by Moody's for CY 1983 to CY 2021) for companies with a similar credit rating over a time period consistent with the remaining term of the contract.

All derivative instruments are analyzed individually and are subject to unique risk exposures. The application of CVAs resulted in a \$2 million decrease in the fair value of assets and a \$2 million decrease in the fair value of liabilities at September 30, 2022.

Collateral. TVA's interest rate swaps, currency swaps, and commodity derivatives under the Financial Hedging Program ("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. See Note 15 — *Risk Management Activities and Derivative Transactions — Other Derivative Instruments — Collateral* for a discussion of collateral related to TVA's derivative liabilities.

Pension and Other Post-Retirement Benefits

TVA sponsors a defined benefit pension plan that is qualified under section 401(a) of the Internal Revenue Code and covers substantially all of its full-time annual employees hired prior to July 1, 2014. TVARS, a separate legal entity governed by its own board of directors (the "TVARS Board"), administers the qualified defined benefit pension plan. TVA also provides a SERP to certain executives in critical positions, which provides supplemental pension benefits tied to compensation levels that exceed limits imposed by IRS rules applicable to the qualified defined benefit pension plan. Additionally, TVA provides post-retirement health care benefits for most of its full-time employees who reach retirement age while still working for TVA.

TVA's pension and other post-retirement benefits contain uncertainties because they require management to make certain assumptions related to TVA's cost to provide these benefits. Numerous factors are considered including the provisions of the plans, changing employee demographics, various actuarial calculations, assumptions, and accounting mechanisms. Effects of the COVID-19 pandemic on the financial markets, regulations, and experience are uncertain and still evolving, creating an additional degree of complexity associated with the future occurrence or outcome of events and conditions underlying the significant accounting assumptions discussed below.

Certain key actuarial assumptions critical to the pension and postretirement accounting estimates include expected long-term rate of return on plan assets, discount rates, projected health care cost trend rates, cost of living adjustments ("COLA"), and mortality rates. Every five years, a formal actuarial experience study that compares assumptions to the actual experience is conducted. Additional ad-hoc experience studies are performed as needed to review recent experience and validate recommended changes to the actuarial assumptions used based upon TVA's last experience study in 2018. See Note 20 — *Benefit Plans* for explanations of changes in assumptions and estimates.

Expected Return on Plan Assets. The qualified defined benefit pension plan is the only plan that is funded with qualified plan assets. In determining the expected long-term rate of return on pension plan assets, TVA uses a process that incorporates actual historical asset class returns and an assessment of expected future performance and takes into consideration external actuarial advice, the current outlook on capital markets, the asset allocation policy, and the anticipated impact of active management. During 2022, the TVARS Board increased the expected return on plan assets assumptions from 5.75 percent to 6.50 percent based upon review of the current plan's funding levels and asset target allocation mix, capital market outlooks, and the most recent studies. In 2022, TVA management adopted the 6.50 percent expected long-term rate of return on plan assets assumption, which will be used to calculate the 2023 net periodic pension cost.

TVA recognizes the impact of asset performance on pension expense over a three-year phase-in period through a market-related value of assets ("MRVA") calculation. The MRVA recognizes investment gains and losses over a three-year period and is used in calculating the expected return on assets and the recognized net actuarial loss components of pension net periodic benefit cost.

A higher expected rate of return assumption decreases the net periodic pension benefit costs, whereas a lower expected rate of return assumption increases the net periodic pension benefit cost. The plan's actual rate of return for 2022 was (6.64) percent compared to the assumption of 5.75 percent. The difference between the expected and actual return on plan assets resulted in an actuarial loss of \$1.0 billion that is recognized as an increase in the related regulatory asset and an increase in the pension benefit obligation at September 30, 2022.

Discount Rate. TVA's discount rates are derived by identifying a theoretical settlement portfolio of high quality corporate bonds of Aa quality or higher sufficient to provide for the projected benefit payments. The model matches the present value of the projected benefit payments to the market value of the theoretical settlement bond portfolio with any resulting excess funds presumed to be reinvested and used to meet successive year benefit payments. A single equivalent discount rate is determined to align the present value of the required cash flow with the value of the bond portfolio. The resulting discount rates are reflective of both the current interest rate and the distinct liability of the pension and post-retirement benefit plans.

The discount rate is somewhat volatile because it is determined based upon the prevailing rate of long-term corporate bonds as of the measurement date. A higher discount rate decreases the plan obligations and correspondingly decreases the net periodic pension and net post-retirement benefit costs for those plans where actuarial losses are being amortized. Alternatively, a lower discount rate increases net periodic pension and net periodic post-retirement benefit costs. The discount rates used to determine the pension and post-retirement benefit obligations were 5.60 percent and 5.65 percent, respectively, at September 30, 2022.

Health Care Cost Trends. In establishing health care cost trend rates for the post-retirement obligation, TVA reviews actual recent cost trends and projected future trends considering health care inflation, changes in health care utilization, and

changes in plan benefits and premium experience. The pre-Medicare eligible per capita claims costs trend rate is 7.00 percent, declining 0.25 percent per year until it reaches the ultimate trend rate of 5.00 percent in 2031. The pre-Medicare eligible per capita contributions trend rate and ultimate rate is 5.00 percent, which was reached in 2022. The post-Medicare current health care cost trend rate is zero percent for years 2023 through 2025, reaching the ultimate rate of 4.00 percent in 2026. During 2022, TVA recognized a \$67 million actuarial loss due to pre-Medicare higher claim costs and lower expected future pre-Medicare contributions than previously assumed. This was partially offset by a \$31 million actuarial gain from delaying the ultimate post-Medicare trend rate assumption two years due to favorable premium rates.

Cost of Living Adjustments. Cost of living adjustments ("COLAs") are an increase in the benefits for eligible retirees to help maintain the purchasing power of benefits as consumer prices increase. This assumption is based on the long-term expected future rate of inflation, which is based on the capital market outlooks, economic forecasts, and the Federal Reserve policy. See Note 20 — *Benefit Plans — Plan Assumptions — Cost of Living Adjustment* for further discussion on the calculation of the COLA. The actual COLA for CY 2022 was 3.50 percent. The CY 2023 COLA and CY 2024 COLA are assumed to be 6.00 percent and 3.15 percent, respectively, and for years thereafter the COLA is assumed to be 2.00 percent. A higher COLA increases the pension benefit obligation whereas a lower COLA assumption decreases the obligation. The actual calendar year COLA and the long-term COLA assumption are used to determine the benefit obligation at September 30 and the net periodic benefit costs for the following fiscal year.

Mortality. TVA's mortality assumptions are based upon actuarial projections in combination with actuarial studies of the actual mortality experience of TVARS's pension and post-retirement benefit plan participants taking into consideration the Society of Actuaries ("SOA") mortality table and projection scales as of September 30, 2022. TVA continues to monitor the availability of updates to mortality tables, longevity improvement scales, and mortality reviews and experience studies to consider whether these updates should be reflected in the current year mortality assumption. In 2022, based upon the most recent mortality experience study, TVA adopted a modified version of the SOA PRI-2012 Upper Quartile mortality table and updated to the latest mortality improvement scale at September 30, 2022. The change in TVA's mortality assumptions resulted in a \$527 million increase in the pension obligation and an \$18 million increase in the post-retirement obligation at September 30, 2022.

The following tables illustrate the estimated effects of changing certain of the critical actuarial assumptions discussed above, while holding all other assumptions constant and excluding any impact for unamortized actuarial gains and losses:

Actuarial Assumption	Sensitivity to Certain Changes in Pension Assumptions		
	Actual Assumption	Change in Assumption	Impact
Effect on 2022 pension expense:			
Discount rate	2.90 %	(0.25)%	\$ 16
Expected return on assets	5.75 %	(0.25)%	19
COLA	2.00 %	0.25 %	29
Effect on benefit obligation at September 30, 2022:			
Discount rate	5.60 %	(0.25)%	257
COLA	2.00 %	0.25 %	179
Sensitivity to Changes in Assumed Health Care Cost Trend Rates			
	1% Increase	1% Decrease	
Effect on total of service and interest cost components for 2022	\$ 4	\$ (4)	
Effect on end-of-year accumulated post-retirement benefit obligation at September 30, 2022	40	(49)	

New Accounting Standards and Interpretations

See Note 2 — *Impact of New Accounting Standards and Interpretations* for a discussion of recent accounting standards and pronouncements that were issued by the Financial Accounting Standards Board ("FASB"), became effective for TVA, or were adopted by TVA during the presented periods.

Legislative and Regulatory Matters

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

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 (the "Exchange Act"), which requires certain issuers to disclose certain activities relating to Iran

involving the issuer and its affiliates. Based on information supplied by each such person, none of TVA's directors and executive officers are involved in any such 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.

Environmental Matters

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

Legal Proceedings

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting its activities, as a result of catastrophic events or otherwise. As of September 30, 2022, TVA had accrued approximately \$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 21 — *Commitments and Contingencies — Legal Proceedings*, which discussions are incorporated into this Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations.

Risk Management Activities

TVA is exposed to various market risks. These market risks include risks related to commodity prices, investment prices, interest rates, currency exchange rates, inflation, and counterparty credit and performance risk. To help manage certain of these risks, TVA has entered into various derivative transactions, including commodity option contracts, forward contracts, swaps, swaptions, futures, and options on futures. Other than certain derivative instruments in its trust investment funds, it is TVA's policy to enter into these derivative transactions solely for hedging purposes and not for speculative purposes. See Note 15 — *Risk Management Activities and Derivative Transactions*.

Risk Governance

The Enterprise Risk Council ("ERC") is responsible for the highest level of risk oversight at TVA and is also responsible for communicating enterprise-wide risks with policy implications to the TVA Board or a designated TVA Board committee. The ERC is comprised of the Enterprise Leadership Team ("ELT") and the Chief Risk Officer ("CRO") who acts as Chair. ERC members may invite additional attendees to meetings as non-voting participants. The ERC has also established subordinate committees, consisting of business unit leaders, to assist in the oversight of fuel and power procurement, DER programs and products, and general risk management.

TVA has a designated Enterprise Risk Management ("ERM") organization within its Financial Services organization responsible for (1) establishing enterprise risk management policies and guidelines, (2) developing an enterprise risk profile aligned with TVA's strategic objectives, (3) performing annual risk assessments across all TVA business units, (4) monitoring and reporting on identified enterprise risks and emerging risks, (5) facilitating enterprise risk discussions with the risk subject matter experts across the organization and at the ERC and TVA Board levels, and (6) developing and improving TVA's risk awareness culture. TVA has cataloged major short-term and long-term enterprise level risks across the organization. A discussion of significant risks is presented in Item 1A, Risk Factors.

Commodity Price Risk

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

Commodity Derivatives. TVA manages risk with commodity contracts for natural gas that require physical delivery of the contracted quantity. An immediate 10 percent decline in the market price of natural gas on September 30, 2022 and 2021, would have resulted in decreases of approximately \$18 million and \$49 million, respectively, in the fair value of TVA's natural gas derivative instruments at these dates.

Commodity Derivatives under the FHP. TVA manages risk with commodity derivatives under the FHP by hedging exposure to the price of natural gas. An immediate 10 percent decline in the market price of natural gas on September 30, 2022 would have resulted in a decrease of approximately \$133 million in the fair value of TVA's natural gas derivative instruments under the FHP.

Investment Price Risk

TVA's investment price risk relates primarily to investments in TVA's NDT, ART, pension fund, SERP, and DCP.

Nuclear Decommissioning Trust. The NDT is generally designed to achieve a return in line with overall equity and debt market performance. The assets of the trust are invested in debt and equity securities, private partnerships, and certain derivative instruments including forwards, futures, options, and swaps, and through these investments the trust has exposure to U.S. equities, international equities, real estate investment trusts, natural resource equities, high-yield debt, domestic debt, U.S. TIPS, treasuries, private real assets, private equity, and private credit strategies. At September 30, 2022 and 2021, an immediate 10 percent decrease in the price of the investments in the trust would have reduced the value of the trust by \$252 million and \$281 million, respectively.

Asset Retirement Trust. The ART is presently invested to achieve a return in line with overall equity and debt market performance. The assets of the trust are invested in debt and equity securities, private partnerships, and certain derivative instruments including options, and through these investments the trust has exposure to U.S. equities, real estate investment trusts, natural resource equities, high-yield debt, domestic debt, TIPS, treasuries, private real assets, private equity, and private credit strategies. At September 30, 2022 and 2021, an immediate 10 percent decrease in the price of the investments in the trust would have reduced the value of the trust by \$106 million and \$113 million, respectively.

Qualified Pension Plan. In 2021, a new asset allocation plan was put in place to reduce risk and volatility in the TVARS investment portfolio. The TVARS asset allocation policy for qualified pension plan assets has targets of 17 percent growth assets, 38 percent defensive growth assets, 20 percent defensive assets, and 25 percent inflation-sensitive assets. Pursuant to the TVARS Rules and Regulations, any proposed changes in asset allocation that would change TVARS's assumed rate of investment return are subject to the review and veto of the TVA Board.

As set forth above, the qualified pension plan assets are invested across growth assets, defensive growth assets, defensive assets, and inflation-sensitive assets. The TVARS asset allocation policy includes permissible deviations from target allocations, and action can be taken, as appropriate, to rebalance the plan's assets consistent with the asset allocation policy. At September 30, 2022 and 2021, an immediate 10 percent decrease in the value of the net assets of the fund would have reduced the value of the fund by approximately \$809 million and \$911 million, respectively.

Supplemental Executive Retirement Plan. The SERP is a non-qualified defined benefit pension plan similar to those typically found in other companies in TVA's peer group and is provided to selected employees of TVA. TVA's SERP was created to recruit and retain key executives. The plan is designed to provide a competitive level of retirement benefits in excess of the limitations on contributions and benefits imposed by TVA's qualified defined benefit plan and Internal Revenue Code Section 415 limits on qualified retirement plans. The SERP currently targets an asset allocation policy for its plan assets of 64 percent equity securities, which includes U.S. and non-U.S. equities, and 36 percent fixed income securities. The SERP plan assets are presently invested to achieve a return in line with overall equity and debt market performance. At September 30, 2022 and 2021, an immediate 10 percent decrease in the value of the SERP investments would have reduced the value of the investments by \$7 million and \$8 million, respectively.

Deferred Compensation Plan. The DCP is designed to provide participants with the ability to defer compensation to future periods. The plan assists in the recruitment of top executive talent for TVA. As in other corporations, deferred compensation can be an integral part of a total compensation package. Assets currently include deferral balances. The default return on investment of the accounts is interest calculated based on the composite rate of all marketable U.S. Treasury issues. Executives may alternatively choose to have their balances adjusted based on the return of certain mutual funds. At both September 30, 2022 and 2021, an immediate 10 percent decrease in the value of the deferred compensation accounts would have reduced the value of the accounts by \$2 million.

Interest Rate Risk

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

Investments. At September 30, 2022, TVA had \$500 million of cash and cash equivalents, and the average balance of cash and cash equivalents for 2022 was \$675 million. The average interest rate that TVA received on its short-term investments during 2022 was slightly less than one percent. If the rates of interest that TVA received on its short-term investments during 2022 were zero percent, TVA would have received approximately \$4 million less in interest from its short-term investments. At September 30, 2021, TVA had \$499 million of cash and cash equivalents, and the average balance of cash and cash equivalents for 2021 was \$657 million. The average interest rate that TVA received on its short-term investments during 2021 was only slightly higher than zero percent. If the rates that TVA received on its short-term investments during 2021 were exactly zero percent, TVA would have received a minimal amount less in interest from its short-term investments. In addition to affecting the amount of interest that TVA receives from its short-term investments, changes in interest rates could affect the value of the investments in its pension plan, ART, NDT, SERP, and DCP. See *Risk Management Activities — Investment Price Risk* above.

Short-Term Debt. At September 30, 2022, TVA's short-term borrowings were \$1.2 billion, and the current maturities of long-term debt were \$68 million. Based on TVA's interest rate exposure at September 30, 2022, an immediate one percentage point increase in interest rates would have resulted in an increase of \$12 million in TVA's short-term interest expense. At September 30, 2021, TVA's short-term borrowings were \$780 million, and the current maturities of long-term debt were \$1.1 billion. Based on TVA's interest rate exposure at September 30, 2021, an immediate one percentage point increase in interest rates would have resulted in an increase of \$19 million in TVA's short-term interest expense.

Long-Term Debt. At September 30, 2022 and 2021, the interest rates on all of TVA's outstanding long-term debt were fixed (or subject only to downward adjustment under certain conditions). Accordingly, an immediate one percentage point increase in interest rates would not have affected TVA's interest expense associated with its long-term debt. When TVA's long-term debt matures or is redeemed, however, TVA typically refinances debt in whole or in part by issuing additional debt. Accordingly, if interest rates are high when TVA issues this additional debt, TVA's cash flows, results of operations, and financial condition may be adversely affected. This risk is somewhat mitigated by the fact that TVA's debt portfolio is diversified in terms of maturities and has a long average life. At September 30, 2022 and 2021, the average life of TVA's debt portfolio was 15.96 years and 15.69 years, respectively. At September 30, 2022 and 2021, the average interest rate of TVA's debt portfolio was 4.65 percent and 4.51 percent, respectively. See Note 14 — *Debt and Other Obligations — Debt Outstanding* for a schedule of TVA's debt maturities.

Interest Rate Derivatives. Changes in interest rates also affect the mark-to-market ("MtM") valuation of TVA's interest rate derivatives. See Note 15 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment — Interest Rate Derivatives*. TVA had two and four interest rate swaps outstanding at September 30, 2022 and 2021, respectively. In 2022, final payments were made on two interest rate swaps. Net unrealized gains and losses on the remaining instruments are reflected on TVA's Consolidated Balance Sheets in a regulatory liability or asset account, and realized gains and losses are reflected in earnings. Based on TVA's interest rate exposure at September 30, 2022 and 2021, an immediate one-half percentage point decrease in interest rates would have increased the interest rate swap liabilities by \$122 million and \$260 million, respectively.

London Interbank Offered Rate ("LIBOR"). TVA had interest rate swap contracts that totaled a notional value of \$1.5 billion at December 31, 2021, that were indexed to LIBOR. TVA adopted the International Swaps and Derivative Association's ("ISDA's") LIBOR fallback protocol for interest rate swaps prior to December 31, 2021. Under this protocol, U.S. dollar LIBOR transactions would fall back to the Secured Overnight Financing Rates upon cessation of the related LIBOR publication. The interest rate swap contracts did not receive hedge accounting treatment, and therefore TVA did not elect any optional expedients for this modification. TVA does not have any other significant contracts, including lease agreements, that include payments indexed to LIBOR. Therefore, the change of reference rate did not have a material impact on TVA's financial condition, results of operations, or cash flows.

Currency Exchange Rate Risk

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

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

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

[Table of Contents](#)**ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

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

	ASSETS	
	2022	2021
Current assets		
Cash and cash equivalents	\$ 500	\$ 499
Accounts receivable, net	2,007	1,566
Inventories, net	1,072	950
Regulatory assets	138	196
Other current assets	257	287
Total current assets	3,974	3,498
Property, plant, and equipment		
Completed plant	66,442	66,411
Less accumulated depreciation	(34,239)	(34,663)
Net completed plant	32,203	31,748
Construction in progress	2,535	2,458
Nuclear fuel	1,492	1,566
Finance leases	630	692
Total property, plant, and equipment, net	36,860	36,464
Investment funds	3,671	4,053
Regulatory and other long-term assets		
Regulatory assets	6,134	7,956
Operating lease assets, net of amortization	155	165
Other long-term assets	394	320
Total regulatory and other long-term assets	6,683	8,441
Total assets	\$ 51,188	\$ 52,456

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

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

LIABILITIES AND PROPRIETARY CAPITAL

	2022	2021
Current liabilities		
Accounts payable and accrued liabilities	\$ 2,466	\$ 2,215
Accrued interest	273	282
Asset retirement obligations	275	266
Current portion of leaseback obligations	—	25
Regulatory liabilities	391	340
Short-term debt, net	1,172	780
Current maturities of power bonds	29	1,028
Current maturities of long-term debt of variable interest entities	39	43
Total current liabilities	<u>4,645</u>	<u>4,979</u>
Other liabilities		
Post-retirement and post-employment benefit obligations	3,072	5,045
Asset retirement obligations	6,887	6,736
Finance lease liabilities	628	687
Other long-term liabilities	1,485	2,041
Regulatory liabilities	<u>172</u>	<u>40</u>
Total other liabilities	<u>12,244</u>	<u>14,549</u>
Long-term debt, net		
Long-term power bonds, net	17,826	17,457
Long-term debt of variable interest entities, net	<u>968</u>	<u>1,006</u>
Total long-term debt, net	<u>18,794</u>	<u>18,463</u>
Total liabilities	<u><u>35,683</u></u>	<u><u>37,991</u></u>
Commitments and contingencies (Note 21)		
Proprietary capital		
Power program appropriation investment	258	258
Power program retained earnings	<u>14,800</u>	<u>13,689</u>
Total power program proprietary capital	<u>15,058</u>	<u>13,947</u>
Nonpower programs appropriation investment, net	533	540
Accumulated other comprehensive loss	<u>(86)</u>	<u>(22)</u>
Total proprietary capital	<u>15,505</u>	<u>14,465</u>
Total liabilities and proprietary capital	<u><u>\$ 51,188</u></u>	<u><u>\$ 52,456</u></u>

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

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

	2022	2021	2020
Operating revenues			
Revenue from sales of electricity	\$ 12,371	\$ 10,357	\$ 10,104
Other revenue	169	146	145
Total operating revenues	12,540	10,503	10,249
Operating expenses			
Fuel	2,567	1,737	1,584
Purchased power	1,921	984	880
Operating and maintenance	2,986	2,890	2,720
Depreciation and amortization	2,054	1,533	1,826
Tax equivalents	601	514	528
Total operating expenses	10,129	7,658	7,538
Operating income			
Other income, net	7	13	36
Other net periodic benefit cost	258	258	253
Interest expense			
Interest expense	1,052	1,088	1,142
Net income	\$ 1,108	\$ 1,512	\$ 1,352

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

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

	2022	2021	2020
Net income	\$ 1,108	\$ 1,512	\$ 1,352
Other comprehensive income (loss)			
Net unrealized gain (loss) on cash flow hedges	(157)	126	(1)
Net unrealized (gain) loss reclassified to earnings from cash flow hedges	93	(97)	(38)
Total other comprehensive income (loss)	<u>(64)</u>	<u>29</u>	<u>(39)</u>
Total comprehensive income	<u><u>\$ 1,044</u></u>	<u><u>\$ 1,541</u></u>	<u><u>\$ 1,313</u></u>

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

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

	2022	2021	2020
Cash flows from operating activities			
Net income	\$ 1,108	\$ 1,512	\$ 1,352
Adjustments to reconcile net income to net cash provided by operating activities			
Depreciation and amortization ⁽¹⁾	2,076	1,555	1,848
Amortization of nuclear fuel cost	347	383	388
Non-cash retirement benefit expense	328	333	324
Other regulatory amortization and deferrals	70	(72)	(21)
Changes in current assets and liabilities			
Accounts receivable, net	(412)	(18)	259
Inventories and other current assets, net	(163)	42	(12)
Accounts payable and accrued liabilities	282	178	(38)
Accrued interest	(7)	(18)	1
Pension contributions	(308)	(306)	(305)
Settlements of asset retirement obligations	(291)	(242)	(114)
Other, net	(82)	(91)	(46)
Net cash provided by operating activities	2,948	3,256	3,636
Cash flows from investing activities			
Construction expenditures	(2,361)	(1,963)	(1,643)
Nuclear fuel expenditures	(283)	(354)	(342)
Purchases of investments	(51)	(50)	(49)
Loans and other receivables			
Advances	(9)	(7)	(8)
Repayments	15	9	7
Other, net	26	27	20
Net cash used in investing activities	(2,663)	(2,338)	(2,015)
Cash flows from financing activities			
Long-term debt			
Issues of power bonds	484	500	997
Redemptions and repurchases of power bonds	(1,028)	(1,860)	(1,427)
Payments on debt of variable interest entities	(43)	(41)	(39)
Redemptions of notes payable	—	—	(23)
Short-term debt issues (redemptions), net	392	723	(865)
Payments on leases and leasebacks	(85)	(250)	(55)
Financing costs, net	(3)	(2)	(4)
Other, net	—	9	(6)
Net cash used in financing activities	(283)	(921)	(1,422)
Net change in cash, cash equivalents, and restricted cash	2	(3)	199
Cash, cash equivalents, and restricted cash at beginning of year	518	521	322
Cash, cash equivalents, and restricted cash at end of year	\$ 520	\$ 518	\$ 521

Note

(1) Including 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
For the years ended September 30
(in millions)

	Power Program Appropriation Investment	Power Program Retained Earnings	Nonpower Programs Appropriation Investment, Net	Accumulated Other Comprehensive Loss	Total
Balance at September 30, 2019	\$ 258	\$ 10,823	\$ 556	\$ (12)	\$ 11,625
Net income (loss)	—	1,360	(8)	—	1,352
Total other comprehensive income (loss)	—	—	—	(39)	(39)
Return on power program appropriation investment	—	(6)	—	—	(6)
Balance at September 30, 2020	\$ 258	\$ 12,177	\$ 548	\$ (51)	\$ 12,932
Net income (loss)	—	1,520	(8)	—	1,512
Total other comprehensive income (loss)	—	—	—	29	29
Return on power program appropriation investment	—	(4)	—	—	(4)
Implementation of Financial Instruments - Credit Losses Standard	—	(4)	—	—	(4)
Balance at September 30, 2021	\$ 258	\$ 13,689	\$ 540	\$ (22)	\$ 14,465
Net income (loss)	—	1,115	(7)	—	1,108
Total other comprehensive income (loss)	—	—	—	(64)	(64)
Return on power program appropriation investment	—	(4)	—	—	(4)
Balance at September 30, 2022	\$ 258	\$ 14,800	\$ 533	\$ (86)	\$ 15,505

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

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

<u>Note</u>		<u>Page No.</u>
1	Summary of Significant Accounting Policies	96
2	Impact of New Accounting Standards and Interpretations	102
3	Accounts Receivable, Net	103
4	Inventories, Net	103
5	Other Current Assets	103
6	Net Completed Plant	104
7	Plant Closures	104
8	Leases	105
9	Other Long-Term Assets	107
10	Regulatory Assets and Liabilities	109
11	Variable Interest Entities	111
12	Other Long-Term Liabilities	114
13	Asset Retirement Obligations	115
14	Debt and Other Obligations	116
15	Risk Management Activities and Derivative Transactions	120
16	Fair Value Measurements	126
17	Revenue	131
18	Other Income, Net	134
19	Supplemental Cash Flow Information	134
20	Benefit Plans	135
21	Commitments and Contingencies	148
22	Related Parties	152

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 (2022, 2021, 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

The accompanying consolidated 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 11 — *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

[Table of Contents](#)

compliance with certain environmental regulations. See Note 21 — *Commitments and Contingencies — Legal Proceedings — Environmental Agreements*.

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 At September 30 (in millions)	2022	2021
Cash and cash equivalents	\$ 500	\$ 499
Restricted cash and cash equivalents included in Other long-term assets	20	19
Total cash, cash equivalents, and restricted cash	\$ 520	\$ 518

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 September 30, 2022 and 2021, for trade accounts receivable. Additionally, loans receivable of \$105 million and \$99 million at September 30, 2022 and 2021, 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 and \$4 million at September 30, 2022 and 2021, respectively.

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.

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.

Property, Plant, and Equipment, and Depreciation

Property, Plant, and Equipment. Additions to plant are recorded at cost, which includes direct and indirect costs. The cost of current repairs and minor replacements is charged to operating expense. Nuclear fuel, which is included in Property, plant, and equipment, is valued using the average cost method for raw materials and the specific identification method for nuclear fuel in a reactor. Amortization of nuclear fuel in a reactor is calculated on a units-of-production basis and is included in fuel expense. When property, plant, and equipment is retired, accumulated depreciation is charged for the original cost of the assets. Gains or losses are only recognized upon the sale of land or an entire operating unit. TVA capitalizes certain costs incurred in connection with developing or obtaining internal-use software. Capitalized software costs are included in Property, plant, and equipment on the Consolidated Balance Sheets and are generally amortized over seven years.

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. During the first quarter of 2022, TVA implemented a new depreciation study related to its completed plant. The new study included a decline in the service life estimates of TVA's coal-fired plants based on current planning assumptions to potentially retire the remainder of the coal-fired fleet by 2035. Implementation of the study resulted in an estimated increase to depreciation and amortization expense of approximately \$345 million during 2022. This estimate represents the effect of using the new depreciation rates on the property, plant, and equipment balances at September 30, 2021, and does not include any potential impact from additions to or retirements of net completed plant, that occurred since September 30, 2021.

Depreciation expense for the years ended September 30, 2022, 2021, and 2020 was \$1.8 billion, \$1.4 billion, and \$1.6 billion, respectively. Depreciation expense expressed as a percentage of the average annual depreciable completed plant was 2.98 percent for 2022, 2.28 percent for 2021, and 2.74 percent for 2020. Average depreciation rates by asset class are as follows:

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

Asset Class	2022	2021	2020
Nuclear	2.72	2.38	2.38
Coal-fired ⁽¹⁾	4.27	1.95	3.62
Hydroelectric	1.85	1.60	1.60
Gas and oil-fired	3.38	2.98	3.04
Transmission	1.51	1.34	1.34
Other	3.64	7.12	7.26

Note

(1) The rates include the acceleration of depreciation related to retiring certain coal-fired units and potentially retiring the remainder of the coal-fired fleet by 2035. See Note 7 — *Plant Closures*.

Reacquired Rights. Property, plant, and equipment includes intangible reacquired rights, net of amortization, of \$178 million and \$184 million as of September 30, 2022 and 2021, respectively, related to the purchase of residual interests from lease/leaseback agreements of certain combustion turbine units ("CTs"). Reacquired rights are amortized over the estimated useful lives of the underlying CTs which range from 33 to 35 years. Amortization expense was \$6 million for 2022 and \$8 million for the years 2021 and 2020, and accumulated amortization at September 30, 2022 and 2021 totaled \$42 million and \$36 million,

respectively. At September 30, 2022, the estimated aggregate amortization expense (in millions) for each of the next five years and thereafter is shown below:

	2023	2024	2025	2026	2027	Thereafter
Reacquired Rights	\$ 6	\$ 6	\$ 6	\$ 6	\$ 6	\$ 148

Impairment of Assets. TVA evaluates long-lived assets for impairment when events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. For long-lived assets, TVA bases its evaluation on impairment indicators such as the nature of the assets, the future economic benefit of the assets, any historical or future profitability measurements, regulatory approval and ability to set rates at levels that allow for recoverability of the assets, and other external market conditions or factors that may be present. If such impairment indicators are present or other factors exist that indicate that the carrying amount of an asset may not be recoverable, TVA determines whether an impairment has occurred based on an estimate of undiscounted cash flows attributable to the asset as compared with the carrying value of the asset. If an impairment has occurred, the amount of the impairment recognized is measured as the excess of the asset's carrying value over its fair value. Additionally, TVA regularly evaluates construction projects. If the project is canceled or deemed to have no future economic benefit, the project is written off as an asset impairment or, upon TVA Board approval, reclassified as a regulatory asset and amortized over the Board-approved period. See Note 7 — *Plant Closures*.

Leases

TVA recognizes a lease asset and lease liability for leases with terms of greater than 12 months. Lease assets represent TVA's right to use an underlying asset for the lease term, and lease liabilities represent TVA's obligation to make lease payments arising from the lease, both of which are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. TVA has certain lease agreements that include variable lease payments that are based on energy production levels. These variable lease payments are not included in the measurement of the lease assets or lease liabilities but are recognized in the period in which the expenses are incurred.

While not specifically structured as leases, certain power purchase agreements ("PPAs") are deemed to contain a lease of the underlying generating units when the terms convey the right to control the use of the assets. Amounts recorded for these leases are generally based on the amount of the scheduled capacity payments due over the remaining terms of the PPAs, the terms of which vary. The total lease obligations included in Accounts payable and accrued liabilities and Other long-term liabilities and Finance lease liabilities related to these agreements were \$425 million and \$133 million for finance and operating leases, respectively, at September 30, 2022. The total lease obligations included in Accounts payable and accrued liabilities and Other long-term liabilities and Finance lease liabilities related to these agreements were \$464 million and \$143 million for finance and operating leases, respectively, at September 30, 2021.

TVA has agreements with lease and non-lease components and has elected to account for the components separately. Consideration is allocated to lease and non-lease components generally based on relative standalone selling prices.

TVA has lease agreements which include options for renewal and early termination. The intent to renew a lease varies depending on the lease type and asset. Renewal options that are reasonably certain to be exercised are included in the lease measurements. The decision to terminate a lease early is dependent on various economic factors. No termination options have been included in TVA's lease measurements.

Leases with an initial term of 12 months or less, which do not include an option to extend the initial term of the lease to greater than 12 months that TVA is reasonably certain to exercise, are not recorded on the Consolidated Balance Sheets at September 30, 2022.

Operating leases are recognized on a straight-line basis over the term of the lease agreement. Rent expense associated with short-term leases and variable leases is recorded in Operating and maintenance expense, Fuel expense, or Purchased power expense on the Consolidated Statements of Operations. Expenses associated with finance leases result in the separate presentation of interest expense on the lease liability and amortization expense of the related lease asset on the Consolidated Statements of Operations.

Decommissioning Costs

TVA recognizes legal obligations associated with the future retirement of certain tangible long-lived assets. These obligations relate to fossil fuel-fired generating plants, nuclear generating plants, hydroelectric generating plants/dams, transmission structures, and other property-related assets. Activities involved with retiring these assets could include decontamination and demolition of structures, removal and disposal of wastes, and site restoration. Revisions to the forecasted costs of decommissioning activities are made whenever factors indicate that the timing or amounts of estimated cash flows have changed materially. Studies are updated for both nuclear and non-nuclear decommissioning costs at least every five years. Any accretion or depreciation expense related to these liabilities and assets is charged to a regulatory asset. See Note 10 — *Regulatory Assets and Liabilities — Nuclear Decommissioning Costs and Non-Nuclear Decommissioning Costs* and Note 13 —

Asset Retirement Obligations.

Down-blend Offering for Tritium

TVA, the U.S. Department of Energy ("DOE"), and certain nuclear fuel contractors have entered into agreements, referred to as the Down-blend Offering for Tritium ("DBOT"), that provide for the production, processing, and storage of low-enriched uranium that is to be made using surplus DOE highly enriched uranium and other uranium. Low-enriched uranium can be fabricated into fuel for use in a nuclear power plant. Production of the low-enriched uranium began in 2019 and is contracted to continue through September 2025. Contract activity will consist of storage and flag management. Flag management ensures that the uranium is of U.S. origin, free from foreign obligations, and unencumbered by policy restrictions, so that it can be used in connection with the production of tritium. Under the terms of the interagency agreement between the DOE and TVA, the DOE will reimburse TVA for a portion of the costs of converting the highly enriched uranium to low-enriched uranium. Since 2019, TVA has received \$188 million in reimbursements from the DOE. At September 30, 2022, TVA recorded \$9 million in Accounts receivable, net related to this agreement.

Investment Funds

Investment funds consist primarily of trust funds designated to fund decommissioning requirements (see Note 21 — *Commitments and Contingencies — Decommissioning Costs*), the Supplemental Executive Retirement Plan ("SERP") (see Note 20 — *Benefit Plans — Overview of Plans and Benefits — Supplemental Executive Retirement Plan*), and the Deferred Compensation Plan ("DCP"). The Nuclear Decommissioning Trust ("NDT") holds funds primarily for the ultimate decommissioning of TVA's nuclear power plants. The Asset Retirement Trust ("ART") holds funds primarily for the costs related to the future closure and retirement of TVA's other long-lived assets. 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 funds are all classified as trading.

Insurance

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

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

In addition to excess workers' compensation insurance, TVA purchases property and liability insurance for nuclear assets and operations. See Note 21 — *Commitments and Contingencies — Nuclear Insurance*. TVA also purchases liability insurance and property insurance for certain conventional (non-nuclear) assets, and other insurance policies when commercially feasible.

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

Research and Development Costs

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

Tax Equivalents

TVA is not subject to federal income taxation. In addition, neither TVA nor its property, franchises, or income is subject to taxation by states or their subdivisions. The TVA Act requires TVA to make payments to states and counties in which TVA conducts its power operations and in which TVA has acquired power properties previously subject to state and local taxation. The total amount of these payments is five percent of gross revenues from sales of power during the preceding year, excluding sales or deliveries to other federal agencies and off-system sales with other utilities, with a provision for minimum payments under certain circumstances. TVA calculates tax equivalent expense by subtracting the prior year fuel cost-related tax equivalent regulatory asset or liability from the payments made to the states and counties during the current year and adding back the current year fuel cost-related tax equivalent regulatory asset or liability. Fuel cost-related tax equivalent expense is recognized in the same accounting period in which the fuel cost-related revenue is recognized.

Maintenance Costs

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

2. Impact of New Accounting Standards and Interpretations

The following are accounting standard updates issued by the Financial Accounting Standards Board ("FASB") that TVA adopted during 2022:

Lessor-Certain Leases with Variable Lease Payments	
Description	<p>This guidance amends the lessor lease classification for leases that have variable lease payments that are not based on an index or rate. If the lease meets the criteria for classification as either (1) a sale-type or (2) a direct finance lease, and application of the lease guidance would result in recognition of a day-one selling loss, then the lease should be classified as an operating lease.</p> <p>There are two transition methods provided by the guidance for entities that have adopted the standard:</p> <ul style="list-style-type: none"> • Retrospective application to leases that commenced or were modified after the beginning of the period in which the standard was adopted, or • Prospective application to leases that commence or are modified subsequent to the date that amendments in the guidance are first applied.
Effective Date for TVA	October 1, 2021
Effect on the Financial Statements or Other Significant Matters	TVA adopted this standard on a prospective basis. Adoption of this standard did not have a material impact on TVA's financial condition, results of operations, or cash flows.
Reference Rate Reform	
Description	<p>This guidance provides temporary optional expedients and exceptions to the guidance in GAAP on contract modifications and hedge accounting to ease the financial reporting burdens related to the expected market transition from the London Interbank Offered Rate ("LIBOR") and other interbank offered rates to alternative reference rates, such as the Secured Overnight Financing Rates ("SOFR").</p>
Effective Date for TVA	December 31, 2021
Effect on the Financial Statements or Other Significant Matters	<p>TVA had interest rate swap contracts that totaled a notional value of \$1.5 billion at December 31, 2021, that were indexed to LIBOR. TVA adopted the International Swaps and Derivative Association's ("ISDA's") LIBOR fallback protocol for interest rate swaps prior to December 31, 2021. Under this protocol, U.S. dollar LIBOR transactions would fall back to the SOFR upon cessation of the related LIBOR publication. The interest rate swap contracts did not receive hedge accounting treatment, and therefore TVA did not elect any optional expedients for this modification. TVA does not have any other significant contracts, including lease agreements, that include payments indexed to LIBOR. Therefore, the change of reference rate did not have a material impact on TVA's financial condition, results of operations, or cash flows.</p>

The following accounting standards have been issued but as of September 30, 2022, were not effective and had not been adopted by TVA:

Accounting for Contract Assets and Contract Liabilities from Contracts with Customers	
Description	<p>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 statement. The entity should apply the standard prospectively to business combinations occurring on or after the effective date of the standard.</p>
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	<p>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.</p>
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 At September 30 (in millions)			
	2022	2021	
Power receivables	\$ 1,899	\$ 1,480	
Other receivables	108	86	
Accounts receivable, net ⁽¹⁾	<u>\$ 2,007</u>	<u>\$ 1,566</u>	

Note
(1) Allowance for uncollectible accounts was less than \$1 million at both September 30, 2022 and 2021, 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 At September 30 (in millions)			
	2022	2021	
Materials and supplies inventory	\$ 808	\$ 775	
Fuel inventory	303	198	
Renewable energy certificates/emissions allowance inventory, net	18	12	
Allowance for inventory obsolescence	(57)	(35)	
Inventories, net	<u>\$ 1,072</u>	<u>\$ 950</u>	

Fuel inventory increased \$105 million at September 30, 2022, as compared to September 30, 2021, primarily due to an increase in coal inventory of \$58 million and an increase in natural gas inventory of \$32 million. Coal inventory increased primarily due to higher costs of fuel, including transportation costs, as a result of continued supply constraints driven by both domestic and export demand, limited production capacity, and market volatility. Coal inventory also increased over the prior year due to coal conservation efforts and an increase in inventory levels as TVA prepares for winter inventory needs. Natural gas inventory increased primarily due to higher gas prices, as well as an increase in the amount of stored gas to mitigate fuel price volatility.

5. Other Current Assets

Other current assets consisted of the following:

Other Current Assets At September 30 (in millions)			
	2022	2021	
Commodity contract derivative assets	\$ 172	\$ 210	
Other	85	77	
Other current assets	<u>\$ 257</u>	<u>\$ 287</u>	

Commodity Contract Derivative Assets. TVA enters into certain derivative contracts for natural gas that require physical delivery of the contracted quantity of the commodity. TVA also reinstated the Financial Hedging Program ("FHP") (formerly the Financial Trading Program, which was suspended in 2014) in December 2021, and hedging activity began under the program in the second quarter of 2022. Commodity contract derivative assets classified as current include deliveries or settlements that will occur within 12 months or less. See Note 15 — *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.

6. Net Completed Plant

Net completed plant consisted of the following:

	Net Completed Plant At September 30 (in millions)						2021		
	2022			2021			Cost	Accumulated Depreciation	Net
	Cost	Accumulated Depreciation	Net	Cost	Accumulated Depreciation	Net			
Coal-fired ⁽¹⁾	\$ 18,145	\$ 13,649	\$ 4,496	\$ 19,319	\$ 14,357	\$ 4,962			
Gas and oil-fired	6,112	1,957	4,155	6,076	1,824	4,252			
Nuclear	26,629	12,928	13,701	26,024	12,632	13,392			
Transmission	8,919	3,301	5,618	8,597	3,215	5,382			
Hydroelectric	3,987	1,192	2,795	3,525	1,135	2,390			
Other electrical plant	1,724	807	917	1,943	1,103	840			
Multipurpose dams	900	396	504	900	388	512			
Other stewardship	26	9	17	27	9	18			
Total	<u>\$ 66,442</u>	<u>\$ 34,239</u>	<u>\$ 32,203</u>	<u>\$ 66,411</u>	<u>\$ 34,663</u>	<u>\$ 31,748</u>			

Note

(1) TVA recognized accelerated depreciation as a result of the decision to idle or retire certain units and the potential retirement of the remainder of the coal-fired fleet by 2035. See Note 7 — *Plant Closures*.

7. 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.

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 \$482 million of accelerated depreciation since the second quarter of 2019. Of this amount, \$140 million, \$136 million, and \$125 million were recognized for the years ended September 30, 2022, 2021, and 2020, respectively.

In addition, service lives for Cumberland Fossil Plant ("Cumberland"), Gallatin Fossil Plant ("Gallatin"), Kingston Fossil Plant ("Kingston"), and Shawnee Fossil Plant ("Shawnee") were shortened in a new depreciation study implemented during the first quarter of 2022 to reflect current planning assumptions to potentially retire the remainder of the coal-fired fleet by 2035. As a result, TVA recognized an estimated \$339 million of additional depreciation related to these four coal-fired plants during the year ended September 30, 2022. This estimate represents the effect of using the new depreciation rates on the property, plant, and equipment balances at September 30, 2021, and does not include any potential impact from additions to or retirements of net completed plant, that occurred since September 30, 2021.

For the years ended September 30, 2022, 2021, and 2020, respectively, TVA also recognized \$22 million, \$4 million, and \$1.3 million in Operating and maintenance expense related to additional inventory reserves and project write-offs for the coal-fired fleet, including Bull Run.

8. Leases

The following table provides information regarding the presentation of leases on the Consolidated Balance Sheets:

Amounts Recognized on TVA's Consolidated Balance Sheets
At September 30
(in millions)

		2022	2021
Assets			
Operating	Operating lease assets, net of amortization	\$ 155	\$ 165
Finance	Finance leases	630	692
Total lease assets		<u>\$ 785</u>	<u>\$ 857</u>
Liabilities			
Current			
Operating	Accounts payable and accrued liabilities	\$ 59	\$ 40
Finance	Accounts payable and accrued liabilities	59	60
Non-current			
Operating	Other long-term liabilities	93	122
Finance	Finance lease liabilities	628	687
Total lease liabilities		<u>\$ 839</u>	<u>\$ 909</u>

TVA's leases consist primarily of railcars, equipment, real estate/land, power generating facilities, and gas pipelines. TVA's leases have various terms and expiration dates remaining from less than one year to approximately 24 years. The components of lease costs were as follows:

Lease Costs
For the years ended September 30
(in millions)

	2022	2021	2020
Operating lease costs ⁽¹⁾	\$ 56	\$ 52	\$ 84
Variable lease costs ⁽¹⁾	78	75	75
Short-term lease costs ⁽¹⁾	26	12	7
Finance lease costs			
Amortization of lease assets ⁽²⁾	58	51	15
Interest on lease liabilities ⁽³⁾⁽⁴⁾	42	39	33
Total finance lease costs	<u>100</u>	<u>90</u>	<u>48</u>
Total lease costs	<u>\$ 260</u>	<u>\$ 229</u>	<u>\$ 214</u>

Notes

(1) Costs are included in Operating and maintenance expense, Fuel expense, Purchased power expense, and Tax equivalents expense on the Consolidated Statements of Operations.

(2) Expense is included in Depreciation and amortization expense on the Consolidated Statements of Operations.

(3) Expense is included in Interest expense on the Consolidated Statements of Operations.

(4) Certain finance leases receive regulatory accounting treatment and are reclassified to Fuel expense and Purchased power expense.

TVA's variable lease costs are primarily related to renewable energy purchase agreements that require TVA to purchase all output from the underlying facility. Payments under those agreements are solely based on the actual output over the lease term. Certain TVA lease agreements contain renewal options. Those renewal options that are reasonably certain to be exercised are included in the lease measurements.

[Table of Contents](#)

The following table contains additional information with respect to cash and non-cash activities related to leases:

Amounts Recognized on TVA's Consolidated Statements of Cash Flows					
For the years ended September 30					
(in millions)					
	2022		2021		2020
Operating cash flows for operating leases	\$ 57	\$ 53	\$ 85		
Operating cash flows for finance leases	42	39	33		
Financing cash flows for finance leases	60	52	15		
Lease assets obtained in exchange for lease obligations (non-cash)					
Operating leases ⁽¹⁾	\$ 43	\$ (22)	\$ 110		
Finance leases	—	233	394		

Note

(1) Amount for 2021 represents a non-cash reduction due to a lease that was amended during the fiscal year resulting in derecognition of the operating lease asset and obligation upon remeasurement.

TVA has certain finance leases under PPAs under which the present value of the minimum lease payments exceeds the fair value of the related lease asset at the date of measurement. This resulted in an interest rate that was higher than TVA's incremental borrowing rate. The weighted average remaining lease term in years and the weighted average discount rate for TVA's operating and financing leases were as follows:

Weighted Averages At September 30		
	2022	2021
Weighted average remaining lease terms		
Operating leases	3 years	5 years
Finance leases	11 years	12 years
Weighted average discount rate⁽¹⁾		
Operating leases	1.5%	1.5%
Finance leases	17.8%	17.7%

Note

(1) The discount rate is calculated using the rate implicit in a lease if it is readily determinable. If the rate used by the lessor is not readily determinable, TVA uses its incremental borrowing rate as permitted by accounting guidance. The incremental borrowing rate is influenced by TVA's credit rating and lease term and as such may differ for individual leases, embedded leases, or portfolios of leased assets.

[Table of Contents](#)

The following table presents maturities of lease liabilities and a reconciliation of the undiscounted cash flows to lease liabilities at September 30, 2022:

Future Minimum Lease Payments
Minimum payments due at September 30, 2022
(in millions)

Operating leases		
2023	\$	61
2024		43
2025		35
2026		10
2027		2
Thereafter		5
Minimum annual payments		156
Less: present value discount		(4)
Operating present value of net minimum lease payments	\$	152
Finance leases		
2023	\$	112
2024		107
2025		106
2026		105
2027		104
Thereafter		552
Minimum annual payments		1,086
Less: amount representing interest		(399)
Finance present value of net minimum lease payments	\$	687

TVA has entered into five PPAs with renewable resource providers for solar generation and rights to charge and discharge battery energy storage systems. The systems are considered a lease component in these agreements. These PPAs have terms of 20 years, and are expected to commence between April 2023 and December 2024. Payments made over the term of these PPAs are expected to total approximately \$414 million.

During the fourth quarter of 2022, TVA entered into an office lease with a term of approximately 11 years and an expected commencement date of April 2023. Payments made over the term of this lease are expected to total approximately \$15 million.

9. Other Long-Term Assets

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

Other Long-Term Assets
At September 30
(in millions)

	2022	2021
Loans and other long-term receivables, net	\$ 99	\$ 96
EnergyRight® receivables, net	49	57
Prepaid long-term service agreements	74	44
Commodity contract derivative assets	102	40
Other	70	83
Total other long-term assets	<u>\$ 394</u>	<u>\$ 320</u>

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 September 30, 2022 and 2021, the carrying amount of the loans receivable, net of discount, reported in Accounts receivable, net was approximately \$6 million and \$3 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 September 30, 2022 and 2021, the carrying amount of the loans receivable, net of discount, reported in Accounts receivable, net was approximately \$13 million and \$15 million, respectively. See Note 12 — *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 At September 30 (in millions)		2022	2021
EnergyRight® loan reserve	\$ 1	\$ 1	\$ 1
Economic development loan collective reserve	1	1	1
Economic development loan specific loan reserve	1	2	2
Total allowance for loan losses	\$ 3	\$ 4	\$ 4

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 both September 30, 2022 and 2021, prepayments of \$12 million 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. TVA also reinstated the FHP in December 2021, and hedging activity began under the program in the second quarter of 2022. See Note 15 — *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.

10. 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 At September 30 (in millions)		2022	2021
Current regulatory assets				
Unrealized losses on interest rate derivatives	\$	47	\$ 114	
Unrealized losses on commodity derivatives		14		3
Fuel cost adjustment receivable		77		79
Total current regulatory assets		138		196
Non-current regulatory assets				
Retirement benefit plans deferred costs		1,839		3,668
Non-nuclear decommissioning costs		2,856		2,653
Unrealized losses on interest rate derivatives		479		1,122
Nuclear decommissioning costs		821		363
Unrealized losses on commodity derivatives		1		—
Other non-current regulatory assets		138		150
Total non-current regulatory assets		6,134		7,956
Total regulatory assets	\$ 6,272		\$ 8,152	
Current regulatory liabilities				
Fuel cost adjustment tax equivalents	\$	218	\$ 130	
Unrealized gains on commodity derivatives		173		210
Total current regulatory liabilities		391		340
Non-current regulatory liabilities				
Retirement benefit plans deferred credits		70		—
Unrealized gains on commodity derivatives		102		40
Total non-current regulatory liabilities		172		40
Total regulatory liabilities	\$ 563		\$ 380	

Retirement Benefit Plans Deferred Costs (Credits). TVA measures the funded status of its pension and post-retirement ("OPEB") benefit plans at each year-end balance sheet date. The funded status is measured as the difference between the fair value of plan assets and the benefit obligations at the measurement date for each plan. The changes in funded status are actuarial gains and losses that are recognized on TVA's Consolidated Balance Sheets by adjusting the recognized pension and OPEB liabilities, with the offset deferred as a regulatory asset or a regulatory liability. In an unregulated environment, these deferred costs (credits) would be recognized as an increase or decrease to accumulated other comprehensive income (loss) ("AOCL").

"Incurred cost" is a cost arising from cash paid out or an obligation to pay for an acquired asset or service, and a loss from any cause that has been sustained and for which payment has been or must be made. In the cases of pension and OPEB costs, the unfunded obligation represents a projected liability to the employee for services rendered, and thus it meets the definition of an incurred cost. Therefore, amounts that otherwise would be charged to AOCI for these costs are recorded as a regulatory asset or liability since TVA has historically recovered pension and OPEB expense in rates. Through historical and current year expense included in ratemaking, the TVA Board has demonstrated the ability and intent to include pension and

OPEB costs in allowable costs and in rates for ratemaking purposes. As a result, it is probable that future revenue will result from inclusion of the pension and OPEB regulatory assets or regulatory liability in allowable costs for ratemaking purposes.

The regulatory asset and liability are classified as long-term, which is consistent with the pension and OPEB liabilities, and are not amortized to the Consolidated Statements of Operations over a specified recovery period. They are adjusted either upward or downward each year in conjunction with the adjustments to the unfunded pension liability and OPEB liability, as calculated by the actuaries. Ultimately the regulatory asset and liability will be recognized in the Consolidated Statements of Operations in the form of pension and OPEB expense as the actuarial liabilities are eliminated in future periods. See Note 20 — *Benefit Plans — Obligations and Funded Status*.

Additionally on October 1, 2014, TVA began recognizing pension costs as a regulatory asset to the extent that the amount calculated under GAAP as pension expense differs from the amount TVA contributes to the pension plan. As a result of previous plan design changes, future contributions are expected to exceed the expense calculated under U.S. GAAP. Accordingly, TVA will discontinue this regulatory accounting practice once all such deferred costs have been recovered, at which time it will recognize pension costs in accordance with U.S. GAAP.

Non-Nuclear Decommissioning Costs. Non-nuclear decommissioning costs include: (1) certain deferred charges related to the future closure and decommissioning of TVA's non-nuclear long-lived assets, (2) recognition of changes in the liability, (3) recognition of changes in the value of TVA's ART, and (4) certain other deferred charges under the accounting rules for AROs. TVA has established the ART to more effectively segregate, manage, and invest funds to help meet future non-nuclear AROs. The funds from the ART may be used, among other things, to pay the costs related to the future closure and retirement of non-nuclear long-lived assets under various legal requirements. These future costs can be funded through a combination of investment funds set aside in the ART, future earnings on those investment funds, and future cash contributions to the ART. In 2022 and 2021, TVA recovered in rates an amount determined by the average life of debt financed for non-nuclear decommissioning expenditures, assuming a 20-year debt service period, and contributions to the ART. Deferred charges will be recovered in rates based on an analysis of the expected expenditures, contributions, and investment earnings required to recover the decommissioning costs. Recovery of future decommissioning costs is dependent upon the future earnings of the ART, timing of decommissioning activities, and changes in decommissioning estimates. The regulatory asset is classified as long-term as amounts recovered are used to service debt or to contribute to the ART, which is restricted for future decommissioning costs.

Unrealized Losses on Interest Rate Derivatives. TVA uses regulatory accounting treatment to defer the unrealized gains and losses on certain interest rate derivative contracts. When amounts in these contracts are realized, the resulting gains or losses are included in the ratemaking formula. The unrealized losses on these interest rate derivatives are recorded on TVA's Consolidated Balance Sheets as current and non-current regulatory assets, and the related realized gains or losses, if any, are recorded on TVA's Consolidated Statements of Operations when the contracts settle. A portion of certain unrealized gains and losses will be amortized into earnings over the remaining lives of the contracts. Gains and losses on interest rate derivatives that are expected to be realized within the next year are included as a current regulatory asset or liability on TVA's Consolidated Balance Sheet.

Due to rising interest rates in the financial markets and net settlement payments made during 2022, TVA experienced a reduction in unrealized losses related to its derivative instruments for the year ended September 30, 2022. TVA does not recognize unrealized gains and losses from the investment portfolios and derivative instruments within earnings but rather defers all such gains and losses within a regulatory liability or asset in accordance with its accounting policy. See Note 15 — *Risk Management Activities and Derivative Transactions* and Note 16 — *Fair Value Measurements*.

Nuclear Decommissioning Costs. Nuclear decommissioning costs include: (1) certain deferred charges related to the future closure and decommissioning of TVA's nuclear generating units under the Nuclear Regulatory Commission ("NRC") requirements, (2) recognition of changes in the liability, (3) recognition of changes in the value of TVA's NDT, and (4) certain other deferred charges under the accounting rules for AROs. These future costs can be funded through a combination of investment funds set aside in the NDT and ART and future earnings on those investment funds. Deferred charges will be recovered in rates based on the analysis of expected expenditures, contributions, and investment earnings required to recover the decommissioning costs. See Note 1 — *Summary of Significant Accounting Policies — Investment Funds*. Recovery of future decommissioning costs is dependent upon the future earnings of the NDT and ART, timing of decommissioning activities, and changes in decommissioning estimates. The regulatory asset is classified as long-term as amounts recovered are contributed to the NDT or the ART, which are restricted for future decommissioning costs.

Nuclear decommissioning costs increased \$458 million for the year ended September 30, 2022 as compared to the same period of the prior year, primarily due to investment losses in the NDT and accretion of the related AROs. See Note 13 — *Asset Retirement Obligations* and Note 16 — *Fair Value Measurements*

Unrealized Gains (Losses) on Commodity Derivatives. TVA enters into certain derivative contracts for natural gas that require the physical delivery of the contracted quantity of the commodity. Unrealized gains (losses) on natural gas purchase contracts, included as part of unrealized gains (losses) on commodity derivatives, relate to the mark-to-market ("MtM") valuation of natural gas purchase contracts. The natural gas purchase contracts qualify as derivative contracts but do not qualify for cash

flow hedge accounting treatment. As a result, TVA recognizes the changes in the market value of these derivative contracts as a regulatory liability or asset. This treatment reflects TVA's ability and intent to recover the cost of these commodity contracts on a settlement basis for ratemaking purposes through the fuel cost adjustment. TVA recognizes the actual cost of fuel received under these contracts in fuel expense at the time the fuel is used to generate electricity. These contracts expire at various times through October 2024. Unrealized gains and losses on contracts with a maturity of less than one year are included as a current regulatory asset or liability on TVA's Consolidated Balance Sheets. See Note 15 — *Risk Management Activities and Derivative Transactions*.

TVA reinstated the FHP in December 2021, and hedging activity began under the program in the second quarter of 2022. Currently, TVA is hedging exposure to the price of natural gas under the FHP. Deferred gains and losses relating to TVA's FHP are included as part of unrealized gains and losses on commodity derivatives. TVA defers all MtM unrealized gains or losses as regulatory liabilities or assets, respectively, and records the realized gains or losses in fuel and purchased power expense as the contracts settle to match the delivery period of the underlying commodity. This accounting treatment reflects TVA's ability and intent to include the realized gains or losses of these commodity contracts in future periods through the fuel cost adjustment. Net unrealized gains and losses for any settlements that occur within 12 months or less are classified as a current regulatory liability or asset. See Note 15 — *Risk Management Activities and Derivative Transactions*.

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

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

Deferred Lease Asset and Other Financing Obligations. For certain leases, TVA recognized the initial finance lease and other financing asset and liability at inception of the lease or other obligation. However, the annual expense recognized in rates is equal to the annual payments, which differs from GAAP treatment for non-regulated entities. This practice results in TVA's asset balances being higher than they otherwise would have been under GAAP, with the difference representing a regulatory asset related to the lease or other financing obligation. These costs will be amortized over the respective lease or other financing obligation terms as payments are made. As the costs associated with this regulatory asset are not currently being considered in rates and the asset is expected to increase over the next year, the regulatory asset has been classified as long-term.

Debt Reacquisition Costs. Reacquisition expenses, call premiums, and other related costs, such as unamortized debt issue costs associated with redeemed Bond issues, are deferred and amortized (accrued) on a straight-line basis over the weighted average life of TVA's debt portfolio. Because timing of additional reacquisition expenses and changes to the weighted average life of the debt are uncertain, the regulatory asset is classified as long-term.

Retirement Removal Costs. Retirement removal costs, net of salvage, that are not legally required are recognized as a regulatory asset. Net removal costs are amortized over a one-year period subsequent to completion of the removal activities. TVA treats this regulatory asset as long-term in its entirety primarily because it relates to assets that are long-term in nature.

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

11. 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 ("SSSL") on each lease payment date as agreed in SHLLC's formation documents (the "Seven States Return"). The current and long-term portions of the Membership interests of VIE subject to mandatory redemption are included in Accounts payable and accrued liabilities and Other long-term liabilities, respectively.

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

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

TVA participated in the design, business 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 as of September 30, 2022 and 2021, as reflected on the Consolidated Balance Sheets, are as follows:

		Summary of Impact of VIEs on Consolidated Balance Sheets	
		At September 30	
		(in millions)	
		2022	2021
Current liabilities			
Accrued interest		\$ 10	\$ 10
Accounts payable and accrued liabilities		2	3
Current maturities of long-term debt of variable interest entities		39	43
Total current liabilities		51	56
Other liabilities			
Other long-term liabilities		18	20
Long-term debt, net			
Long-term debt of variable interest entities, net		968	1,006
Total liabilities		\$ 1,037	\$ 1,082

Interest expense of \$50 million, \$52 million, and \$54 million related to debt of VIEs and membership interests of variable interest entity subject to mandatory redemption is included on the Consolidated Statements of Operations for the years ended September 30, 2022, 2021, and 2020, respectively.

At September 30, 2022, TVA had outstanding debt of VIEs of \$1.0 billion and outstanding membership interests subject to mandatory redemption (including current portion) of \$20 million issued by one of its VIEs of which it is the primary beneficiary. The following table sets forth TVA's future payments at September 30, 2022:

	Maturities Due in the Year Ending September 30						Thereafter
	2023	2024	2025	2026	2027		
Long-term debt of VIEs including current maturities ⁽¹⁾	\$ 39	\$ 36	\$ 37	\$ 39	\$ 40		\$ 822
Membership interests of variable interest entity subject to mandatory redemption	2	1	1	1	1		14

Note

(1) Long-term debt of VIEs does not include non-cash item of unamortized debt issue costs of \$6 million.

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.

12. 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 At September 30 (in millions)	2022	2021 ⁽¹⁾
Interest rate swap liabilities	\$ 851	\$ 1,524
Operating lease liabilities	93	122
Currency swap liabilities	228	76
EnergyRight® financing obligation	58	66
Long-term deferred compensation	39	42
Advances for construction	53	24
Long-term deferred revenue	39	37
Accrued long-term service agreements	—	29
Other	<u>124</u>	<u>121</u>
Total other long-term liabilities	<u>\$ 1,485</u>	<u>\$ 2,041</u>

Note

(1) At September 30, 2021, \$5 million and \$19 million previously classified as Long-term deferred revenue (a component of Other long-term liabilities) and Other (a component of Other long-term liabilities), respectively, were reclassified to Advances for construction (a component of Other long-term liabilities) to conform with current year presentation.

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 September 30, 2022 and 2021, the carrying amount of the interest rate swap liabilities reported in Accounts payable and accrued liabilities and Accrued interest was \$54 million and \$115 million, respectively. See Note 15 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment — Interest Rate Derivatives* for information regarding the interest rate swap liabilities. As of September 30, 2022, interest rate swap liabilities (including current portion) decreased \$734 million as compared to September 30, 2021, primarily due to increases in market interest rates along with net settlement payments made during the year.

Operating Lease Liabilities. TVA's operating leases consist primarily of railcars, equipment, real estate/land, and power generating facilities. At September 30, 2022 and 2021, the current portion of TVA's operating leases reported in Accounts payable and accrued liabilities was \$59 million and \$40 million, respectively. See Note 8 — *Leases* for more information regarding leases.

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 September 30, 2022 and 2021, the carrying amount of the currency swap liabilities reported in Accounts payable and accrued liabilities was \$12 million and \$7 million, respectively. As of September 30, 2022, currency swap liabilities (including current portion) increased \$157 million as compared to September 30, 2021, primarily due to the strengthening of the U.S. dollar against the British pound sterling. See Note 15 — *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 September 30, 2022 and 2021, the carrying amount of the financing obligation reported in Accounts payable and accrued liabilities was \$14 million and \$16 million, respectively. See Note 9 — *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 September 30, 2022 and 2021, the current amount of deferred compensation recorded in Accounts payable and accrued liabilities was \$53 million and \$51 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 September 30, 2022 and 2021, the current amount of advances for construction recorded in Accounts payable and accrued liabilities was \$33 million and \$38 million, respectively.

Long-Term Deferred Revenue. Long-term deferred revenue represents payments received that exceed services rendered resulting in the deferral of revenue. This 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 recorded in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA's Consolidated Balance Sheets. At September 30, 2022 and 2021, the current amount of deferred revenue recorded in Accounts payable and accrued liabilities was \$16 million and \$17 million, respectively.

Accrued 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, parts received and services rendered exceed payments made. The current and long-term portions of the resulting obligation are recorded in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA's Consolidated Balance Sheets. At September 30, 2022 and 2021, the current amount of accrued long-term service agreements recorded in Accounts payable and accrued liabilities was \$32 million and \$28 million, respectively.

13. Asset Retirement Obligations

During the year ended September 30, 2022, TVA's total ARO liability increased \$160 million.

To estimate its decommissioning obligation related to its nuclear generating stations, TVA uses a probability-weighted, discounted cash flow model which, on a unit-by-unit basis, considers multiple outcome scenarios that include significant estimations and assumptions. Those assumptions include (1) estimates of the cost of decommissioning; (2) the method of decommissioning and the timing of the related cash flows; (3) the license period of the nuclear plant, considering the probability of license extensions; (4) cost escalation factors; and (5) the credit adjusted risk free rate to measure the obligation at the present value of the future estimated costs. TVA has ascribed probabilities to two different decommissioning methods related to its nuclear decommissioning obligation estimate: the DECON method and the SAFSTOR method. The DECON method requires radioactive contamination to be removed from a site and safely disposed of or decontaminated to a level that permits the site to be released for unrestricted use shortly after it ceases operation. The SAFSTOR method allows nuclear facilities to be placed and maintained in a condition that allows the facilities to be safely stored and subsequently decontaminated to levels that permit release for unrestricted use.

The revisions in nuclear estimates increased the liability balance by \$61 million for the year ended September 30, 2022. This was primarily due to approval and implementation of the most recent site-specific cost study in September 2022 resulting in an increase of \$58 million.

TVA also has decommissioning obligations related to its non-nuclear generating sites, ash impoundments, transmission substation and distribution assets, and certain general facilities. To estimate its decommissioning obligation related to these assets, TVA uses estimations and assumptions for the amounts and timing of future expenditures and makes judgments concerning whether or not such costs are considered a legal obligation. Those assumptions include (1) estimates of the costs of decommissioning, (2) the method of decommissioning and the timing of the related cash flows, (3) the expected retirement date of each asset, (4) cost escalation factors, and (5) the credit adjusted risk free rate to measure the obligation at the present value of the future estimated costs. TVA bases its decommissioning estimates for each asset on its identified preferred closure method.

The revisions in non-nuclear estimates increased the liability balance by \$186 million for the year ended September 30, 2022. During the year, TVA completed an engineering review of its cost estimates for closure of certain areas containing coal fines at Paradise Fossil Plant ("Paradise"), which resulted in an increase of \$119 million due to expected cost increases for necessary changes in activities associated with proper completion of the closure. Coal combustion residuals ("CCR") closure liabilities at Paradise and Cumberland increased \$82 million due to new vendor bids, modified closure designs, and revised estimates for construction costs. Refined project cost assumptions and scope changes related to TVA's AROs for the closure of certain coal yards at its fossil plants resulted in an increase of \$57 million. In addition, effective October 1, 2022, TVA implemented revised depreciation rates applicable to its completed plant due to the results of a new depreciation study. The study included a decline in the service life estimates of TVA's coal-fired plants based on current planning assumptions to potentially retire the remainder of the coal-fired fleet by 2035. As a result of the change in service life estimates reflected in the depreciation study, TVA performed an assessment of the assumptions used in the timing of cash flows related to its non-nuclear AROs. Based on the assessment, TVA increased AROs by \$47 million due to identified changes in the projections of timing of certain asset retirement activities. Partially offsetting these increases, expected reductions in CCR post-closure costs for maintenance and monitoring at Paradise, Shawnee, and Colbert Fossil Plant ("Colbert") resulted in a decrease of \$53 million. CCR closure liabilities at Gallatin decreased \$30 million due to selection of a new vendor bid and changes to anticipated timing

of certain asset retirement activities. In addition, CCR closure liabilities at Allen Fossil Plant decreased \$15 million as a result of changes in cost estimates and anticipated timing of various retirement activities.

The revisions in non-nuclear estimates increased \$191 million for the year ended September 30, 2021. This increase was primarily driven by revisions of approximately \$122 million to certain CCR closure liabilities at Shawnee, Paradise, Colbert, Cumberland, and Gallatin resulting from revised engineering estimates for construction costs, new vendor bids, modified closure designs, and expected costs associated with post-closure care of closed areas. CCR ARO liabilities associated with groundwater well monitoring also increased approximately \$69 million due to expansion in the scope of recurring activities including measuring, modeling, and reporting. In addition, TVA's use of a new CCR landfill at Shawnee and expansion of landfill acreage used at Gallatin resulted in new obligations of \$30 million and \$13 million, respectively.

Additionally, during the years ended September 30, 2022 and 2021, both the nuclear and non-nuclear liabilities were increased by periodic accretion, partially offset by settlement projects that were conducted during these periods. The nuclear and non-nuclear accretion amounts were deferred as regulatory assets. During 2022, 2021, and 2020, \$137 million, \$72 million, and \$169 million, respectively, of the related regulatory assets were amortized into expense as these amounts were collected in rates. See Note 10 — *Regulatory Assets and Liabilities*. TVA maintains investment trusts to help fund its decommissioning obligations. See Note 16 — *Fair Value Measurements — Investment Funds* and Note 21 — *Commitments and Contingencies — Decommissioning Costs* for a discussion of the trusts' objectives and the current balances of the trusts.

Asset Retirement Obligation Activity (in millions)			
	Nuclear	Non-Nuclear	Total
Balance at September 30, 2020	\$ 3,278	\$ 3,507	\$ 6,785
Settlements	(11)	(231)	(242)
Revisions in estimate	12	191	203
Additional obligations	—	43	43
Accretion (recorded as regulatory asset)	149	64	213
Balance at September 30, 2021	3,428	3,574	7,002 ⁽¹⁾
Settlements	(2)	(309)	(311) ⁽²⁾
Revisions in estimate	61	186	247
Accretion (recorded as regulatory asset)	156	68	224
Balance at September 30, 2022	\$ 3,643	\$ 3,519	\$ 7,162 ⁽¹⁾

Note

(1) Includes \$275 million and \$266 million at September 30, 2022 and 2021, respectively, in Current liabilities.

(2) Settlements include the change in asset retirement obligation project accruals included in Accounts payable and accrued liabilities of \$20 million.

14. Debt and Other Obligations

General

The TVA Act authorizes TVA to issue Bonds in an amount not to exceed \$30.0 billion at any time. At September 30, 2022, TVA had only two types of Bonds outstanding: power bonds and discount notes. Power bonds have maturities between one year and 50 years, and discount notes have maturities of less than one year. Power bonds and discount notes are both issued pursuant to Section 15d of the TVA Act and pursuant to the Basic Tennessee Valley Authority Power Bond Resolution adopted by the TVA Board on October 6, 1960, as amended on September 28, 1976, October 17, 1989, and March 25, 1992 (the "Basic Resolution"). Bonds are not obligations of the U.S., and the U.S. does not guarantee the payments of principal or interest on Bonds.

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

TVA considers its scheduled rent payments under its leaseback transactions, as well as its scheduled payments under its lease financing arrangements involving John Sevier CCF and Southaven CCF, as costs of operating, maintaining, and administering its power properties. Costs of operating, maintaining, and administering TVA's power properties have priority over TVA's payments on the Bonds. Once net power proceeds have been applied to payments on power bonds and discount notes as well as any other Bonds that TVA may issue in the future that rank on parity with or subordinate to power bonds and discount notes, Section 2.3 of the Basic Resolution provides that the remaining net power proceeds shall be used only for (1) minimum payments into the U.S. Treasury required by the TVA Act as repayment of, and as a return on, the Power Program Appropriation

Investment; (2) investment in power system assets; (3) additional reductions of TVA's capital obligations; and (4) other lawful purposes related to TVA's power business.

The TVA Act and the Basic Resolution each contain two bond tests: the rate test and the bondholder protection test. Under the rate test, TVA must charge rates for power which will produce gross revenues sufficient to provide funds for, among other things, debt service on outstanding Bonds. As of September 30, 2022, TVA was in compliance with the rate test. See Note 1 — *Summary of Significant Accounting Policies — General*. Under the bondholder protection test, TVA must, in successive five-year periods, use an amount of net power proceeds at least equal to the sum of (1) the depreciation accruals and other charges representing the amortization of capital expenditures and (2) the net proceeds from any disposition of power facilities for either the reduction of its capital obligations (including Bonds and the Power Program Appropriation Investment) or investment in power assets. TVA met the bondholder protection test for the five-year period ended September 30, 2020, and must next meet the bondholder protection test for the five-year period ending September 30, 2025.

Secured Debt of VIEs

On August 9, 2013, SCCG issued secured notes totaling \$360 million that bear interest at a rate of 3.846 percent. The SCCG notes require amortizing semi-annual payments on each February 15 and August 15, and mature on August 15, 2033. Also on August 9, 2013, SCCG issued \$40 million of membership interests subject to mandatory redemption. The proceeds from the secured notes issuance and the issuance of the membership interests were paid to TVA in accordance with the terms of the Southaven head lease. See Note 11 — *Variable Interest Entities — Southaven VIE*. TVA used the proceeds from the transaction primarily to fund the acquisition of the Southaven CCF from SSSL.

On January 17, 2012, JSCCG issued secured notes totaling \$900 million in aggregate principal amount that bear interest at a rate of 4.626 percent. Also on January 17, 2012, Holdco issued secured notes totaling \$100 million that bear interest at a rate of 7.1 percent. The JSCCG notes and the Holdco notes require amortizing semi-annual payments on each January 15 and July 15, and mature on January 15, 2042. The Holdco notes require a \$10 million balloon payment upon maturity. See Note 11 — *Variable Interest Entities — John Sevier VIEs*. TVA used the proceeds from the transaction to meet its requirements under the TVA Act.

Secured debt of VIEs, including current maturities, outstanding at both September 30, 2022 and 2021 totaled \$1.0 billion.

Short-Term Debt

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

Short-term Borrowings At September 30		2022	2021
Gross amount outstanding - discount notes (in millions)		\$ 1,173	\$ 780
Weighted average interest rate - discount notes		2.93 %	0.03 %

Put Options

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

The coupon rate for the 1998 Series D PARRS, which mature in June 2028, has been reset eight times, from an initial rate of 6.750 percent to the current rate of 2.134 percent. In connection with these resets, \$318 million of the Bonds have been redeemed; therefore, \$256 million of the Bonds were outstanding at September 30, 2022. The coupon rate for the 1999 Series A PARRS, which mature in May 2029, has been reset seven times, from an initial rate of 6.50 percent to the current rate of 2.216 percent. In connection with these resets, \$316 million of the Bonds have been redeemed; therefore, \$208 million of the Bonds were outstanding at September 30, 2022.

[Table of Contents](#)

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

Debt Securities Activity

The table below summarizes the long-term debt securities activity for the years ended September 30, 2022 and 2021.

Debt Securities Activity
For the years ended September 30
(in millions)

	2022	2021
Issues		
2021 Series A ⁽¹⁾	\$ —	\$ 500
2022 Series A ⁽²⁾	500	—
Discount on debt issues	(16)	—
Total	\$ 484	\$ 500
Redemptions/Maturities⁽³⁾		
2009 Series B	\$ 28	\$ 29
2011 Series A	—	1,500
1998 Series H	—	331
2012 Series A	1,000	—
Total redemptions/maturities of power bonds	1,028	1,860
Debt of variable interest entities	43	41
Total redemptions/maturities of debt	\$ 1,071	\$ 1,901

Notes

(1) The 2021 Series A Bonds were issued at 99.982 percent of par.

(2) The 2022 Series A Bonds were issued at 96.786 percent of par.

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

Debt Outstanding

Total debt outstanding at September 30, 2022 and 2021, consisted of the following:

Short-Term Debt
At September 30
(in millions)

CUSIP or Other Identifier	Maturity	Coupon Rate	2022	2021
Short-term debt, net of discounts			\$ 1,172	\$ 780
Current maturities of long-term debt of VIEs issued at par			39	43
Current maturities of power bonds issued at par				
880591EN8	8/15/2022	1.875%	—	1,000
880591EF5	12/15/2022	3.770%	1	1
880591EF5	6/15/2023	3.770%	28	27
Total current maturities of power bonds issued at par			29	1,028
Total current debt outstanding, net			\$ 1,240	\$ 1,851

[Table of Contents](#)

Long-Term Debt
At September 30
(in millions)

CUSIP or Other Identifier	Maturity	Coupon Rate	2022 Par	2021 Par	Stock Exchange Listings
880591ER9	9/15/2024	2.875%	\$ 1,000	\$ 1,000	New York
880591EW8	5/15/2025	0.750%	—	1,000	New York
880591CJ9	11/1/2025	6.750%	1,350	1,350	New York, Hong Kong, Luxembourg, Singapore
880591EU2	2/1/2027	2.875%	1,000	1,000	New York
880591300 ⁽³⁾	6/1/2028	2.134%	256	256	New York
880591409 ⁽³⁾	5/1/2029	2.216%	208	208	New York
880591DM1	5/1/2030	7.125%	1,000	1,000	New York, Luxembourg
880591EX6	9/15/2031	1.500%	500	500	New York
880591DP4	6/7/2032	6.587% (2)	279 (1)	337 (1)	New York, Luxembourg
880591DV1	7/15/2033	4.700%	472	472	New York, Luxembourg
880591EF5	6/15/2034	3.770%	160	190	None
880591DX7	6/15/2035	4.650%	436	436	New York
880591CK6	4/1/2036	5.980%	121	121	New York
880591CS9	4/1/2036	5.880%	1,500	1,500	New York
880591CP5	1/15/2038	6.150%	1,000	1,000	New York
880591ED0	6/15/2038	5.500%	500	500	New York
880591EH1	9/15/2039	5.250%	2,000	2,000	New York
880591EP3	12/15/2042	3.500%	1,000	1,000	New York
880591DU3	6/7/2043	4.962% (2)	168 (1)	202 (1)	New York, Luxembourg
880591EB4	1/15/2048	4.875%	500	500	New York, Luxembourg
880591DZ2	4/1/2056	5.375%	1,000	1,000	New York
880591EJ7	9/15/2060	4.625%	1,000	1,000	New York
880591ES7	9/15/2065	4.250%	1,000	1,000	New York
880591EY4	9/15/2052	4.250%	500	—	New York
Subtotal			17,950	17,572	
Unamortized discounts, premiums, issue costs, and other			(124)	(115)	
Total long-term outstanding power bonds, net			17,826	17,457	
Long-term debt of VIEs, net			968	1,006	
Total long-term debt, net			\$ 18,794	\$ 18,463	

Notes

(1) Includes net exchange gain from currency transactions of \$150 million and \$58 million at September 30, 2022 and 2021, respectively.

(2) The coupon rate represents TVA's effective interest rate.

(3) TVA PARRS, CUSIP numbers 880591300 and 880591409, may be redeemed under certain conditions. See *Put Options* above.

Maturities Due in the Year Ending September 30
(in millions)

	2023	2024	2025	2026	2027	Thereafter	Total
Long-term power bonds including current maturities ⁽¹⁾	\$ 29	\$ 1,022	\$ 1,022	\$ 1,370	\$ 1,020	\$ 13,666	\$ 18,129
Short-term debt ⁽²⁾	1,173	—	—	—	—	—	1,173

Notes

(1) Long-term power bonds does not include non-cash items of foreign currency exchange gain of \$150 million, unamortized debt issue costs of \$42 million, and net

[Table of Contents](#)

discount on sale of Bonds of \$82 million.
 (2) Short-term debt does not include the non-cash item of discount on issuance of discount notes of \$1 million.

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 September 30, 2022 and 2021, there were approximately \$704 million and \$1.2 billion of letters of credit outstanding under these facilities, and there were no borrowings outstanding. See Note 15 — *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 September 30, 2022
 (in millions)

Maturity Date	Facility Limit	Letters of Credit Outstanding	Cash Borrowings	Availability
February 2024	\$ 150	\$ 38	\$ —	\$ 112
February 2025	500	500	—	—
September 2026	1,000	99	—	901
March 2027	1,000	67	—	933
Total	\$ 2,650	\$ 704	\$ —	\$ 1,946

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 September 30, 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/Lesbacks

TVA previously entered into leasing transactions to obtain third-party financing for 24 peaking 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. At September 30, 2021, the outstanding leaseback obligations related to the remaining CTs and QTE were \$25 million. There were no outstanding leaseback obligations related to the remaining CTs and QTE at 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. TVA gave notice in December 2021 of its election to acquire the equity interests related to the remaining eight CTs for a total of \$155 million. The associated acquisitions are expected to close in December 2022 and May 2023.

In October 2019, TVA provided notice of its intent to purchase the ownership interest in certain QTE through a series of installments. TVA made its last repurchase payment in December 2021, after which the associated leases were terminated.

15. 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.

In November 2021, the TVA Board approved the elimination of the Value at Risk aggregate transaction limit for the FHP

and authorized the use of tolerances and measures that will be reviewed annually by the TVA Board. The tolerances will address counterparty exposure, liquidity risk, and reduction in fuel cost volatility. In addition, the TVA Board approved certain administrative changes to the FHP. In December 2021, TVA reinstated the FHP, and hedging activity began under the program in the second quarter of 2022.

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)
For the years ended September 30

Derivatives in Cash Flow Hedging Relationship	Objective of Hedge Transaction	Accounting for Derivative Hedging Instrument	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	\$ (157)	\$ 126

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
For the years ended September 30

Derivatives in Cash Flow Hedging Relationship	2022	2021
Currency swaps	\$ (93)	\$ 97

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 \$29 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⁾
For the years ended September 30

Derivative Type	Objective of Derivative	Accounting for Derivative Instrument	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	\$ (103)	\$ (115)
Commodity derivatives under the FHP	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⁾	47	—

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 liabilities and assets. As such, there were no related gains (losses) recognized in income for these unrealized gains (losses) for the years ended September 30, 2022 and 2021.

(2) Of the amount recognized in 2022, \$38 million and \$9 million were reported in Fuel expense and Purchased power expense, respectively.

Fair Values of TVA Derivatives
At September 30

	2022		2021	
Derivatives That Receive Hedge Accounting Treatment:	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Currency swaps				
£250 million Sterling	\$ (130)	Accounts payable and accrued liabilities \$(7); Other long-term liabilities \$(123)	\$ (36)	Accounts payable and accrued liabilities \$(4); Other long-term liabilities \$(32)
£150 million Sterling	(110)	Accounts payable and accrued liabilities \$(5); Other long-term liabilities \$(105)	(47)	Accounts payable and accrued liabilities \$(3); Other long-term liabilities \$(44)
 Derivatives That Do Not Receive Hedge Accounting Treatment:				
Interest rate swaps	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
\$1.0 billion notional	\$ (672)	Accounts payable and accrued liabilities \$(9); Accrued interest \$(33); Other long-term liabilities \$(630)	\$ (1,182)	Accounts payable and accrued liabilities \$(44); Accrued interest \$(37); Other long-term liabilities \$(1,101)
\$476 million notional	(233)	Accounts payable and accrued liabilities \$(3); Accrued interest \$(9); Other long-term liabilities \$(221)	(455)	Accounts payable and accrued liabilities \$(22); Accrued interest \$(10); Other long-term liabilities \$(423)
\$42 million notional ⁽¹⁾	—	N/A	(2)	Accounts payable and accrued liabilities \$(1); Accrued interest \$(1)
Commodity contract derivatives	145	Other current assets \$118; Other long-term assets \$34; Accounts payable and accrued liabilities \$(6); Other long-term liabilities \$(1)	247	Other current assets \$210; Other long-term assets \$40; Accounts payable and accrued liabilities \$(3)
Commodity derivatives under the FHP	115	Accounts receivable, net \$1; Other current assets \$54; Other long-term assets \$68; Accounts payable and accrued liabilities \$(8)	—	N/A

Note

(1) At September 30, 2021, represented two interest rate swaps with notional amounts of \$28 million and \$14 million. In 2022, final payments were made on both of the interest rate swaps.

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 the following currency swaps outstanding at September 30, 2022:

Currency Swaps Outstanding			
Effective Date of Currency Swap Contract	Associated TVA Bond Issues Currency Exposure	Expiration Date of Swap	Overall Effective Cost to TVA
2001	£250 million	2032	6.59%
2003	£150 million	2043	4.96%

When the dollar strengthens against the British pound sterling, the exchange gain on the Bond liability 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 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 years ended September 30, 2022 and 2021, the changes in fair market value of the interest rate swaps resulted in the reduction in unrealized losses of \$728 million and \$402 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 September 30, 2022, TVA's natural gas contract derivatives had terms of up to two years.

Commodity Contract Derivatives At September 30						
	2022			2021		
	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)
Natural gas contract derivatives	44	296 million mmBtu	\$ 145	40	263 million mmBtu	\$ 247

Commodity Derivatives under the FHP. In December 2021, TVA reinstated the FHP, and hedging activity began under the program in the second quarter of 2022. 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 September 30, 2022, TVA's natural gas swap contracts under the FHP had remaining terms of up to four years.

Commodity Derivatives under Financial Hedging Program ⁽¹⁾						
	At September 30, 2022			At September 30, 2021		
	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)	Number of Contracts	Notional Amount	Fair Value (MtM) (in millions)
Natural gas						
Swap contracts	225	256 million mmBtu	\$ 115	—	— million mmBtu	\$ —

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.

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⁾ At September 30 (in millions)			
	2022	2021	
Assets			
Commodity contract derivatives	\$ 152	\$ 250	
Commodity derivatives under the FHP ⁽²⁾	123	—	
Total derivatives subject to master netting or similar arrangement	<u>\$ 275</u>	<u>\$ 250</u>	
Liabilities			
Currency swaps	\$ 240	\$ 83	
Interest rate swaps ⁽³⁾	905	1,639	
Commodity contract derivatives	7	3	
Commodity derivatives under the FHP ⁽²⁾	8	—	
Total derivatives subject to master netting or similar arrangement	<u>\$ 1,160</u>	<u>\$ 1,725</u>	

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 September 30, 2022 or 2021.

(2) At September 30, 2022, the gross derivative asset and gross derivative liability was \$168 million and \$53 million, respectively, with offsetting amounts for each totaling \$45 million. TVA received \$68 million of collateral from counterparties as of September 30, 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 \$704 million and \$1.2 billion were posted as collateral at September 30, 2022 and 2021, 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 NDT, ART, SERP, and DCP. See Note 16 — *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 September 30, 2022 and 2021, the NDT held investments in forward contracts to purchase debt securities. The fair values of these derivatives were in net asset positions totaling \$4 million and \$2 million at September 30, 2022 and 2021, 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 September 30, 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 September 30, 2022, under these arrangements were \$602 million, for which TVA had posted \$704 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 September 30, 2022, TVA received \$68 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 ("S&P") or Moody's Investors Service, Inc. ("Moody's") downgrades TVA's credit rating to AA or Aa2, respectively, TVA's collateral obligations would likely increase by \$22 million, and
- If TVA ceases to be majority-owned by the U.S. government, TVA's credit rating would likely be downgraded and TVA would be required to post additional collateral.

Counterparty Risk

TVA may be exposed to certain risks when a counterparty has the potential to fail to meet its obligations in accordance with agreed terms. These risks may be related to credit, operational, or nonperformance matters. To mitigate certain counterparty risk, TVA analyzes the counterparty's financial condition prior to entering into an agreement, establishes credit limits, monitors the appropriateness of those limits, as well as any changes in the creditworthiness of the counterparty, on an ongoing basis, and when required, employs credit mitigation measures, such as collateral or prepayment arrangements and master purchase and sale agreements.

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 \$1.9 billion and \$1.5 billion of receivables from power sales outstanding at September 30, 2022 and 2021, respectively, nearly all counterparties were rated investment grade. The obligations of 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 9 — *Other Long-Term Assets*.

TVA had revenue from two LPCs that collectively accounted for 17 percent of total operating revenues for both the years ended September 30, 2022 and 2021.

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 Coronavirus Disease 2019 ("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 ensure a reliable supply of coal, TVA had coal contracts with multiple suppliers at September 30, 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.

TVA experienced challenges in 2021 related to coal supply, as a result of supply limitation and transportation challenges. Coal supply and transportation continued to be constrained in 2022, and these constraints are anticipated to continue into 2023. Rail service continues to limit TVA's ability to receive contracted supply, and TVA is also seeing supply constraints and price increases for reagents, diesel fuel, and fuel surcharges associated with coal transport, which are also expected to continue. TVA will continue to monitor the coal supply challenges and utilize its contracting strategy and diverse generation portfolio to balance needs and ensure adequate fuel supplies.

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 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 PPAs as well as through spot market purchases. Because of the long-term nature and reliability 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, threatening project delays, cancellations, and price increases. These constraints are affecting contracted PPAs from previous requests for proposals that are not yet online and TVA's Self-Directed Solar project.

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 September 30, 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 September 30, 2022, the natural gas contracts were with counterparties whose ratings ranged from B1 to A1.

16. 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 September 30, 2022, Investment funds were comprised of \$3.7 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 \$2.5 billion and \$1.1 billion, respectively, at September 30, 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 ("TIPS"), 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 \$187 million, private real assets of \$128 million, and private credit of \$57 million at September 30, 2022. The ART had unfunded commitments related to limited partnerships in private equity of \$104 million, private real assets of \$75 million, and private credit of \$32 million at September 30, 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 10 — *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)
For the years ended September 30
(in millions)

Fund	Financial Statement Presentation	2022	2021
NDT	Regulatory assets	\$ (396)	\$ 279
ART	Regulatory assets	(190)	145
SERP	Other income, net	(19)	7
DCP	Other income, net	(5)	1

Currency and Interest Rate Swap Derivatives

See Note 15 — *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 15 — *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 September 30, 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 September 30, 2022 and 2021. Financial assets and liabilities have been classified in their entirety based on the lowest level of input that is significant to the fair value measurement. TVA's assessment of the significance of a particular input to the fair value measurement requires judgment and may affect the determination of the fair value of the assets and liabilities and their classification in the fair value hierarchy levels.

Fair Value Measurements
At September 30, 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 15 — *Risk Management Activities and Derivative Transactions — Offsetting of Derivative Assets and Liabilities*.

Fair Value Measurements
At September 30, 2021
(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	\$ 634	\$ —	\$ —	\$ 634
Government debt securities ⁽¹⁾	573	24	—	597
Corporate debt securities ⁽²⁾	—	411	—	411
Mortgage and asset-backed securities	—	63	—	63
Institutional mutual funds	225	—	—	225
Forward debt securities contracts	—	2	—	2
Private equity funds measured at net asset value ⁽³⁾	—	—	—	357
Private real asset funds measured at net asset value ⁽³⁾	—	—	—	272
Private credit measured at net asset value ⁽³⁾	—	—	—	71
Commingled funds measured at net asset value ⁽³⁾	—	—	—	1,421
Total investments	1,432	500	—	4,053
Commodity contract derivatives	—	250	—	250
Total	\$ 1,432	\$ 750	\$ —	\$ 4,303
Liabilities				
Currency swaps ⁽⁴⁾	\$ —	\$ 83	\$ —	\$ 83
Interest rate swaps	—	1,639	—	1,639
Commodity contract derivatives	—	3	—	3
Total	\$ —	\$ 1,725	\$ —	\$ 1,725

Notes

(1) Includes government-sponsored entities, including \$573 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, to the extent such amount is not recorded in Accounts payable and accrued liabilities. See Note 15 — *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 September 30, 2022 and 2021, may not be representative of the actual gains or losses that will be recorded when these instruments mature or are called or presented for early redemption. The estimated values of TVA's financial instruments not recorded at fair value at September 30, 2022 and 2021, were as follows:

	Valuation Classification	At September 30, 2022		At September 30, 2021	
		Carrying Amount	Fair Value	Carrying Amount	Fair Value
EnergyRight® receivables, net (including current portion)	Level 2	\$ 62	\$ 62	\$ 72	\$ 71
Loans and other long-term receivables, net (including current portion)	Level 2	105	96	99	94
EnergyRight® financing obligations (including current portion)	Level 2	72	81	82	92
Unfunded loan commitments	Level 2	—	—	—	3
Membership interests of VIEs subject to mandatory redemption (including current portion)	Level 2	20	22	23	30
Long-term outstanding power bonds, net (including current maturities)	Level 2	17,856	18,070	18,485	24,309
Long-term debt of VIEs, net (including current maturities)	Level 2	1,007	989	1,049	1,307

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.

17. 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 year ended September 30, 2022 was to 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 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 minor items.

Disaggregated Revenues

During 2022, revenues generated from TVA's electricity sales were \$12.4 billion and accounted for virtually all of TVA's revenues. TVA's operating revenues by state for each of the last three years are detailed in the table below:

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

	2022	2021	2020
Alabama	\$ 1,778	\$ 1,508	\$ 1,439
Georgia	299	254	249
Kentucky	821	655	624
Mississippi	1,182	984	941
North Carolina	87	66	65
Tennessee	8,137	6,841	6,740
Virginia	48	42	42
Subtotal	12,352	10,350	10,100
Off-system sales	19	7	4
Revenue from sales of electricity	12,371	10,357	10,104
Other revenue	169	146	145
Total operating revenues	<u>\$ 12,540</u>	<u>\$ 10,503</u>	<u>\$ 10,249</u>

TVA's operating revenues by customer type for each of the last three years are detailed in the table below:

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

	2022	2021	2020
Revenue from sales of electricity			
Local power companies	\$ 11,291	\$ 9,534	\$ 9,406
Industries directly served	926	707	588
Federal agencies and other	154	116	110
Revenue from sales of electricity	12,371	10,357	10,104
Other revenue	169	146	145
Total operating revenues	<u>\$ 12,540</u>	<u>\$ 10,503</u>	<u>\$ 10,249</u>

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 \$199 million, \$189 million, and \$163 million, respectively, for the years ended September 30, 2022, 2021, and 2020. 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 November 14, 2022, 147 LPCs had signed the Partnership Agreement with TVA, and 80 LPCs had signed a Power Supply Flexibility Agreement.

In 2020, the TVA Board approved a Pandemic Relief Credit which was effective for 2021 as a 2.5 percent monthly base rate credit. In 2021, the TVA Board approved a 2.5 percent monthly base rate credit, the Pandemic Recovery Credit, which was effective for 2022. These pandemic credits apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers. For the years ended September 30, 2022 and 2021, pandemic credits totaled \$228 million and \$221 million, respectively. In addition, in November 2021 the TVA Board approved a 1.5 percent monthly base rate credit, which is an extension of the Pandemic Recovery Credit, to be effective for 2023, and on July 28, 2022, the TVA Board notionally approved increasing the credit from 1.5 percent to 2.5 percent. The 2023 credit is expected to approximate \$230 million, and it will be administered in a manner similar to the current Pandemic Recovery Credit.

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

TVA Local Power Company Contracts
At or for the year ended September 30, 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	\$ 9,670	77.1 %
5-year termination notice	6	1,621	12.9 %
Total	<u>153</u>	<u>\$ 11,291</u>	<u>90.0 %</u>

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 — 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 accounted for nine percent and eight percent, respectively, of TVA's total operating revenues in 2022, 2021, and 2020. Certain LPCs, including MLGW, are evaluating options for future energy choices.

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 September 30, 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 12 — *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 \$328 million, \$315 million, and \$318 million for 2022, 2021, and 2020, 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 September 30, 2022 and 2021, the outstanding unpaid incentives were \$187 million and \$176 million, respectively. Incentives that have been paid out may be subject to claw back if the customer fails to meet certain program requirements.

18. Other Income, Net

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

Other Income, Net
For the years ended September 30
(in millions)

	2022	2021	2020
Bellefonte	\$ —	\$ (28)	\$ —
Interest income	15	12	18
External services	16	13	12
Gains (losses) on investments	(17)	16	9
Miscellaneous	(7)	—	(3)
Total other income, net	<u>\$ 7</u>	<u>\$ 13</u>	<u>\$ 36</u>

19. Supplemental Cash Flow Information

Interest paid was \$1.1 billion for each of 2022, 2021, and 2020. These amounts differ from interest expense in certain years due to the timing of payments. There was no interest capitalized in 2022, 2021, or 2020.

Construction in progress and asset retirement obligation project accruals and nuclear fuel expenditures included in Accounts payable and accrued liabilities at September 30, 2022, 2021, and 2020 were \$629 million, \$637 million, and \$398 million, respectively, and are excluded from the Statements of Consolidated Cash Flows for the years ended September 30, 2022, 2021, and 2020 as non-cash investing activities.

Excluded from the Statement of Consolidated Cash Flows for the year ended September 30, 2021, were non-cash investing and financing activities of \$233 million related primarily to an increase in lease assets and liabilities incurred for a finance lease that was amended in March 2021. Excluded from the Statement of Consolidated Cash Flows for the year ended September 30, 2020, as non-cash financing activities, was \$394 million related to lease obligations incurred primarily in connection with a PPA. See Note 8 — Leases for further information regarding TVA's finance leases. Also excluded from the Statement of Consolidated Cash Flows for the year ended September 30, 2020, were \$80 million and \$73 million as non-cash financing and investing activities, respectively, due to derecognition of the Paradise pipeline financing obligation and asset. No material finance leases were entered into during the year ended September 30, 2022.

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.

20. Benefit Plans

TVA sponsors a pension plan that covers most of its full-time employees hired prior to July 1, 2014, a qualified defined contribution plan ("401(k) plan") that covers most of its full-time employees, two unfunded post-retirement health care plans that provide for non-vested contributions toward the cost of eligible retirees' medical coverage, other 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 "TVARS Board").

Overview of Plans and Benefits

Retirement Plans. The participants in the pension plan receive either a traditional final average pay pension or a cash balance pension. The traditional pension benefit is based on the participant's creditable service, average monthly salary for their highest three consecutive years of eligible compensation, and a pension factor based on the participant's age and years of service, less a Social Security offset. The cash balance pension benefit is based on pay and interest credits accumulated in the participant's account and the participant's age.

Participants in the pension plan are also eligible to receive 401(k) plan matching contributions, may be eligible to receive 401(k) plan non-elective contributions, and may be eligible to make after-tax contributions of up to \$10,000 per year to the pension plan, which at the election of the participant are invested in either the fixed fund, which receives a fixed interest rate set forth in the plan, or the variable fund, which receives a rate of return based on an S&P 500 index fund. Participants in the pension plan may also become eligible for a supplemental pension benefit based on age and years of service at retirement, which is provided to help offset the cost of retiree medical insurance. Employees first hired on or after July 1, 2014, are participants in the 401(k) plan only and receive both non-elective and matching contributions to their accounts in the 401(k) plan.

401(k) Plan. Under the 401(k) plan, the non-elective and matching contributions TVA makes to participant accounts depends on the employee's hire date, years of service, and individual elections. Non-elective employer contributions for eligible participants range from three percent to six percent and matching employer contributions range from 1.5 percent to six percent. TVA recognized 401(k) contribution costs of \$97 million, \$92 million, and \$88 million during 2022, 2021, and 2020, respectively. The 2023 plan contribution costs are estimated to be approximately \$101 million.

Supplemental Executive Retirement Plan. TVA has established a SERP for certain executives in critical positions to provide supplemental pension benefits tied to compensation that exceeds limits imposed by IRS rules applicable to the qualified defined benefit pension plan.

Other Post-Retirement Benefits. TVA sponsors two unfunded post-retirement benefit plans that provide for non-vested contributions toward the cost of certain eligible retirees' medical coverage. The first plan covers only certain retirees and surviving dependents who do not qualify for TVARS benefits, including the supplemental pension benefit. The second plan is designed to place a limit on the out-of-pocket amount certain eligible retirees pay for medical coverage and provides a credit based on years of TVA service and monthly base pension amount, reduced by any TVARS supplemental pension benefits or any TVA contribution from the first plan, described above. In January 2017, TVA began providing all Medicare-eligible retirees and spouses Medicare supplement coverage through a private exchange. Transition to the exchange did not affect any TVARS supplemental benefits for eligible retirees, and the credit continues to be calculated in the same manner as before.

Other Post-Employment Benefits. TVA employees injured in work-related incidents are covered by the workers' compensation program for federal employees administered through the Department of Labor by the Office of Workers' Compensation Programs in accordance with the provisions of FECA. FECA provides compensation and medical benefits to federal employees for permanent and temporary disability due to employment-related injury or disease.

Accounting Mechanisms

Regulatory Accounting. TVA has classified all amounts related to unrecognized prior service costs/(credits), net actuarial gains or losses, and the funded status as regulatory assets or liabilities as such amounts are probable of collection in



future rates. Additionally, TVA recognizes pension costs as regulatory assets or regulatory liabilities to the extent that the amount calculated under U.S. GAAP as pension expense differs from the amount TVA contributes to the pension plan as pension plan contributions. As a result of plan design changes, future contributions are expected to exceed the expense calculated under U.S. GAAP. Accordingly, TVA will discontinue this regulatory accounting practice once all such deferred costs have been recovered, at which time it will recognize pension costs in accordance with U.S. GAAP.

Cost Method. TVA uses the projected unit credit cost method to determine the service cost and the projected benefit obligation for retirement, termination, and ancillary benefits. Under this method, a "projected accrued benefit" is calculated at the beginning of the year and at the end of the year for each benefit that may be payable in the future. The "projected accrued benefit" is based on the plan's accrual formula and upon service at the beginning or end of the year, but it uses final average compensation, social security benefits, and other relevant factors projected to the age at which the employee is assumed to leave active service. The projected benefit obligation is the actuarial present value of the "projected accrued benefits" at the beginning of the year for employed participants and is the actuarial present value of all benefits for other participants. The service cost is the actuarial present value of the difference between the "projected accrued benefits" at the beginning and end of the year.

Amortization of Net Gain or Loss. TVA utilizes the corridor approach for gain/loss amortization. Differences between actuarial assumptions and actual plan results are deferred and amortized into periodic cost only when the accumulated differences exceed 10 percent of the greater of the projected benefit obligation or the market-related value of plan assets. If necessary, the excess is amortized over the average future expected working lifetime of participants expected to receive benefits, which is approximately 11 years for the pension plan.

Amortization of Prior Service Cost/(Credit). Amortization of net prior service cost/(credit) resulting from a plan change is included as a component of period expense in the year first recognized and every year thereafter until it is fully amortized. The increase or decrease in the benefit obligation due to the plan change is amortized over the average remaining service period of participating employees expected to receive benefits under the plan. The pension and post-retirement plans currently have prior service costs/(credits) from plan changes made in 2016, 2018, 2019, 2020, and 2021 with remaining amortization periods ranging from one to seven years. However, when a plan change reduces the benefit obligation, existing positive prior service costs are reduced or eliminated starting with the earliest established before a new prior service credit base is established.

Asset Method. TVA's asset method calculates a market-related value of assets ("MRVA") that recognizes realized and unrealized investment gains and losses over a three-year smoothing period to decrease the volatility of annual net periodic pension benefit costs. The MRVA is used to determine the expected return on plan assets, a component of net periodic pension benefit cost. The difference in the expected return on the MRVA and the actual return on the fair value on plan assets is recognized as an actuarial (gain)/loss in the pension benefit obligation at September 30. However, the MRVA has no impact on the fair value of plan assets measured at September 30.

Obligations and Funded Status

The actuarial results provided reflect data and assumptions appropriate for the purpose of the measurement of plan obligations and funded status for the year ended. Effects of COVID-19 on the financial markets, regulations, and experience are uncertain and still evolving. The ultimate impact of the COVID-19 pandemic on the pension plan and other post-retirement plans depends on factors beyond TVA's knowledge or control, including the duration and severity of this outbreak, actions taken to contain its spread and mitigate its effects, and broader impacts of the COVID-19 pandemic on the country and region's economy. There may be significant effects on plan experience and/or assumptions, both demographic and economic, as well as the possibility of related changes in certain plan provisions, used for future measurements. Therefore, TVA cannot estimate the potential impact to the pension plan and other post-retirement plans at this time.

[Table of Contents](#)

The changes in plan obligations, assets, and funded status for the years ended September 30, 2022 and 2021, were as follows:

Obligations and Funded Status For the years ended September 30 (in millions)							
	Pension Benefits				Other Post-Retirement Benefits		2021
	2022	2021	2022	2021	2022	2021	
Change in benefit obligation							
Benefit obligation at beginning of year	\$ 13,348	\$ 13,675	\$ 498	\$ 544			
Service cost	53	57	17	18			
Interest cost	378	368	15	16			
Plan participants' contributions	5	5	—	—			
Collections ⁽¹⁾	—	—	15	17			
Actuarial (gain) loss	(2,509)	(25)	(114)	(53)			
Net transfers (to) from variable fund/401(k) plan	11	2	—	—			
Expenses paid	(6)	(6)	—	—			
Benefits paid	(744)	(728)	(43)	(44)			
Benefit obligation at end of year	<u>10,536</u>	<u>13,348</u>	<u>388</u>	<u>498</u>			
Change in plan assets							
Fair value of net plan assets at beginning of year	9,110	7,959	—	—			
Actual return on plan assets	(590)	1,572	—	—			
Plan participants' contributions	5	5	—	—			
Collections ⁽¹⁾	—	—	15	17			
Net transfers (to) from variable fund/401(k) plan	11	2	—	—			
Employer contributions	308	306	28	27			
Expenses paid	(6)	(6)	—	—			
Benefits paid	(744)	(728)	(43)	(44)			
Fair value of net plan assets at end of year	<u>8,094</u>	<u>9,110</u>	<u>—</u>	<u>—</u>			
Funded status	<u>\$ (2,442)</u>	<u>\$ (4,238)</u>	<u>\$ (388)</u>	<u>\$ (498)</u>			

Note

(1) Collections include retiree contributions as well as provider discounts and rebates.

For 2022, the \$2.5 billion pension benefit obligation actuarial gain is primarily due to the increase in the discount rate from 2.90 percent to 5.60 percent, which decreased the liability by \$3.5 billion. This gain was partially offset by a \$527 million actuarial loss due to mortality assumption changes, a \$411 million actuarial loss due to higher Cost of Living Adjustment ("COLA") and higher interest crediting rates than previously assumed for CY 2023 and CY 2024, and a \$78 million actuarial loss due to demographic and plan experience.

For 2021, the \$25 million pension benefit obligation actuarial gain is primarily due to the increase in the discount rate from 2.75 percent to 2.90 percent, which decreased the liability by \$248 million. This gain was partially offset by \$104 million of actuarial losses due to demographic and plan experience, an actuarial loss of \$91 million due to the higher COLA and higher interest crediting rates than previously assumed for CY 2022, and a \$28 million actuarial loss due to updating to the latest mortality improvement scale.

The \$114 million other post-retirement actuarial gain for 2022 was primarily due to the increase in the discount rate from 3.05 percent to 5.65 percent, which decreased the liability by \$168 million. The liability decreased an additional \$31 million as a result of an actuarial gain from delaying the ultimate post-Medicare trend rate assumption two years due to favorable premium rates. These gains were partially offset by a \$67 million actuarial loss due to changes in pre-Medicare trend assumptions related to higher claim costs and lower expected future retiree contributions. In addition, TVA recognized an \$18 million actuarial loss due to mortality assumption changes.

The other post-retirement actuarial gain for 2021 decreased the benefit obligation by \$53 million. TVA recognized a \$47 million actuarial gain primarily due to lower per capita claims costs than previously assumed net of the loss from the change in the pre-Medicare eligible per capita contributions trend rate assumption. In addition, TVA recognized a \$7 million gain due to demographic and plan experience, partially offset by a \$1 million loss due to updating to the latest mortality improvement scale.

Amounts related to these benefit plans recognized on TVA's Consolidated Balance Sheets consist of regulatory assets and liabilities that have not been recognized as components of net periodic benefit cost at September 30, 2022 and 2021, and the funded status of TVA's benefit plans, which are included in Accounts payable and accrued liabilities and Post-retirement and post-employment benefit obligations:

Amounts Recognized on TVA's Consolidated Balance Sheets
At September 30
(in millions)

	Pension Benefits		Other Post-Retirement Benefits	
	2022	2021	2022	2021
Regulatory assets (liabilities)	\$ 1,839	\$ 3,636	\$ (70)	\$ 32
Accounts payable and accrued liabilities	(6)	(7)	(22)	(24)
Pension and post-retirement benefit obligations ⁽¹⁾	(2,436)	(4,231)	(366)	(474)

Note

(1) The table above excludes \$270 million and \$340 million of post-employment benefit costs that are recorded in Post-retirement and post-employment benefit obligations on the Consolidated Balance Sheets at September 30, 2022 and 2021, respectively.

Unrecognized amounts included in regulatory assets or liabilities yet to be recognized as components of accrued benefit cost at September 30, 2022 and 2021, consisted of the following:

Post-Retirement Benefit Costs Deferred as Regulatory Assets (Liabilities)
At September 30
(in millions)

	Pension Benefits		Other Post-Retirement Benefits	
	2022	2021	2022	2021
Unrecognized prior service credit	\$ (424)	\$ (517)	\$ (76)	\$ (93)
Unrecognized net loss	2,186	4,062	6	125
Amount capitalized due to actions of regulator	77	91	—	—
Total regulatory assets (liabilities)	\$ 1,839	\$ 3,636	\$ (70)	\$ 32

Information for the pension projected benefit obligation ("PBO") in excess of plan assets and other post-retirement accumulated postretirement benefit obligation ("APBO") has been disclosed in the Obligations and Funded Status table above. The following table provides the pension plan accumulated benefit obligation ("ABO") in excess of plan assets. The other post-retirement plans are unfunded or have no plan assets.

Accumulated Benefit Obligations in Excess of Plan Assets
At September 30
(in millions)

	2022	2021
Accumulated benefit obligation	\$ 10,508	\$ 13,299
Fair value of net plan assets	8,094	9,110

The components of net periodic benefit cost and other amounts recognized as changes in regulatory assets for the years ended September 30, 2022, 2021, and 2020 were as follows:

Components of Net Periodic Benefit Cost For the years ended September 30 (in millions)							
	Pension Benefits			Other Post-Retirement Benefits			2020
	2022	2021	2020	2022	2021	2020	
Service cost	\$ 53	\$ 57	\$ 55	\$ 17	\$ 18	\$ 16	
Interest cost	378	368	415	15	16	16	
Expected return on plan assets	(435)	(493)	(488)	—	—	—	
Amortization of prior service credit	(93)	(97)	(97)	(17)	(18)	(24)	
Recognized net actuarial loss	392	452	436	5	11	10	
Total net periodic benefit cost as actuarially determined	295	287	321	20	27	18	
Amount expensed (capitalized) due to actions of regulator	13	19	(15)	—	—	—	
Net periodic benefit cost	\$ 308	\$ 306	\$ 306	\$ 20	\$ 27	\$ 18	

Plan Assumptions

Plan assumptions utilized to determine benefit obligations and net periodic benefit costs include discount rates, projected health care cost trend rates, COLAs, expected long-term rate of return on plan assets, rate of increase in future compensation levels, retirement rates, expected timing and form of payments, and mortality rates, of which certain key assumptions are noted below. Every five years, a formal actuarial experience study that compares assumptions to the actual experience is conducted. Additional ad-hoc experience studies are performed as needed to review recent experience and validate recommended changes to the actuarial assumptions used based upon TVA's last experience study in 2018.

Actuarial Assumptions Utilized to Determine Benefit Obligations at September 30

	Pension Benefits		Other Post-Retirement Benefits		2021
	2022	2021	2022	2021	
Discount rate	5.60%	2.90%	5.65%	3.05%	
Average rate of compensation increase	3.32%	3.37%	N/A	N/A	
Weighted average interest crediting rate	5.14%	5.15%	N/A	N/A	
Cost of living adjustment (COLA) ⁽¹⁾	2.00%	2.00%	2.00%	2.00%	
Pre-Medicare eligible per capita claim costs					
Current health care cost trend rate	N/A	N/A	7.00%	6.25%	
Ultimate health care cost trend rate	N/A	N/A	5.00%	5.00%	
Year ultimate trend rate is reached	N/A	N/A	2031	2027	
Pre-Medicare eligible per capita contributions					
Current health care cost trend rate	N/A	N/A	5.00%	8.51%	
Ultimate health care cost trend rate	N/A	N/A	5.00%	5.00%	
Year ultimate trend rate is reached	N/A	N/A	2022	2027	
Post-Medicare eligible					
Current health care cost trend rate	N/A	N/A	—%	—%	
Ultimate health care cost trend rate	N/A	N/A	4.00%	4.00%	
Year ultimate trend rate is reached	N/A	N/A	2026	2024	

Note

(1) The COLA assumption is the ultimate long-term rate. The calendar year rates for 2023 and 2024 are assumed to be 6.00 percent and 3.15 percent, respectively, and for years thereafter the ultimate is used.

Actuarial Assumptions Utilized to Determine Net Periodic Benefit Cost for the Years Ended September 30⁽¹⁾

	Pension Benefits			Other Post-Retirement Benefits		
	2022	2021	2020	2022	2021	2020
Discount rate	2.90%	2.75%	3.20%	3.05%	3.05%	3.30%
Expected return on plan assets ⁽²⁾	5.75%	6.75%	6.75%	N/A	N/A	N/A
Weighted average interest crediting rate	5.14%	5.15%	5.15%	N/A	N/A	N/A
Cost of living adjustment (COLA) ⁽³⁾	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Average rate of compensation increase	3.32%	3.37%	3.43%	N/A	N/A	N/A
Pre-Medicare eligible per capita claims costs						
Current health care cost trend rate	N/A	N/A	N/A	6.25%	6.50%	6.75%
Ultimate health care cost trend rate	N/A	N/A	N/A	5.00%	5.00%	5.00%
Year ultimate trend rate is reached	N/A	N/A	N/A	2027	2027	2027
Pre-Medicare eligible per capita contributions						
Current health care cost trend rate	N/A	N/A	N/A	8.51%	11.93%	6.75%
Ultimate health care cost trend rate	N/A	N/A	N/A	5.00%	5.00%	5.00%
Year ultimate trend rate is reached	N/A	N/A	N/A	2027	2027	2027
Post-Medicare eligible						
Current health care cost trend rate	N/A	N/A	N/A	—%	—%	—%
Ultimate health care cost trend rate	N/A	N/A	N/A	4.00%	4.00%	4.00%
Year ultimate trend rate is reached	N/A	N/A	N/A	2024	2024	2023

Notes

(1) The actuarial assumptions used to determine the benefit obligations at September 30 of each year are subsequently used to determine net periodic benefit cost for the following year except the rate of compensation increase assumption.

(2) The actual return on assets for 2022, 2021, and 2020 were (6.64) percent, 20.30 percent, and 5.11 percent, respectively.

(3) The COLA assumption is the ultimate rate. The actual calendar year rate is used in determining the expense, and for years thereafter the ultimate rate is used.

Discount Rate. In selecting the assumed discount rate, TVA reviews market yields on high-quality corporate debt and endeavors to match, through the use of a hypothetical bond portfolio, instrument maturities with the maturities of its pension obligations in accordance with the prevailing accounting standards. The selected bond portfolio is derived from a universe of high quality corporate bonds of Aa-rated quality or higher. After the bond portfolio is selected, a single interest rate is determined that equates the present value of the plan's projected benefit payments discounted at this rate with the market value of the bonds selected.

Expected Return on Plan Assets. The qualified defined benefit pension plan is the only plan that is funded with qualified plan assets. The expected rate of return is based on annual studies performed by third-party professional investment consultants. In determining the expected long-term rate of return on pension plan assets, TVA uses a process that incorporates actual historical asset class returns and an assessment of expected future performance and takes into consideration external actuarial advice, the current outlook on capital markets, the asset allocation policy, and the anticipated investment expenses and impact of active management. Asset allocations are periodically updated using the pension plan asset/liability studies and are part of the determination of the estimates of long-term rates of return. The TVARS asset allocation policy diversifies plan assets across multiple asset classes so as to minimize the risk of large losses. The asset allocation policy is designed to be responsive to changes in the funded status of TVARS. During 2022, the TVARS Board increased the expected return on plan assets assumptions from 5.75 percent to 6.50 percent based upon review of the current plan's funding levels and asset target allocation mix, capital market outlooks, and the most recent studies. In 2022, TVA management adopted the 6.50 percent expected long-term rate of return on plan assets assumption, which will be used to calculate the 2023 net periodic pension cost.

Compensation Increases. Assumptions related to compensation increases are based upon the latest TVA compensation experience study performed in 2018. Future compensation is assumed to likely increase at rates between 2.50 percent and 14.00 percent per year, depending upon the employee's age, and is used to determine the benefit obligations and net periodic benefit cost. The average assumed compensation increase is based upon the current active participants.

Mortality. The mortality assumption is comprised of a base table that represents the current future life expectancy adjusted by an improvement scale to project future improvements in life expectancy. TVA's mortality assumptions are based upon actuarial projections in combination with studies of the actual mortality experience of TVA's pension and post-retirement benefit plan participants while taking into consideration the published Society of Actuaries ("SOA") mortality table and projection scale at September 30. In 2022, based upon the most recent mortality experience study, TVA adopted a modified version of the SOA PRI-2012 Upper Quartile mortality table and updated to the latest mortality improvement scale at September 30, 2022.

[Table of Contents](#)

The following mortality assumptions were used to determine the benefit obligations for the pension and other post-retirement benefit plans at September 30, 2022, 2021, and 2020. Assumptions used to determine year-end benefit obligations are the assumptions used to determine the subsequent year's net periodic benefit costs.

Mortality Assumptions At September 30		2022	2021	2020
Mortality table	PRI-2012 Upper Quartile table (adjusted)		PRI-2012 table (adjusted)	PRI-2012 table (adjusted)
Improvement scale	MP-2021 (modified)		MP-2020 (modified)	MP-2019 (modified)

Health Care Cost Trends. The health care cost trend rates are assumptions about the annual rate of changes in the cost of health care benefits currently provided by the post-retirement benefit plan. In establishing health care cost trend rates, TVA reviews actual recent cost trends and projected future trends considering health care inflation, changes in health care utilization, and changes in plan benefits and premium experience.

Cost of Living Adjustment. COLAs are an increase in the benefits for eligible retirees to help maintain the purchasing power of benefits as consumer prices increase. Eligible retirees receive COLA on pension and supplemental benefits in January based on a formula linked to the Consumer Price Index for All Urban Consumers ("CPI-U") following any year in which the calculation is at least one percent. Increases in COLA will be the percentage change in average CPI-U for the current 12-month period (November - October) compared to the average CPI-U for the previous 12-month period (November - October) for which a COLA was given, less 0.25 percent, with a 6.00 percent cap for any one year.

TVA's COLA assumption is derived from long-term expectations of the expected future rate of inflation, based upon capital market assumptions, economic forecasts, and the Federal Reserve policy. The actual calendar year COLA and the long-term COLA assumption are used to determine the benefit obligation at September 30 and the net periodic benefit costs for the following fiscal year. The actual calendar year COLAs for 2022, 2021, and 2020 were 3.50 percent, 1.13 percent, and 1.54 percent, respectively.

Sensitivity of Costs to Changes in Assumptions. The following chart reflects the sensitivity of pension cost to changes in certain actuarial assumptions:

Actuarial Assumption	Change in Assumption	Impact on Certain Changes in Pension Assumptions		Impact on 2022 Projected Benefit Obligation (in millions)	
			Impact on 2022 Pension Cost (in millions)		
Discount rate	(0.25)%	\$	16	\$	257
Rate of return on plan assets	(0.25)%		19		N/A
Cost of living adjustments	0.25 %		29		179

Each fluctuation above assumes that the other components of the calculation are held constant and excludes any impact for unamortized actuarial gains or losses.

Plan Investments

In 2021, a new asset allocation plan was put in place to reduce risk and volatility in the TVARS investment portfolio. Pursuant to the TVARS Rules and Regulations, any proposed changes in asset allocation that would change TVARS's assumed rate of investment return are subject to the review and veto of the TVA Board. The qualified pension plan assets are invested across growth, defensive-growth, defensive, and inflation-sensitive assets. The TVARS asset allocation policy includes permissible deviations from target allocations, and action can be taken, as appropriate, to rebalance the plan's assets consistent with the asset allocation policy. At September 30, 2022 and 2021, the asset holdings of TVARS included the following:

Asset Category	Target Allocation	Plan Assets at September 30		
		2022	2021	
Growth assets	17 %	20 %	18 %	
Defensive growth assets	38 %	34 %	35 %	
Defensive assets	20 %	18 %	20 %	
Inflation-sensitive assets	25 %	28 %	27 %	
Total	100 %	100 %	100 %	

[Table of Contents](#)

Fair Value Measurements

The following table provides the fair value measurement amounts for assets held by TVARS at September 30, 2022:

TVA Retirement System At September 30, 2022 (in millions)						
	Total ⁽¹⁾⁽²⁾	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)		
Assets						
Equity securities	\$ 709	\$ 707	\$ —	\$ 2		
Preferred securities	6	1	5	—		
Debt securities						
Corporate debt securities	1,087	—	1,087	—		
Residential mortgage-backed securities	293	—	289	4		
Debt securities issued by U.S. Treasury	616	616	—	—		
Debt securities issued by foreign governments	130	—	130	—		
Asset-backed securities	176	—	136	40		
Debt securities issued by state/local governments	23	—	23	—		
Commercial mortgage-backed securities	161	—	145	16		
Commingled funds measured at net asset value ⁽³⁾						
Equity	436	—	—	—		
Debt	657	—	—	—		
Blended	111	—	—	—		
Institutional mutual funds	454	454	—	—		
Cash equivalents and other short-term investments	431	133	298	—		
Private credit measured at net asset value ⁽³⁾	522	—	—	—		
Private equity measured at net asset value ⁽³⁾	1,454	—	—	—		
Private real assets measured at net asset value ⁽³⁾	1,080	—	—	—		
Securities lending collateral	196	—	196	—		
Derivatives						
Futures	5	5	—	—		
Swaps	17	—	17	—		
Foreign currency forward receivable	2	—	2	—		
Total assets	\$ 8,566	\$ 1,916	\$ 2,328	\$ 62		
Liabilities						
Derivatives						
Futures	\$ 10	\$ 10	\$ —	\$ —		
Foreign currency forward payable	1	—	1	—		
Swaps	54	—	54	—		
Securities sold under agreements to repurchase	111	—	111	—		
Total liabilities	\$ 176	\$ 10	\$ 166	\$ —		

Notes

(1) Excludes approximately \$100 million in net payables associated with security purchases and sales and various other payables.

(2) Excludes a \$196 million payable for collateral on loaned securities in connection with TVARS's participation in securities lending programs.

(3) In accordance with Subtopic 820-10, certain investments that are measured at fair value using the NAV per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

[Table of Contents](#)

The following table provides the fair value measurement amounts for assets held by TVARS at September 30, 2021:

TVA Retirement System At September 30, 2021 (in millions)						
	Total ⁽¹⁾⁽²⁾	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)		
Assets						
Equity securities	\$ 992	\$ 990	\$ —	\$ 2		
Preferred securities	9	2	6	1		
Debt securities						
Corporate debt securities	1,360	—	1,359	1		
Residential mortgage-backed securities	275	—	267	8		
Debt securities issued by U.S. Treasury	741	741	—	—		
Debt securities issued by foreign governments	204	—	200	4		
Asset-backed securities	151	—	110	41		
Debt securities issued by state/local governments	28	—	28	—		
Commercial mortgage-backed securities	168	—	151	17		
Commingled funds measured at net asset value ⁽³⁾						
Equity	619	—	—	—		
Debt	881	—	—	—		
Blended	105	—	—	—		
Institutional mutual funds	841	841	—	—		
Cash equivalents and other short-term investments	710	323	387	—		
Private credit measured at net asset value ⁽³⁾	324	—	—	—		
Private equity measured at net asset value ⁽³⁾	1,333	—	—	—		
Private real assets measured at net asset value ⁽³⁾	760	—	—	—		
Securities lending collateral	240	—	240	—		
Derivatives						
Futures	1	1	—	—		
Swaps	6	—	6	—		
Foreign currency forward receivable	1	—	1	—		
Total assets	\$ 9,749	\$ 2,898	\$ 2,755	\$ 74		
Liabilities						
Derivatives						
Futures	\$ 4	\$ 4	\$ —	\$ —		
Foreign currency forward payable	1	—	1	—		
Swaps	23	—	23	—		
Securities sold under agreements to repurchase	108	—	108	—		
Total liabilities	\$ 136	\$ 4	\$ 132	\$ —		

Notes

(1) Excludes approximately \$263 million in net payables associated with security purchases and sales and various other payables.

(2) Excludes a \$240 million payable for collateral on loaned securities in connection with TVARS's participation in securities lending programs.

(3) In accordance with Subtopic 820-10, certain investments that are measured at fair value using the NAV per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

[Table of Contents](#)

The following table provides a reconciliation of beginning and ending balances of pension plan assets measured at fair value on a recurring basis where the determination of fair value includes significant unobservable inputs (Level 3):

Fair Value Measurements Using Significant Unobservable Inputs (in millions)	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at September 30, 2020	\$ 94
Net realized/unrealized gains (losses)	(48)
Purchases, sales, issuances, and settlements (net)	32
Transfers in and/or out of Level 3	(4)
Balance at September 30, 2021	74
Net realized/unrealized gains (losses)	(4)
Purchases, sales, issuances, and settlements (net)	2
Transfers in and/or out of Level 3	(10)
Balance at September 30, 2022	\$ 62

The following descriptions of the valuation methods and assumptions used by the pension plan to estimate the fair value of investments apply to investments held directly by the pension plan. Third-party pricing vendors provide valuations for investments held by the pension plan in most instances, except for commingled, private credit, private equity, and private real asset funds which are priced at NAVs established by the investment managers. In instances where pricing is determined to be based on unobservable inputs, a Level 3 classification has been assigned. Certain securities priced by the investment manager using a proprietary fair value model with unobservable inputs have been classified as Level 3.

Equity and Preferred Securities. Investments listed on either a national or foreign securities exchange or traded in the over-the-counter National Market System are generally valued each business day at the official closing price (typically the last reported sale price) on the exchange on which the security is primarily traded and are classified as Level 1. Equity securities, including common stocks and preferred securities, classified as Level 2 may have been priced by dealer quote or using assumptions based on observable market data, such as yields on bonds from the same issuer or industry. Certain securities priced by the investment manager using unobservable inputs have been classified as Level 3.

Corporate Debt Securities. Corporate bonds are valued based upon recent bid prices or the average of recent bid and asked prices when available (Level 2 inputs) and, if not available, they are valued through matrix pricing models. Matrix pricing, which is a mathematical technique commonly used to price debt securities that are not actively traded, values debt securities without relying exclusively on quoted prices for the specific securities but rather by relying on the securities' relationship to other benchmark quoted securities (Level 2 inputs). Certain securities priced by the investment manager using broker pricing or unobservable inputs have been classified as Level 3.

Mortgage and Asset-Backed Securities. Residential mortgage-backed securities consist of collateralized mortgage obligations ("CMOs") and U.S. pass-through security pools related to government-sponsored enterprises. CMO pricing is typically based on either a volatility-driven, multidimensional, single-cash-flow stream model or an option-adjusted spread model. These models incorporate available market data such as trade information, dealer quotes, market color, spreads, bids, and offers. Pricing for government-sponsored enterprise securities, including the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association, and the Government National Mortgage Association, is typically based on quotes from the To Be Announced ("TBA") market, which is highly liquid with multiple electronic platforms that facilitate the execution of trading between investors and broker/dealers. Prices from the TBA market are then compared against other live data feeds as well as input obtained directly from the dealer community. Most residential mortgage-backed securities are considered to be priced using Level 2 inputs because of the nature of their market-data-based pricing models. Certain securities priced by vendors using a single broker quote or unobservable inputs have been classified as Level 3.

Debt Securities Issued by U.S. Treasury. For U.S. Treasury securities, fair values reflect the closing price reported in the active market in which the security is traded (Level 1 inputs).

Debt Securities Issued by Foreign Governments. Foreign government bonds and foreign government inflation-linked securities are typically priced based on proprietary discounted cash flow models, incorporating option-adjusted spread features as appropriate. Debt securities issued by foreign governments are classified as Level 2 because of the nature of their market-data-based pricing models. Certain securities priced by the investment manager using broker quotes or unobservable input have been classified as Level 3.

Debt Securities Issued by State and Local Governments. Debt securities issued by state and local governments are

typically priced using market-data-based pricing models, and are therefore classified as Level 2. These pricing models incorporate market data such as quotes, trading levels, spread relationships, and yield curves, as applicable.

Commercial Mortgage-Backed and Asset-Backed Securities. Commercial mortgage-backed and asset-backed securities are typically priced based on a single-cash-flow stream model, which incorporates available market data such as trade information, dealer quotes, market color, spreads, bids, and offers. Because of the market-data-based nature of such pricing models, these securities are typically classified as Level 2. Certain securities priced by investment managers using broker pricing or unobservable inputs have been classified as Level 3.

Commingled Funds. The pension plan invests in commingled funds, which include collective trusts, unit investment trusts, and similar investment funds that predominantly hold debt and/or equity securities as underlying assets. The pension plan's ownership consists of a pro rata share and not a direct ownership of an underlying investment. These commingled funds are valued at their closing NAVs (or unit value) per share as reported by the managers of the commingled funds and as supported by the unit prices of actual purchases and sale transactions occurring as of or close to the financial statement date. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The pension plan is invested in equity commingled funds, which can be categorized as either passively managed index funds or actively managed funds. The equity index funds seek to track the performance of a particular index by replicating its capitalization and characteristics. Passive fund benchmark indices include the Russell 1000 index and MSCI ACWI ex-U.S. index. The actively managed equity funds seek to outperform certain equity benchmarks through a combination of fundamental and technical analysis. Active funds select portfolio positions based upon their research.

The pension plan is invested in debt commingled funds, which can be categorized as either passively managed index funds or actively managed funds. The pension plan's debt index fund invests in a diversified portfolio of fixed-income securities and derivatives of varying maturities to replicate the characteristics of the Bloomberg Barclays Capital TIPS. The fund seeks to track the total return of the Bloomberg Barclays Capital U.S. TIPS index. The actively managed debt funds seek to outperform certain fixed-income benchmarks through fundamental research and analysis. The funds invest in a diversified portfolio of fixed income securities and derivatives of varying maturities. Varying by strategy, fund objectives include achieving a positive relative total return through active credit selection and providing risk management through desired strategic exposures.

The pension plan is invested in commingled funds, which invest across multiple asset classes that can be categorized as blended. These funds seek to outperform a passive benchmark through active security selection. The funds invest in securities across equity, fixed income, currency, and commodities. The portfolios employ fundamental, quantitative, and technical analysis.

The pension plan's investments in equity, debt, blended, and commodity commingled funds can generally be redeemed upon notification of the investment managers, with required notice periods varying from same-day to monthly. These investments do not have unfunded commitments.

Institutional Mutual Funds. Investments in institutional mutual funds are valued at prices based on their NAV. Institutional mutual funds have daily published market prices that represent their NAV (or unit value) per share and are classified as Level 1.

Cash Equivalents and Other Short-Term Investments and Certificates of Deposit. Cash equivalents and other short-term investments are highly liquid securities with maturities of less than three months and 12 months, respectively. These consist primarily of discount securities such as commercial paper, repurchase agreements, U.S. Treasury bills, and certain agency securities. These securities, as well as certificates of deposit, may be priced at cost, which approximates fair value due to the short-term nature of the instruments. Model based pricing which incorporates observable inputs may also be utilized. These securities are classified as Level 2. Active market pricing may be utilized for U.S. Treasury bills, which are classified as Level 1.

Private Credit Funds. Private credit limited partnerships are reported at NAVs provided by the fund managers. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The private credit limited partnerships invest across direct lending, opportunistic credit, and distressed debt strategies. The limited partnerships generally make investments of senior secured first-lien loans, second-lien secured loans, asset-based loans, risk transfer loans, specialty finance loans, unitranche loans, and distressed debt opportunities to middle market private companies. The limited partnerships generally seek to obtain financial returns through high income potential and occasional equity upside. The limited partnerships generally have a term life of five to eight years and are diversified by sector and industry.

Private Equity Funds. Private equity limited partnerships are reported at NAVs provided by the fund managers. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The private equity limited partnerships typically make longer-term investments in private companies and seek to obtain financial returns through long-term appreciation based on corporate stewardship, improved operating processes, and financial

restructuring which may involve a merger or acquisition. Significant investment strategies include venture capital, buyout, mezzanine or subordinated debt, restructuring or distressed debt, energy infrastructure, and special situations. Venture capital partnerships consist of two main groupings. Early-stage venture capital partnerships invest in businesses still in the conceptual stage where products may not be fully developed and where revenues and/or profits may be several years away. Later-stage venture capital partnerships invest in more mature companies in need of growth or expansion capital. Buyout partnerships provide the equity capital for acquisition transactions either from a private seller or the public, which may represent the purchase of the entire company or a refinancing or recapitalization transaction where equity is invested. Mezzanine or subordinated debt partnerships provide the intermediate capital between equity and senior debt in a buyout or refinancing transaction and typically own a security in the company that carries current interest payments as well as a potential equity interest in the company. Restructuring or distressed debt partnerships purchase opportunities generated by overleveraged or poorly managed companies. Special situation partnerships include organizations with a specific industry focus not covered by the other private equity subclasses or unique opportunities that fall outside the regular subclasses.

The private equity funds have no investment withdrawal provisions prior to the termination of the partnership. Partnerships generally continue 10 to 14 years after the inception of the fund. The partnerships are generally subject to two to three one-year extensions at the discretion of the General Partner. Partnerships can generally be dissolved by an 80 percent vote in interest by all limited partners, with some funds requiring the occurrence of a specific event.

Private Real Asset Investments. The pension plan's ownership in private real asset investments consists of a pro rata share and not a direct ownership of the underlying investments. The fair values of the pension plan's private real asset investments are estimated utilizing NAVs provided by the investment managers. These investments have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015. The investment strategies and methodologies utilized by the investment managers to calculate their NAVs are summarized as follows:

The pension plan is invested in limited partnerships that invest in real estate securities, real estate partnerships, and direct real estate properties. This includes investments in office, multifamily, industrial, and retail investment properties in the U.S. and international markets. The investment strategy focuses on distressed, opportunistic, and value-added opportunities. Partnership investments also include mortgage and/or real estate-related fixed-income instruments and related securities. Investments are diversified by property type and geographic location.

The pension plan is invested in a commingled fund that develops, renovates, and re-leases real estate properties to create value. Investments are predominantly in top tier real estate markets that offer deep liquidity. Property types include residential, office, industrial, hotel, retail, and land. Properties are diversified by geographic region within the U.S. domestic market. The plan is invested in a second commingled fund that invests primarily in core, well-leased, operating real estate properties with a focus on income generation. Investments are diversified by property type with a focus on office, industrial, apartment, and retail. Properties are diversified within the U.S. with an overweight to major market and coastal regions.

Fair value estimates of the underlying investments in these limited partnerships and commingled fund investments are primarily based upon property appraisal reports prepared by independent real estate appraisers within a reasonable amount of time following acquisition of the real estate and no less frequently than annually thereafter. The appraisals are based on one or a combination of three methodologies: cost of reproduction analysis, discounted cash flow analysis, and sales comparison analysis. Pricing for certain investments in mortgage-backed and asset-backed securities is typically based on models that incorporate observable inputs.

The pension plan is invested in energy infrastructure partnerships which acquire essential, long-lived real assets in three main groupings. Upstream assets include oil and gas exploration, drilling, and acquisition. Midstream assets include storage, pipelines, gathering, processing, and transportation of energy commodities. Downstream assets include generation, distribution, and transmission facilities. Additionally, the pension plan is invested in infrastructure partnerships that target mid-sized operating infrastructure companies and/or assets with limited development and construction risk primarily in the energy, transportation and logistics, environmental, telecommunications, and social industries. The partnerships use one or more valuation techniques (e.g., the market approach, the income approach, or the cost approach) for which sufficient and reliable data is available. The use of the market approach generally consists of using comparable market transactions, while the use of the income approach generally consists of the net present value of estimated future cash flows, adjusted as appropriate for liquidity, credit, market, and/or other risk factors.

The pension plan is invested in a private real asset investment trust formed to make direct or indirect investments in commercial timberland properties. Pricing for these types of investments is based on comprehensive appraisals that are conducted shortly after initial purchase of properties and at three-year intervals thereafter. All appraisals are conducted by third-party timberland appraisal firms. Appraisals are based on either a sales comparison analysis or a discounted cash flow analysis.

Securities Lending Collateral. Collateral held under securities lending arrangements are invested in highly liquid short-term securities, primarily repurchase agreements. The securities are often priced at cost, which approximates fair value due to the short-term nature of the instruments. These securities are classified as Level 2.

Derivatives. The pension plan invests in a variety of derivative instruments. The valuation methodologies for these instruments are as follows:

Futures. The pension plan enters into futures. The futures contracts are listed on either a national or foreign securities exchange and are generally valued each business day at the official closing price (typically the last reported sales price) on the exchange on which the security is primarily traded. The pricing is performed by third-party vendors. Since futures are priced by an exchange in an active market, they are classified as Level 1.

Options. The pension plan enters into purchased and written options. Options that are listed on either a national or foreign securities exchange are generally valued each business day at the official closing price (typically the last reported sales price) on the exchange on which the security is primarily traded. These options are classified as Level 1. Options traded over the counter and not on exchanges are priced by third-party vendors and are classified as Level 2.

Swaps. The pension plan enters into various types of swaps. Credit default swaps are priced at market using models that consider cash flows, credit curves, recovery rates, and other factors. The pricing is performed by third-party vendors, and in some cases by clearing exchanges. Interest rate swap contracts are priced at market using forward rates derived from the swap curve, and the pricing is also performed by third-party vendors, and in some cases by clearing exchanges. Other swaps such as equity index swaps and variance swaps are priced by third-party vendors using market inputs such as spot rates, yield curves, and volatility. The pension plan's swaps are generally classified as Level 2 based on the observable nature of their pricing inputs.

Foreign currency forwards. The pension plan enters into foreign currency forwards. All commitments are marked to market daily at the applicable translation rates, and any resulting unrealized gains or losses are recorded. Foreign currency forwards are priced by third-party vendors and are classified as Level 2.

Securities Sold Under Agreements to Repurchase. The pension plan enters into contracts to sell securities to a counterparty at a specified price with an agreement to purchase the same or substantially the same security from the same counterparty at a fixed or determinable price at a future date. Securities sold under agreements to repurchase are presented at their contract price which approximates fair value due to their short-term nature. These securities are classified as Level 2. In connection with sales of securities under agreements to repurchase, the counterparties require the pension plan to maintain collateral securities with a fair value that approximates or exceeds the contract amount of the repurchase agreement. These securities are held in government inflation-linked bonds and classified as government debt securities.

The valuation methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the pension plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Cash Flows

Estimated Future Benefit Payments. The following table sets forth the estimated future benefit payments under the benefit plans.

Estimated Future Benefits Payments
At September 30, 2022
(in millions)

	Pension Benefits ⁽¹⁾	Other Post-Retirement Benefits
2023	\$ 793	\$ 22
2024	808	21
2025	813	21
2026	810	21
2027	807	22
2028 - 2032	3,932	126

Note

(1) Participants are assumed to receive the Fixed Fund in a lump sum in lieu of available annuity options allowed for certain grandfathered participants resulting in higher estimated pension benefits payments.

Contributions. TVA made contributions to the pension plan of \$300 million for 2022 and 2021. TVA has committed to make a minimum contribution of \$300 million per year through 2036 or until the plan has reached and remained at 100 percent funded status under the actuarial rules applicable to TVARS. TVA made SERP contributions of \$8 million and \$6 million for 2022 and 2021, respectively. TVA made cash contributions to the other post-retirement benefit plans of \$28 million (net of \$4 million in rebates) and \$25 million (net of \$5 million in rebates) for 2022 and 2021, respectively. TVA expects to contribute \$300 million to TVARS, \$6 million to the SERP, and \$22 million to the other post-retirement benefit plans in 2023.

Other Post-Employment Benefits

Post-employment benefit cost estimates are revised to properly reflect changes in actuarial assumptions made at the end of each year. TVA utilizes a discount rate determined by reference to the U.S. Treasury Constant Maturities corresponding to the calculated average durations of TVA's future estimated post-employment claims payments. The use of a 3.83 percent discount rate resulted in the recognition of \$40 million in expenses in 2022 and an unpaid benefit obligation of \$299 million at September 30, 2022. The use of a 1.52 percent discount rate resulted in the recognition of approximately \$20 million in expenses in 2021 and an unpaid benefit obligation of \$340 million at September 30, 2021. The use of a 0.69 percent discount rate resulted in the recognition of approximately \$45 million in expenses in 2020 and an unpaid benefit obligation of \$390 million at September 30, 2020. The U.S. Department of Labor ("DOL") administers TVA's worker compensation program and invoices TVA annually for claims processed.

The decrease in the unpaid obligation at September 30, 2022, compared to the prior year is due primarily to the increase in the discount rate from 1.52 percent in 2021 to 3.83 percent in 2022, decreases in loss experience, and fewer claims partially attributable to delayed medical treatments as a result of the COVID-19 pandemic. The DOL billed TVA \$29 million for 2022 claims due in October 2022. TVA estimated claims for 2023 are \$29 million.

The decrease in the unpaid obligation at September 30, 2021, compared to the prior year is due primarily to the increase in the discount rate from 0.69 percent in 2020 to 1.52 percent in 2021, decreases in loss experience, and fewer claims partially attributable to delayed medical treatments as a result of the COVID-19 pandemic. TVA paid \$31 million for 2021 claims to the DOL in September 2021.

The ultimate impact of the COVID-19 pandemic on post-employment benefit costs and claims experience depends on factors beyond TVA's knowledge or control, including the duration and severity of this outbreak, actions taken to contain its spread and mitigate its effects, and broader impacts of the COVID-19 pandemic on the country and region's economy.

The current portion which represents unpaid losses and administrative fees due are in Accounts payable and accrued liabilities. The long-term portion is recognized in Post-retirement and post-employment benefit obligations.

Amounts Recognized on TVA's Consolidated Balance Sheets
At September 30
(in millions)

	2022	2021
Accounts payable and accrued liabilities ⁽¹⁾	\$ 29	\$ —
Post-retirement and post-employment benefit obligations	270	340

Note

(1) The 2022 and 2021 DOL invoices were paid in October 2022 and September 2021, respectively.

21. Commitments and Contingencies

Commitments

Power Purchase Obligations. TVA has contracted with various independent power producers and LPCs for additional capacity to be made available to TVA. Several of these agreements have contractual minimum payments and are accounted for as either finance or operating leases. In total, these agreements provide 3,949 MW of summer net capability. The remaining terms of the agreements range up to 13 years. Additionally, TVA has contracted with regional transmission organizations to reserve 2,450 MW of transmission service to support purchases from the market and wind PPAs. The remaining terms of these agreements range up to 4 years. Excluding lease-related costs, TVA incurred \$318 million, \$202 million, and \$202 million of expense under these power purchase and transmission service agreements during 2022, 2021, and 2020, respectively.

TVA has one power purchase agreement that meets the definition of an unconditional purchase obligation. At September 30, 2022, the non-lease portion of the commitment for each of the next five years and thereafter is shown below:

	2023	2024	2025	2026	2027	Thereafter
Unconditional purchase obligation	\$ 146	\$ 145	\$ 145	\$ 145	\$ 145	\$ 766

Under federal law, TVA is obligated to purchase power from qualifying facilities (cogenerators and small power producers). As of September 30, 2022, there was a combined qualifying facility capacity of 278 MW from 642 different generation sources, from which TVA purchased power under this law.

Unfunded Loan Commitments. At September 30, 2022, TVA had no commitments under unfunded loan commitments for 2023. TVA also has no commitments under unfunded loan commitments for 2024 through 2027.

Other Commitments. See Note 8 — *Leases*, Note 11 — *Variable Interest Entities*, Note 14 — *Debt and Other Obligations*, and Note 20 — *Benefit Plans* for the obligations and commitments attributable to leases, VIEs and membership interests of VIEs subject to mandatory redemption, leaseback obligations, and the retirement plan, respectively.

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 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 13 — *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 September 30, 2022, \$3.6 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 16 — *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 10 — *Regulatory Assets and Liabilities — Nuclear Decommissioning Costs* and Note 13 — *Asset Retirement Obligations*.

Non-Nuclear Decommissioning. At September 30, 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 16 — *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 10 — *Regulatory Assets and Liabilities — Non-Nuclear Decommissioning Costs* and Note 13 — *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.

From 1970 to 2022, TVA spent approximately \$6.8 billion to reduce emissions from its power plants, including \$16 million, \$17 million, and \$19 million in 2022, 2021, and 2020, respectively, on clean air controls. TVA estimates that compliance with existing and future Clean Air Act ("CAA") requirements (excluding GHG requirements) could lead to costs of \$128 million from 2023 to 2027, which include existing controls capital projects and air operations and maintenance projects. TVA also estimates additional expenditures of approximately \$900 million from 2023 to 2027 relating to TVA's CCR Program, as well as expenditures of approximately \$111 million from 2023 to 2027 relating to compliance with 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 EPA's 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 September 30, 2022 and 2021, 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 \$17 million and \$18 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

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting TVA's activities, as a result of a catastrophic event or otherwise.

General. At September 30, 2022, TVA had accrued \$11 million of probable losses with respect to Legal Proceedings. Of the accrued amount, \$10 million is included in Other long-term liabilities and \$1 million is included in Accounts payable and accrued liabilities. No assurance can be given that TVA will not be subject to significant additional claims and liabilities. If actual liabilities significantly exceed the estimates made, TVA's results of operations, liquidity, and financial condition could be materially adversely affected.

Environmental Agreements. On April 14, 2011, TVA entered into two substantively similar agreements, one with the EPA and the other with Alabama, Kentucky, North Carolina, Tennessee, and three environmental advocacy groups (collectively, the "Environmental Agreements"). To resolve alleged New Source Review claims, TVA committed under the Environmental Agreements to, among other things, take now-completed actions regarding coal units and invest \$290 million in certain TVA environmental projects. Of this amount, TVA had spent approximately \$282 million as of September 30, 2022. Additionally, TVA holds restricted cash in an interest earning trust to fund the remaining project commitments. Any interest earned through the trust must also be spent on agreed upon environmental projects. The total remaining committed costs, including interest earned through the trust, was approximately \$9 million as of September 30, 2022.

The liabilities related to the Environmental Agreements are included in Accounts payable and accrued liabilities and Other long-term liabilities on the September 30, 2022, Consolidated Balance Sheets. In conjunction with the approval of the Environmental Agreements, the TVA Board determined that it was appropriate to record TVA's obligations under the Environmental Agreements as regulatory assets, and they are included as such on the September 30, 2022, Consolidated Balance Sheets and will be recovered in rates in future periods.

Case Involving Bellefonte Nuclear Plant. On November 30, 2018, Nuclear Development, LLC ("Nuclear Development") filed suit against TVA in the U.S. District Court for the Northern District of Alabama alleging that TVA breached its agreement to sell Bellefonte Nuclear Plant ("Bellefonte"). Nuclear Development sought, among other things, (1) an injunction requiring TVA to maintain Bellefonte and the associated NRC permits until the case concluded; (2) an order compelling TVA to complete the sale of Bellefonte; and (3) if the court does not order TVA to complete the sale, monetary damages in excess of \$30 million. Trial took place in 2021, and the court held that TVA did not breach its obligations to use commercially reasonable best efforts and to cooperate with Nuclear Development in effectuating the close of the sale and rejected the request for specific performance or damages on that claim. While TVA retains full possession and control of the Bellefonte site, the court found that, under the contract's termination provision, Nuclear Development was entitled to return of its \$22 million down payment and approximately \$1 million of costs, along with 7.5% prejudgment interest. Including post-judgment interest, TVA paid approximately \$28 million to the court in 2021 to satisfy the judgment. On July 18, 2022, the court entered an amended final judgment reflecting the correct prejudgment interest rate to be paid by TVA from the court-ordered 7.5% rate to the contractually-agreed 6% rate, entitling TVA to a return of the difference. On October 3, 2022, the U.S. Court of Appeals for the Eleventh Circuit granted Nuclear Development's motion to voluntarily dismiss its appeal of the district court's decision. The dismissal of Nuclear Development's appeal ends the litigation surrounding the failed sale of Bellefonte.

Case Involving Rate Changes. On June 9, 2020, a lawsuit was filed against TVA and one of its LPCs, Bristol Virginia Utilities Authority ("BVUA"), in the United States District Court for the Western District of Virginia, by a LPC customer, asserting claims for breach of contract and violation of the Administrative Procedure Act. The proposed class action alleges that the customers of TVA's LPCs are third-party beneficiaries of TVA's wholesale power contracts with its LPCs and that TVA's rate changes dating back to 2010 violate Section 11 of the TVA Act. Section 11 of the TVA Act establishes the broad policy that TVA power projects shall be considered primarily for the benefit of the people of the Tennessee Valley and that service to industry is a secondary purpose to be used principally to secure a sufficiently high load factor and revenue returns to permit domestic and rural use at the lowest possible rates. The remedies requested included an injunction prohibiting TVA rate changes that violate Section 11, monetary damages, and repayment of rates charged in violation of Section 11. The court granted TVA's and BVUA's motions to dismiss in 2021. The plaintiff appealed the district court's decision to the U.S. Court of Appeals for the Fourth Circuit ("Fourth Circuit") in 2021. On September 7, 2022, the Fourth Circuit affirmed the district court's decision.

Case Involving Long-Term Agreements. On August 17, 2020, the Southern Environmental Law Center filed a lawsuit in the United States District Court for the Western District of Tennessee on behalf of Protect Our Aquifer, Energy Alabama, and Appalachian Voices, alleging that, beginning in August 2019, TVA violated the National Environmental Policy Act ("NEPA") and Section 10 of the TVA Act by offering a Long-Term Agreement ("LTA") to its LPCs.

The environmental groups claim that TVA violated NEPA because (1) TVA failed to perform an environmental review of the LTAs, which harmed the groups' advocacy efforts and their ability to participate in and to inform TVA's decision, and (2) the LTAs will have a negative effect on the environment by increasing TVA's reliance on coal and gas and impeding TVA's customers' efforts to institute renewable energy options. The groups also claim that the LTAs violate Section 10 of the TVA Act, which authorizes TVA to enter into power contracts "for a term not exceeding twenty years."

The environmental groups request the federal court to (1) declare that TVA's entry into LTAs without preparing an environmental review violated NEPA and the TVA Act, (2) vacate the long-term contracts, and (3) enjoin TVA from implementing system-wide energy contract programs that significantly affect the environment. TVA cannot predict the outcome of this litigation.

Challenge to Anti-Cherrypicking Amendment. On January 11, 2021, Athens Utilities Board, Gibson Electric Membership Corporation, Joe Wheeler EMC, and Volunteer Energy Cooperative filed a complaint and petition with FERC asking FERC to order TVA to provide transmission and interconnection service to the LPCs or other suppliers that want to serve them. The petitioners seek to avoid the limitations of the Anti-Cherrypicking Amendment ("ACPA") to the Federal Power Act ("FPA"), which prohibits FERC from ordering TVA to wheel power from another supplier if the power will be consumed within the TVA service territory. The petitioners argue that section 211A of the FPA, which gives FERC limited jurisdiction over the rates, terms, and conditions of transmission service provided by unregulated transmitting utilities such as TVA, provides an alternate grant of authority to enable FERC to order TVA to wheel power inside its service area unrestricted by the application of the ACPA. The petitioners also argue that the public power model is antiquated and TVA's refusal to wheel power is not in the public interest because it stifles competition. In October 2021, FERC denied the petition. On February 18, 2022, Athens Utilities Board and Gibson Electric Membership Corporation petitioned the U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") to review FERC's decision. On October 7, 2022, Gibson Electric Membership Corporation filed an unopposed motion to withdraw as a petitioner, which the D.C. Circuit granted on October 14, 2022. In addition, on October 28, 2022, Athens Utilities Board filed an unopposed motion to withdraw as a petitioner, which the D.C. Circuit granted on November 14, 2022.

Administrative Proceeding Regarding National Pollutant Discharge Elimination System Permit for Kingston. On December 28, 2021, the Sierra Club and the Center for Biological Diversity appealed the revised National Pollutant Discharge Elimination System ("NPDES") permit issued by the Tennessee Department of Environment and Conservation ("TDEC") for Kingston in December 2021 before the Tennessee Board of Water Quality, Oil, and Gas. The petitioners allege that TDEC unlawfully incorporated into the revised permit effluent limits for landfill leachate based on effluent limitation guidelines ("ELGs") for landfill leachate issued by the EPA in 1982 rather than establish new limits based on TDEC's best professional judgment. TDEC is the respondent in the matter. TVA filed a motion to intervene, which was granted, and on April 8, 2022, the parties and TVA filed cross-motions for summary decisions. Oral argument on the cross-motions was held before an administrative judge on July 12, 2022, following which the judge issued an initial order dismissing the appeal. The order became final in October 2022.

22. Related Parties

TVA is a wholly-owned corporate agency of the federal government, and because of this relationship, TVA's revenues and expenses are included as part of the federal budget as a revolving fund. TVA's purpose and responsibilities as an agency are described under the "Other Agencies" section of the federal budget.

TVA's power program and stewardship (nonpower) programs were originally funded primarily by appropriations from Congress. In 1959, Congress passed an amendment to the TVA Act that required TVA's power program to be self-financing from power revenues and proceeds from power program financings. While TVA's power program did not directly receive appropriated funds after it became self-financing, TVA continued to receive appropriations for certain multipurpose and other nonpower mission-related activities as well as for its stewardship activities. TVA has not received any appropriations from Congress for any activities since 1999, and since that time, TVA has funded stewardship program activities primarily with power revenues.

The 1959 amendment to the TVA Act also required TVA, beginning in 1961, to make annual payments to the U.S. Treasury from net power proceeds as a repayment of and as a return on the Power Program Appropriation Investment until a total of \$1.0 billion of the Power Program Appropriation Investment has been repaid in accordance with the 1959 amendment. TVA fulfilled its requirement to repay \$1.0 billion of the Power Program Appropriation Investment in 2014. The TVA Act requires TVA to continue making payments to the U.S. Treasury as a return on the remaining \$258 million of the Power Program Appropriation Investment.

TVA paid the U.S. Treasury \$4 million, \$4 million, and \$6 million in 2022, 2021, and 2020, respectively, as a return on the Power Program Appropriation Investment. The amount of the return on the Power Program Appropriation Investment is based on the Power Program Appropriation Investment balance at the beginning of that year and the computed average interest rate payable by the U.S. Treasury on its total marketable public obligations at the same date. The interest rates payable by TVA

on the Power Program Appropriation Investment were 1.47 percent, 1.64 percent, and 2.44 percent for 2022, 2021, and 2020, respectively.

TVA also has access to a financing arrangement with the U.S. Treasury pursuant to the TVA Act. TVA and the U.S. Treasury entered into a memorandum of understanding under which the U.S. Treasury provides TVA with a \$150 million credit facility. This credit facility has a maturity date of September 30, 2023, and is typically renewed annually. Access to this credit facility or other similar financing arrangements has been available to TVA since the 1960s. See Note 14 — *Debt and Other Obligations — Credit Facility Agreements*.

In the normal course of business, TVA contracts with other federal agencies for sales of electricity and other services. Transactions with agencies of the federal government were as follows:

Related Party Transactions At or for the years ended September 30 (in millions)			
	2022	2021	2020
Revenue from sales of electricity	\$ 134	\$ 109	\$ 105
Other income	296	280	260
Expenditures			
Operating expenses	228	214	224
Additions to property, plant, and equipment	11	10	9
Cash and cash equivalents	30	30	31
Accounts receivable, net	78	65	94
Investment funds	358	573	485
Long-term accounts receivable	43	31	27
Accounts payable and accrued liabilities	42	15	39
Long-term power bonds, net	1	1	1
Return on power program appropriation investment	4	4	6

Report of Independent Registered Public Accounting Firm

To the Board of Directors of Tennessee Valley Authority

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Tennessee Valley Authority (the Company) as of September 30, 2022 and 2021, the related consolidated statements of operations, comprehensive income (loss), changes in proprietary capital and cash flows for each of the three years in the period ended September 30, 2022, and the related notes (collectively referred to as the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at September 30, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended September 30, 2022, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of September 30, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated November 14, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the Audit, Finance, Risk, and Cybersecurity Committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Valuation of Pension Benefit and Other Post-Retirement Benefit Obligations

Description of the Matter At September 30, 2022, the Company's pension benefit obligation was \$10.5 billion and the Company's other post-retirement benefit obligation was \$388 million. The Company updates certain actuarial assumptions used to measure the pension benefit and other post-retirement benefit obligations at September 30 or upon a remeasurement event, as more fully described in Note 20 to the consolidated financial statements.

Auditing the pension benefit and other post-retirement benefit obligations was complex due to the judgmental nature of the assumptions, including the discount rates, mortality rates, healthcare cost trends, and cost of living adjustment, used in the Company's measurement process. These assumptions have a significant effect on the projected benefit obligations.

<i>How We Addressed the Matter in Our Audit</i>	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's accounting for the valuation of pension benefit and other post-retirement benefit obligations. For example, we tested controls over management's review of the pension benefit obligation and other post-retirement benefit obligation calculations, the relevant data inputs and the significant actuarial assumptions described above.
	To test the pension benefit and other post-retirement benefit obligations, our audit procedures included, with the assistance of actuarial specialists, evaluating the methodologies used, the significant actuarial assumptions described above, and the underlying data used by the Company, among others. We compared the actuarial assumptions used by the Company to historical trends. We evaluated the Company's methodology for determining the discount rates that reflect the maturity and duration of the benefit payments and used to measure the pension benefit and other post-retirement benefit obligations. To evaluate the mortality rates, healthcare cost trends and cost of living adjustment, we assessed whether the information was consistent with publicly available information, and whether any market data adjusted for entity-specific adjustments was applied. We also tested the completeness and accuracy of the underlying data, including the participant data, used in the determination of the projected benefit obligations.
	Valuation of Nuclear Asset Retirement Obligations At September 30, 2022, the Company's nuclear asset retirement obligations (ARO) totaled \$3.6 billion. As more fully described in Note 13 to the consolidated financial statements, the Company's initial obligation associated with the retirement of a nuclear generating unit is recognized at fair value at the time the obligation is incurred using various judgments and assumptions, and a corresponding amount is capitalized as part of the carrying value of the related long-lived asset. Revisions to the nuclear ARO estimates are made whenever a nuclear decommissioning cost study is performed, which is required to be completed at least every five years by the Nuclear Regulatory Commission.
	In connection with the nuclear decommissioning cost study completed in the current fiscal year, the Company revised its probability-weighted, discounted cash flow model, which, on a unit-by-unit basis, considers multiple outcome scenarios that include significant estimations and assumptions. In particular, the nuclear ARO is based on estimates of the cost of decommissioning, the method of decommissioning and the timing of the related cash flows, the license period of the nuclear unit, including the probability of license extensions, cost escalation factors, and the credit adjusted risk free rate, as more fully described in Note 13 to the consolidated financial statements. The Company's nuclear ARO estimate involved a high degree of subjectivity and auditing the significant assumptions utilized was complex and required judgment.
<i>How We Addressed the Matter in Our Audit</i>	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's valuation of its nuclear ARO. For example, we tested controls over management's review of the significant estimations and assumptions described above and the relevant data inputs used in the calculations.
	To test the nuclear ARO, our audit procedures included, among others, evaluating the methodology used, and testing the significant assumptions discussed above and the underlying data used by the Company in its estimate. We compared the cost escalation factors and credit adjusted risk free rate to current market data. In addition, to assess the estimates of costs, timing of activities, and method of decommissioning, we evaluated changes from the prior estimate, compared the consistency between timing of activities and projected license periods, assessed the estimated costs based on the method of decommissioning, and recalculated the Company's estimate. We also involved engineering specialists to assist in the evaluation of the reasonableness of the Company's assumptions of the nuclear ARO estimates, including the evaluation of asset retirement regulatory requirements, cost estimates, and decommissioning methods used to determine the obligation.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2007
Chattanooga, Tennessee
November 14, 2022

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

TVA 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 September 30, 2022. Based on this evaluation, management concluded that TVA's disclosure controls and procedures were effective as of September 30, 2022.

Internal Control over Financial Reporting

(a) Management's Annual Report on Internal Control over Financial Reporting

TVA's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Exchange Act Rule 13a-15(f) and required by Section 404 of the Sarbanes-Oxley Act. TVA's internal control over financial reporting is designed to provide reasonable, but not absolute, assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles generally accepted in the United States of America ("GAAP"). Because of the inherent limitations in all control systems, internal control over financial reporting and systems may not prevent or detect misstatements.

TVA's management, including the President and Chief Executive Officer, the Executive Vice President and Chief Financial and Strategy Officer, and members of the Disclosure Control Committee, including the Vice President and Controller (Principal Accounting Officer), evaluated the design and effectiveness of TVA's internal control over financial reporting as of September 30, 2022, based on the framework in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, TVA's management concluded that TVA's internal control over financial reporting was effective as of September 30, 2022.

Although the effectiveness of internal control over financial reporting was not required to be subject to attestation by TVA's independent registered public accounting firm, TVA has chosen to obtain such a report. Ernst & Young LLP, the independent registered public accounting firm that audited the financial statements included in this Annual Report, has issued an attestation report on TVA's internal control over financial reporting.

(b) Changes in Internal Control over Financial Reporting

During the quarter ended September 30, 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.

Report of Independent Registered Public Accounting Firm

To the Board of Directors of Tennessee Valley Authority

Opinion on Internal Control over Financial Reporting

We have audited Tennessee Valley Authority's internal control over financial reporting as of September 30, 2022, based on criteria established in Internal Control— Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Tennessee Valley Authority (the Company) maintained, in all material respects, effective internal control over financial reporting as of September 30, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of September 30, 2022 and 2021, the related consolidated statements of operations, comprehensive income (loss), changes in proprietary capital and cash flows for each of the three years in the period ended September 30, 2022, and the related notes and our report dated November 14, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young LLP

Chattanooga, Tennessee
November 14, 2022

ITEM 9B. OTHER INFORMATION

2023 CEO Compensation

On November 10, 2022, the TVA Board approved adjustments to the compensation of Chief Executive Officer ("CEO") Jeffrey J. Lyash for 2023.

The following sets forth the components of Mr. Lyash's 2023 target total direct compensation ("TDC"), effective October 1, 2022:

- Salary increased from \$1,152,250 to \$1,227,000.
- Long-term performance ("LTP") grant of \$3,983,000, which will vest on September 30, 2025.
- Long-term retention ("LTR") grant of \$1,707,000, which will vest in three equal increments on September 30, 2023, September 30, 2024, and September 30, 2025.

No adjustments were made to any other existing elements of compensation for Mr. Lyash for 2023.

Compensation Adjustments for Other NEOs

On November 10, 2022, CEO Jeffrey J. Lyash approved compensation adjustments for the following Named Executive Officers ("NEOs") for 2023. (Biographical information for each is set out in Item 10, Directors, Executive Officers, and Corporate Governance.) The following sets forth salary increases and incentive awards granted for 2023, effective October 1, 2022:

John M. Thomas, III

- Salary increased from \$795,600 to \$835,380.
- LTP grant of \$1,425,000, which will vest on September 30, 2025.
- LTR grant of \$600,000, which will vest in three equal increments on September 30, 2023, September 30, 2024, and September 30, 2025.

Donald A. Moul

- Salary increased from \$765,000 to \$795,600.
- LTP grant of \$1,425,000, which will vest on September 30, 2025.
- LTR grant of \$785,000, which will vest in three equal increments on September 30, 2023, September 30, 2024, and September 30, 2025.

Timothy S. Rausch

- Salary increased from \$569,321 to \$637,640.
- LTP grant of \$725,000, which will vest on September 30, 2025.
- LTR grant of \$330,000, which will vest in three equal increments on September 30, 2023, September 30, 2024, and September 30, 2025.

David B. Fountain

- Salary increased from \$577,800 to \$629,802.
- LTP grant of \$970,000, which will vest on September 30, 2025.
- LTR grant of \$390,000, which will vest in three equal increments on September 30, 2023, September 30, 2024, and September 30, 2025.

No adjustments were made to any other existing elements of compensation for these NEOs for 2023.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III**ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE****Directors**

The Tennessee Valley Authority Act of 1933, as amended (the "TVA Act") provides that the Tennessee Valley Authority ("TVA") will be administered by a board of nine part-time members appointed by the President of the United States ("U.S.") with the advice and consent of the U.S. Senate. The Chair of the TVA Board of Directors ("TVA Board") is selected by the members of the TVA Board. Under the TVA Act, to be eligible to be appointed as a member of the TVA Board, an individual (i) must be a U.S. citizen; (ii) must have management expertise relative to a large for-profit or nonprofit corporate, government, or academic structure; (iii) cannot be a TVA employee; (iv) must make a full disclosure to Congress of any investment or other financial interest that the individual holds in the energy industry; and (v) must affirm support for the objectives and missions of TVA, including being a national leader in technological innovation, low-cost power, and environmental stewardship. In addition, the President of the U.S., in appointing members of the TVA Board, must (i) consider recommendations from other public officials such as the Governors of the states in TVA's service area; individual citizens; business, industrial, labor, electric power distribution, environmental, civic, and service organizations; and the congressional delegations of the states in TVA's service area; and (ii) seek qualified members from among persons who reflect the diversity, including geographical diversity, and needs of TVA's service area. At least seven of the nine TVA Board members must be legal residents of the TVA service area. Currently, TVA has five active TVA Board members.

TVA Board members serve five-year terms, and at least one member's term ends each year. After a member's term ends, the member is permitted under the TVA Act to remain in office until the earlier of the end of the then-current session of Congress or the date a successor takes office. The TVA Board, among other things, establishes broad goals, objectives, and policies for TVA; develops long-range plans to guide TVA in achieving these goals, objectives, and policies; approves annual budgets; and establishes a compensation plan for employees.

The terms of John L. Ryder and Kenneth E. Allen as members of the TVA Board ended January 3, 2022, with the adjournment of the most recent session of Congress. There are currently five TVA Board members; however, the terms of two additional TVA Board members – Jeff W. Smith and A.D. Frazier – expired on May 18, 2022, although they are permitted under the TVA Act to remain in office until the earlier of the end of the current session of Congress or the date a successor takes office. Under the TVA Act, a quorum of the TVA Board is five members. The TVA Board is responsible for, among other things, establishing the rates TVA charges for power as well as TVA's long-term objectives, policies, and plans. Accordingly, loss of a quorum for an extended period of time would impair TVA's ability to change rates and to modify these objectives, policies, and plans. See Item 1A, Risk Factors — *Human Capital and Management Risks — Loss of a quorum of the TVA Board could limit TVA's ability to adapt to meet changing business conditions.*

The TVA Board as of November 14, 2022, consisted of the following five individuals with their ages and terms of office provided:

Directors	Age	Year Current Term Began	Year Term Expires
William B. Kilbride, Chair ⁽¹⁾	71	2019	2023
A.D. Frazier	78	2018	2022
Beth Harwell	65	2021	2024
Brian Noland	54	2020	2024
Jeff W. Smith	63	2018	2022

Notes

⁽¹⁾ Mr. Kilbride assumed the Board Chair role on August 19, 2021.

Mr. Kilbride of Chattanooga, Tennessee, joined the TVA Board in August 2019 and assumed the Board Chair role in August 2021. He served as the president and CEO of the Chattanooga Area Chamber of Commerce from July 2014 until his retirement in January 2017, where he led multiple initiatives to attract and retain business to southeast Tennessee. He previously served as the president of the Mohawk Home, a division of Mohawk Industries, Inc. from 1992 to 2014 after earlier holding positions with Chemical Bank, Dean Witter Reynolds Financial Services, and the New York Stock Exchange.

Mr. Frazier of Mineral Bluff, Georgia, joined the TVA Board in January 2018. Since July 2012, he has served as President Emeritus of Georgia Oak Partners, LLC, a private equity company. Mr. Frazier previously held a number of other executive management positions, including chair and Chief Financial Officer ("CFO") of the Chicago Stock Exchange, chair and Chief Executive Officer ("CEO") of Danka Business Systems, a reseller of high-end photocopying equipment, president of Caremark, a pharmacy benefit management company, and COO of the Atlanta Committee for the 1996 Olympic Games.

Dr. Harwell of Nashville, Tennessee, joined the TVA Board in January 2021. She has served as a distinguished visiting professor at Middle Tennessee State University since the fall of 2019. She previously served as the speaker of the Tennessee

House of Representatives, from 2011 until 2019, while serving as a state representative for the 56th District of Tennessee for nearly 30 years. She has also chaired the Tennessee Republican Party and served as an assistant professor of political science at Belmont University, as well as in a variety of additional roles in both education and public service.

Dr. Noland of Johnson City, Tennessee, joined the TVA Board in December 2020. Since January 2012, he has served as the ninth president of East Tennessee State University. He previously served as Chancellor of the West Virginia Higher Education System for six years. In 2018, he was elected to the board of the American Council on Education. In addition, he serves on the boards of a number of other educational and civic organizations, as well as an Institute of Higher Education fellow at the University of Georgia.

Mr. Smith of Knoxville, Tennessee, joined the TVA Board in January 2018. From April 2000 to his retirement in April 2021, Mr. Smith served as the deputy for operations at Oak Ridge National Laboratory ("ORNL"). From April 2001 to April 2021, he also served as the President of UT-Battelle Development Corporation, an entity established to develop privately constructed facilities at ORNL. During a six-month special assignment in 2002, he assisted with the creation of the U.S. Department of Homeland Security.

Executive Officers

TVA's executive officers as of November 14, 2022, their titles, their ages, and the date their employment with TVA commenced are as follows:

Executive Officers	Title	Age	Employment Commenced
Jeffrey J. Lyash	President and Chief Executive Officer	61	2019
John M. Thomas, III	Executive Vice President and Chief Financial and Strategy Officer	58	2005
Donald A. Moul	Executive Vice President and Chief Operating Officer	57	2021
Timothy S. Rausch	Executive Vice President and Chief Nuclear Officer	58	2018
David B. Fountain	Executive Vice President and General Counsel	55	2020
Susan E. Collins	Executive Vice President and Chief People and Communications Officer	56	2014
Jeannette Mills	Executive Vice President and Chief External Relations Officer	55	2020
Diane T. Wear	Vice President and Controller (Principal Accounting Officer)	54	2008

Mr. Lyash has served as TVA's President and CEO since April 2019. He previously served as the President and Chief Executive Officer of Ontario Power Generation Inc. ("OPG"), an electric utility, from August 2015 until April 2019. Prior to joining OPG, Mr. Lyash served as the President of the Power Business Unit of Chicago Bridge & Iron Company N.V., an engineering, procurement, and construction company, from July 2013 to August 2015, as Executive Vice President of Energy Supply for Duke Energy Corporation, an electric utility, from July 2012 to December 2012, and as Executive Vice President of Energy Supply for Progress Energy, Inc. ("Progress Energy"), an electric utility, from June 2010 to July 2012. Mr. Lyash joined Progress Energy (formerly Carolina Power & Light Company) in 1993 and held a number of other positions before assuming the role of Executive Vice President of Energy Supply, including Executive Vice President of Corporate Development from July 2009 to June 2010, President and Chief Executive Officer of Progress Energy Florida, Inc., from June 2006 to July 2009, Senior Vice President of Energy Delivery for Progress Energy Florida, Inc., from November 2003 to June 2006, and Vice President of Transmission for Progress Energy Carolinas, Inc., from January 2002 to October 2003. He also held a wide range of management and executive roles in Progress Energy's nuclear program, including Operations Manager, Engineering Manager, Plant Manager, and Director of Site Operations. Mr. Lyash began his career in the utility industry in 1981 and worked for Pennsylvania Power & Light before joining the U.S. Nuclear Regulatory Commission ("NRC"), where he worked from 1984 to 1993. While at the NRC, Mr. Lyash held a number of senior technical and management positions and also worked from June 1984 to May 1985 as an engineer at Browns Ferry Nuclear Plant while on loan to TVA. Mr. Lyash has served as a director for the Electric Power Research Institute ("EPRI") since 2015 and is currently Chair of the EPRI Board, and he has served as a director for Granite Construction Inc. since June 2018.

Mr. Thomas was named Executive Vice President and Chief Financial and Strategy Officer ("CFSO") in June 2021. Mr. Thomas served as Executive Vice President and CFO from February 2012 to June 2021, as CFO from June 2010 to February 2012, as Executive Vice President of People and Performance from January 2010 to June 2010, as Senior Vice President, Corporate Governance and Compliance from July 2009 to January 2010, as Controller and Chief Accounting Officer from January 2008 to September 2009, and as the General Manager, Operations Business Services from November 2005 to January 2008. Prior to joining TVA, Mr. Thomas was CFO during 2005 for Benson Security Systems. He was also the Controller of Progress Fuels Corporation from 2003 to 2005 and Controller of Progress Ventures, Inc. from 2001 to 2002, both subsidiaries of Progress Energy.

Mr. Rausch was named Executive Vice President and Chief Nuclear Officer in November 2020. Mr. Rausch joined TVA in October 2018 as Senior Vice President and Chief Nuclear Officer. Before joining TVA, Mr. Rausch served as the Senior Vice President and Chief Nuclear Officer of Talen Energy Corporation from June 2015 until September 2018 and as the Senior Vice

President and Chief Nuclear Officer of PPL Generation, LLC from July 2009 to June 2015. Mr. Rausch has 25 years of experience in virtually all the disciplines of the nuclear power industry, including roles as Site Vice President, Plant General Manager, and Director of Engineering.

Mr. Fountain was named Executive Vice President and General Counsel in March 2021. Mr. Fountain joined TVA in June 2020 as the Senior Vice President and Vice General Counsel. Prior to joining TVA, Mr. Fountain served in various leadership roles for more than 20 years with Duke Energy and predecessor companies Progress Energy and Carolina Power & Light. Most recently, Mr. Fountain served as Senior Vice President, Legal, Corporate Secretary, and Chief Ethics and Compliance Officer at Duke Energy from November 2018 to May 2020 and as President of Duke Energy North Carolina from August 2015 to November 2018.

Mr. Moul was named Executive Vice President and Chief Operating Officer in June 2021. Before joining TVA, Mr. Moul served as the Executive Vice President, Nuclear Division and Chief Nuclear Officer at NextEra Energy Inc. from January 2020 to May 2021 and as the Vice President and Chief Nuclear Officer of NextEra Energy Inc. from May 2019 to December 2019. He previously held various roles at several subsidiaries of FirstEnergy Corp. Mr. Moul served as Executive on Special Assignment of FirstEnergy Solutions Corp. from March 2019 to May 2019, President and Chief Nuclear Officer of FirstEnergy Generation Companies from March 2018 to March 2019, President of FirstEnergy Generation LLC from April 2017 to March 2018, and Senior Vice President, Fossil Operations and Environmental of FirstEnergy Solutions from August 2015 to April 2017.

Ms. Collins was named Executive Vice President and Chief People and Communications Officer in November 2020. Ms. Collins joined TVA in May 2014 as Vice President of Human Resources, she was named Senior Vice President and Chief Human Resources Officer in February 2016, and she was named Senior Vice President, Chief Human Resources and Communications Officer in June 2019. Before joining TVA, Ms. Collins served as Senior Vice President of Human Resources for Constellation Energy Nuclear Group, LLC from 2009 to 2014 and as Vice President of Human Resources for Constellation Energy from 2008 to 2009.

Ms. Mills was named TVA's Executive Vice President and Chief External Relations Officer in February 2020. Most recently, from 2017 until arriving at TVA, Ms. Mills served as the Senior Vice President of Safety, Health, Environmental and Assurance for the U.S. region at National Grid Group, the United Kingdom's largest investor-owned utility. Beginning in June 2015, she served as a Commissioner on the Maryland Public Service Commission, providing regulatory oversight of gas, electric, telephone, water, sewage disposal, and transportation companies. Ms. Mills spent 25 years of her career at Baltimore Gas and Electric, starting as an associate engineer and steadily progressing through positions of increasing responsibility to ultimately serve as Vice President, Customer Operations and Chief Customer Officer from 2008 to 2013.

Ms. Wear has served as TVA's Vice President and Controller since March 2012. Ms. Wear was the Assistant Controller from February 2010 to March 2012. Between April 2008, when she joined TVA, and February 2010, Ms. Wear was the General Manager, External Reporting/Accounting Policy and Research. Prior to joining TVA, Ms. Wear was a Managing Director at PricewaterhouseCoopers LLP. Ms. Wear joined a predecessor firm to PricewaterhouseCoopers LLP in January 1992.

Disclosure and Financial Code of Ethics

TVA has a Disclosure and Financial Ethics Code ("Financial Ethics Code") that applies to all executive officers (including the CEO, CFO, and Controller) and directors of TVA as well as to all employees who certify information contained in quarterly reports or annual reports or who have responsibility for internal control self-assessments. The Financial Ethics Code includes provisions covering conflicts of interest, ethical conduct, compliance with applicable laws, rules, and regulations, responsibility for full, fair, accurate, timely, and understandable disclosures, and accountability for adherence to the Financial Ethics Code. TVA will provide a current copy of the Financial Ethics Code to any person, without charge, upon request. Requests may be made by calling 888-882-4975 or by sending an e-mail to: investor@tva.com. Any waivers of or changes to provisions of the Financial Ethics Code that require disclosure pursuant to applicable Securities and Exchange Commission requirements will be promptly disclosed to the public, subject to limitations imposed by law, on TVA's website at: www.tva.gov. Information contained on TVA's website shall not be deemed to be incorporated into, or to be a part of, this Annual Report.

Committees of the TVA Board

The TVA Board has an Audit, Finance, Risk, and Cybersecurity Committee established in accordance with the TVA Act. TVA's Audit, Finance, Risk, and Cybersecurity Committee consists of A.D. Frazier, William B. Kilbride, and Beth Harwell. Director Kilbride is an "audit committee financial expert" as defined in Item 407(d)(5) of Regulation S-K under the Securities Exchange Act of 1934 (the "Exchange Act").

TVA is exempted by Section 37 of the Exchange Act from complying with Section 10A(m)(3) of the Exchange Act, which requires each member of a listed issuer's audit committee to be an independent member of the board of directors of the issuer. The TVA Act contains certain provisions that are similar to the considerations for independence under Section 10A(m)(3) of the Exchange Act, including that to be eligible for appointment to the TVA Board, an individual shall not be an employee of TVA and shall make full disclosure to Congress of any investment or other financial interest that the individual holds in the energy industry.

Under Section 10A(m)(2) of the Exchange Act, which applies to TVA, the audit committee is directly responsible for the appointment, compensation, and oversight of the external auditor; however, the TVA Act assigns the responsibility for engaging the services of the external auditor to the TVA Board.

The TVA Board has also established the following committees in addition to the Audit, Finance, Risk, and Cybersecurity Committee:

- External Stakeholders and Regulation Committee,
- People and Governance Committee, and
- Operations and Nuclear Oversight Committee.

ITEM 11. EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

This Compensation Discussion and Analysis ("CD&A") provides information on the objectives, goals, and structure of TVA's executive compensation program and the 2022 compensation awarded to TVA's CEO, CFSO, and the three other most highly compensated executive officers serving at the end of 2022. Collectively, these officers are TVA's 2022 Named Executive Officers ("NEOs"):

Name	Title	Employed with TVA since
Jeffrey J. Lyash	President and CEO	2019
John M. Thomas, III	Executive Vice President and Chief Financial and Strategy Officer	2005
Donald A. Moul	Executive Vice President and Chief Operating Officer	2021
Timothy S. Rausch	Executive Vice President and Chief Nuclear Officer	2018
David B. Fountain	Executive Vice President and General Counsel	2020

TVA's Unique Public Power Mission of Service

TVA is a corporate agency and instrumentality of the U.S. that was created in 1933 by federal legislation to provide integrated resource management of the Tennessee Valley while improving the lives of the people in the region. This congressional statute directs TVA with the mission of being a national leader in technological innovation, low-cost power, and environmental stewardship. Under federal law, TVA is aligned with other corporate entities as it is required to follow Securities and Exchange Commission reporting requirements, and compensation must be based on prevailing compensation for similar positions in investor-owned companies as well as governmental entities.

**TVA PUBLIC POWER MISSION - TO SERVE THE
PEOPLE OF THE TENNESSEE VALLEY TO MAKE
LIFE BETTER**



Energy

Delivering reliable,
low cost, clean energy



Environment

Caring for the region's
natural resources



**Economic
Development**

Creating sustainable
economic growth

MISSION OF SERVICE:

**TVA CREATES VALUE FOR THE PUBLIC,
NOT SHAREHOLDERS**

Today, TVA operates the nation's largest public power system and is one of the largest U.S. electric utilities in terms of generating capacity.

TVA's public power mission sets it apart from its investor-owned peers. As an instrumentality of the federal government, TVA's mission is to serve the people of the Tennessee Valley. Profits do not go to shareholders, but rather are reinvested back into the Tennessee Valley community and the energy infrastructure that powers it. In doing so, TVA uses no appropriated tax dollars. TVA is self-funded, with virtually all its operations funded through revenue and power system financings.

Complexity and Scale Comparable to Investor-Owned Utilities

TVA supplies reliable power over 16,000 miles of transmission lines to a population of approximately 10 million people over nearly 80,000 square miles in seven states, employs approximately 10,400 people, and helps recruit and retain billions of dollars in economic development projects annually. The complexity, scale, and scope of its utility operations rival those of the largest U.S. utility companies. Unlike most of its peers, TVA is also responsible for managing and caring for many of the natural resources, including public lands and waters, in the Tennessee Valley region.



Energy

Delivering reliable, low cost, clean energy

Largest Public Power System

In the United States

38,111 MW

Summer Net Capability

One of the Largest Transmission Systems

In high voltage lines among United States utilities

More than 16,000 miles of transmission lines and
69 interconnections with neighboring electric systems

3rd Largest Electricity Generator

In the United States, based on 2021

Total Electric Generation

3rd Largest Nuclear Fleet

In the United States, providing 39 percent of the energy
produced by TVA in 2022

29 Power-Generating Dams

Conventional hydroelectric plants providing 3,754 megawatts of net summer capability

3rd Largest Pumped-Storage Hydro Plant

In the United States, capable of producing 1,654 megawatts of net summer capability on demand

Generating Assets

- Three nuclear sites
- Five coal-fired sites
- 29 conventional hydroelectric sites
- One pumped-storage hydroelectric site
- Nine combustion turbine gas sites
- Eight combined cycle gas sites
- 13 solar installations
- One diesel generator site

Partnering with 153 Local Power Companies, Every Day We Serve

Approximately
10 Million People

Over 790,000 Businesses

Including 58 directly-served customers -
which includes seven federal agencies

Across Seven Southeastern States

Managing Large, Complex Operations Safely
Continued Strong Safety Performance

Carbon Reduction Leadership

57% reduction in mass carbon emissions
from generation from CY 2005 to CY 2021



Environment

Caring for the region's natural resources

Managing

49 Dams

Hydroelectric and non-power

Approximately

100 Public Recreation Areas

The Tennessee River

to provide year-round navigation, flood damage reduction,
and affordable and reliable electricity

Caring for

Over

40,000 Miles of Rivers, Streams, and Tributaries

11,000 Miles of reservoir shoreline

293,000 Acres of reservoir land

650,000 Surface Acres of reservoir water

Approximately 800 Miles of Commercially Navigable Waterways



Economic Development

Creating sustainable economic growth

Helping attract

Over \$10.2 Billion Projected Investments in Tennessee Valley

expected to create or retain approximately 66,500 jobs

Approximately

10,400 Employees

16,200 Contractors

TVA Programs

Rural Development

Rural Leadership Institute / Customized Training

Technical Services

Site evaluations and master planning, 3D renderings, video, photography, and virtual reality

Workforce Analytics Company Research

Support communities in fulfillment of information for company prospects

Telework Technology Grant

Assistance for rural or economically distressed communities to enhance technology capabilities that support remote work opportunities

Product Development

Financial support for communities to make sites and buildings more marketable for companies to locate and grow

Training and Development

Training and development, facilitation services, leadership training, workforce training, and talent development

A Top Utility in Economic Development 17 Consecutive Years

According to Site Selection Magazine

Attracting and Retaining Experienced Talent Requires Competitive Pay

Attraction and retention of talent is paramount to TVA given its complex operations and high-performance expectations. This important component of TVA's strategy was incorporated in the TVA Act through the requirement of competitive compensation in the Consolidated Appropriations Act of 2005. In order to effectively fulfill its public power mission, TVA must provide market-based, competitive compensation levels to encourage superior performance and execution of ambitious multi-year objectives aligned with TVA's public power mission.

TVA is one of the largest and most complex organizations in the energy services industry, with generating capacity and assets that surpass most of its peers. Unique to TVA, the company is also responsible for managing the Tennessee River system to provide flood control, navigation, hydroelectric generation, recreation, water quality and supply, and other benefits. Further, TVA plays the critical role of attracting and allocating a significant amount of capital back into the economic development of the Tennessee Valley. While TVA's revenue is below the median of its peer group, this is reflective of TVA's success with regard to its public service mission, as one of its primary objectives is to maintain the lowest feasible rates. As noted in *Delivering Value Through Superior Performance* below, TVA's rates are below the rates of the vast majority of the top U.S. utilities. **TVA successfully manages all of this with an employee count below the median employee count of its peers, demonstrating a comparatively greater efficiency.**

TVA POSITIONING AGAINST PEERS*

Revenue ⁽¹⁾	33rd percentile	▼ median
Assets ⁽²⁾	50th percentile	@ median
Employee Count ⁽³⁾	32nd percentile	▼ median
Generating Capacity ⁽⁴⁾	83rd percentile	▲ median
LPC Customer Count ⁽⁴⁾	74th percentile	▲ median

Below Median Revenue
Reflects Low Rates for
TVA Customers

Delivering Efficiency
with an Employee
Count Below Median

*For information on peer group, see *Compensation Setting Process Demonstrates Strong Governance – TVA Competes with Peers for Talent* below.

(1) Peer data sourced from S&P's Capital IQ based on data from the consecutive four quarters ended June 30, 2021. TVA data reflects TVA's 2020 revenue, normalized for estimated partnership and pandemic credits provided to customers.

(2) Peer data sourced from S&P's Capital IQ based on data from December 31, 2021. TVA data reflects TVA's December 31, 2021 asset balance.

(3) Peer data sourced from S&P's Capital IQ. Reflects TVA employee count at September 30, 2020.

(4) Based on data reported by S&P's Capital IQ in March 2021; customer count is reflective of metered households of LPCs that deliver power to approximately 10 million people of the Tennessee Valley.

Given the nature and scale of its operations, TVA competes with large investor-owned utilities ("IOUs") to attract and retain talent. All of TVA's NEOs were formerly employed by IOUs. Additionally, 80 percent of TVA executives who were externally recruited over the last five years are former employees of IOUs. TVA's ability to compete with these organizations for talent has yielded success for TVA and its stakeholders, and TVA's competitive pay philosophy is one of the key drivers of success in this area.

Delivering Value Through Superior Performance

TVA's success is measured in terms of value delivered to the businesses, customers, and residents of the Tennessee Valley by providing low-cost energy, maintaining reliable, safe, and efficient infrastructure, investing in the community's economy, and managing and protecting its environmental assets. Executing on its strategic priorities, TVA continues to make a positive impact on all of its stakeholders, as shown below. Under the leadership of TVA's NEOs, TVA's employees delivered another year of performance improvements – and achieved or exceeded nearly all 2022 key performance objectives – despite the continuation of challenges arising from the COVID-19 pandemic, market conditions, executive orders and mandates, and the competition for talent.

Safety-Focused Operations

- Top quartile performance for TVA's Recordable Injury Rate and top decile performance for TVA's Serious Injury Incident Rate in 2022

Pay for Performance

- Above target at-risk incentive payouts awarded to employees for achieving company performance goals in 2022

Inclusive Culture & Recognition

- Issued TVA's first Diversity, Equity, Inclusion and Accessibility Report
- 2022 Ethisphere® Compliance Leader Verification™ - recognizing TVA's best-in-class ethics and compliance program and TVA as first federal agency to receive this designation
- Urban League of Greater Chattanooga, Inc. - Inclusion by Design Award
- Supports eight Employee Resource Groups
- 2022 Forbes List of America's Best Employers by State - Ranked Top 15 in Tennessee for fourth consecutive year
- 2022 VETS Indexes 5-Star Employer - recognizing organizations doing the most to recruit, hire, retain, develop, and support veterans and the military-connected community
- 2022 DiversityInc's - Top Companies for Utilities Award - Ranked No. 4
- 2022 Diversity Impact Award - Top 10 Diversity Action Award
- 2022 National Organization on Disability – Leading Disability Employer
- 2022 Military Friendly® Supplier Diversity Program - Ranked No. 1; Top 10 designation three years in a row
- 2022 Military Friendly® Employer Award - veterans represent approximately 18% of TVA workforce
- 2022 Military Friendly® Spouse Friendly Employers Award



People Advantage

Amplifying the energy, passion, and creativity within each TVA employee

Training and Education

- Continued investing in TVA's employees through training and performance improvement programs
- Chief Learning Officer Magazine – 2022 Learning Elite Bronze award

Employee Benefits, Well-being, and Continued COVID-19 Pandemic Support

- Family building benefits that support family, surrogacy, and adoption services
- Well-being incentives to engage employees in well-being programs
- Behavioral and medical telemedicine to provide greater access and convenience of care
- Unlimited counseling visits through Employee Assistance Program
- Financial incentives to promote COVID-19 vaccination
- Well-being stipend to support employee well-being during pandemic
- Back-up care benefits for child and adult dependents

Strong Labor Partnerships

- Employees and contractors are represented by 17 different labor union groups
- One of the largest U.S. contributors to the Helmets to Hardhats program

Reliable and Clean Energy

- 99.999 percent transmission reliability since 2000
- Provided uninterrupted power during an unprecedented high-demand summer season
- Exceeded stretch goals for availability of TVA's nuclear and coal generation fleets, and exceeded target goal for availability of TVA's combined cycle generation fleet
- \$17.2 billion invested in a cleaner and more diverse energy generation mix since 2013
- Cleanest power system in the Southeast, as a percent of net generation. Clean power includes all nuclear, hydroelectric, and renewable generation and renewable purchased power sources. (Based on Edison Electric Institute's June 2022 Electric Company Carbon Emissions and Electricity Mix Reporting Database for Corporate Customers.)



- TVA Board announced the launch of TVA's New Nuclear Program and approved up to \$200 million to explore advanced reactor technology options
- TVA Nuclear achieved Industry Top Quartile Fleet Performance in 2022
- Browns Ferry Unit 3 continuous run record – 690 days
- In July 2022, TVA returned Watts Bar Unit 2 to service after an outage to replace the originally installed steam generators was completed, which began in March 2022

Effective Resource Management

- An estimated \$9.7 billion in flood damage averted in the Tennessee Valley and along the Ohio and Mississippi Rivers over TVA's recorded history, with an estimated \$3 million in flood damage averted in the Tennessee Valley in 2022
- Operates River Forecast Center around the clock, monitoring weather conditions and forecasts, and constantly watching and adjusting the Tennessee River system
- Manages the Tennessee River system in an integrated manner, which includes balancing hydroelectric generation, navigation, flood-damage reduction, water quality and supply, and recreation
- Boone Dam re-opened to the public and the reservoir returned to normal operations
- TVA's Ocoee No. 2 inducted into HYDROVISION Hydro Hall of Fame
- Implementing the Hydro Life Extension Program with a focus on improving the availability and flexibility of the hydroelectric fleet



Financial Strength

Investing in the future,
while keeping energy
costs as low as possible



Powerful Partnerships

Promoting progress
through the shared
success of TVA's
customers and
stakeholders

TVA Strength and Stability

- Organization and operations entirely self-funded since 1999
- In 2020, TVA achieved and surpassed its strategic goal of reducing debt to \$21.8 billion by 2023, and made even further reductions in debt in 2021 and 2022
- Total Financing Obligations ("TFOs") at September 30, 2022 were the lowest in 35 years
- \$36 million lower interest expense in 2022 compared to 2021 mainly due to lower average debt balances and lower average long-term rates

Low, Stable Rates

- Residential rates lower than 80 percent of the top 100 U.S. utilities (based on June 2022 12-month rolling average from U.S. Energy Information Administration ("EIA"))
- Industrial rates lower than more than 95 percent of the top 100 U.S. utilities (based on June 2022 12-month rolling average from EIA)
- Maintained flat wholesale base rates since 2019

Strong Partnerships

- COVID-19 Pandemic Support
 - Continued regulatory relief and flexibility to LPCs
 - Provided a 2.5 percent Pandemic Relief Credit to TVA's LPCs, their large commercial and industrial customers, and TVA's directly served customers totaling \$221 million for 2021
 - Provided a 2.5 percent monthly base rate credit, the Pandemic Recovery Credit, that applies to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA's directly served customers, totaling \$228 million for 2022
 - Approved a 1.5 percent monthly base rate credit, an extension of the Pandemic Recovery Credit, effective for 2023; and in July 2022, increased the credit from 1.5 percent to 2.5 percent, expected to approximate \$230 million for 2023
 - Continued support through the Community Care Fund established in 2020 that has already provided nearly \$9 million, with over \$4 million provided in 2022, to support local initiatives that address hardships created by the COVID-19 pandemic
- Returned \$199 million in bill credits to local power companies participating in Long-Term Partnership Agreements in 2022
- Exceeded target score on Voice of the Customer Survey - achieved highest score recorded in survey's history

Economic Development

- Named a Top Utility in Economic Development by Site Selection Magazine for 17th year in a row
- Efforts continued to help attract and encourage the expansion of business and industries in the Tennessee Valley in 2022 contributing to:
 - Over \$10.2 billion in projected investments,
 - Expected to create or retain approximately 66,500 jobs
- Supported rural communities with TVA economic development programs tailored to meet the needs of these areas
- Provided nearly \$512 million in tax equivalent payments in 2022 to state and local governments served by TVA's energy generation or in areas supporting TVA properties (excluding impacts from tax equivalents related to fuel cost adjustments)

Community Support

- Over \$9 million donated to organizations across the Tennessee Valley in addition to the Community Care Fund
- Distributed over 8 million meals to families in need in 2022 through TVA's partnership with Feeding America
- Continued support through the Home Uplift, School Uplift, and Community Centered Growth programs across the Tennessee Valley
- Through the Connected Communities initiative, TVA established 13 connected communities' pilot projects aimed at addressing today's challenges with community-driven information and technology solutions to improve the quality of life in the Tennessee Valley

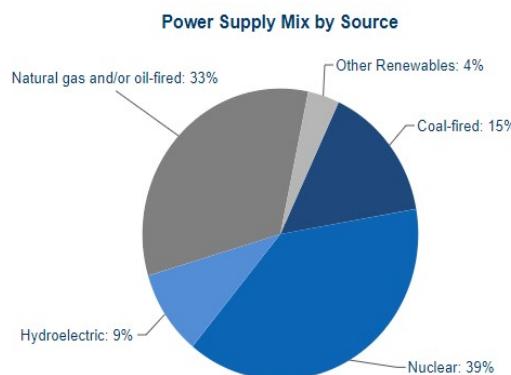
Sustainability Solutions

- Sustainability helps TVA to live its values – those of Safety, Integrity, Inclusion, and Service – and encompasses the following:
 - Economic Impact – partnering to build the region's clean energy economy,
 - Environment – stewarding the region's resources,
 - Social – serving people and communities across the region, and
 - Governance – driving progress through accountability and transparency
- Issued 2021 Sustainability Report highlighting innovative work and partnerships
- Issued 2021 EEI ESG/Sustainability Report
- Implemented TVA Board's Biodiversity Policy supporting biodiversity investments in TVA projects and community support partnerships



Energy

- Carbon-free power supply mix was 52 percent for the year ended September 30, 2022
- For CY 2021, TVA's mass emissions of carbon dioxide were at a 57 percent reduction from 2005 levels



- Chart depicts both generated and purchased power within respective resource types. In addition to power supply sources included here, TVA offers energy efficiency programs that effectively reduced 2022 energy needs by about 2,200 GWh or 1.3%. TVA sells the renewable energy certificates resulting from some of its purchased power to certain customers.
- 2022 carbon-free RFP issued for up to 5,000 MW of carbon-free and renewable energy projects to be available by 2029
- First utility in the nation to successfully obtain approval for an early site permit from the NRC to potentially construct and operate SMRs at TVA's Clinch River Nuclear Site
- New Nuclear Program approved by TVA Board in 2022 – up to \$200 million to explore advanced reactor technology options - New Nuclear Program provides a systematic roadmap for TVA's exploration of advanced nuclear technology
- Top quartile utility in renewable energy production in the Southeast
- Ranked in Global Top 100 in Green Utilities 2021 Report by Energy Intelligence

Programs and Partnerships

- Pioneering partnerships to develop advanced nuclear technology
- TVA offers renewable energy programs, in partnership with LPCs, which allow businesses and individuals to purchase renewable energy certificates to meet their renewable energy and sustainability goals
- TVA has been working with LPCs, state agencies, and third-party charging developers on the creation of the Fast Charge Network for electric vehicles, and in 2022, TVA launched the Fast Charge Network. As of September 30, 2022, four sites were complete and operational with 28 additional sites under contract for development.
- Founding member of the Electric Highway Coalition, which merged with the Midwest Electric Vehicle Charging Infrastructure Collaboration in 2022 to create the National Electric Highway Coalition with members committed to coordination on the development of EV charging infrastructure across the central U.S.
- In 2022, TVA broke ground on the first TVA-owned battery project
- Launched the TechX innovation center – a central hub space dedicated to promoting innovative ideas for all TVA employees to learn, collaborate, and create together, even remotely, using technology

National Defense

- Supports national defense efforts and partners with Oak Ridge National Laboratory on innovative research

Public Power Mission Means Exceptional Performance with Conservative CEO Compensation

Despite the continued headwinds created by the COVID-19 pandemic, TVA's workforce performed at a high level in 2022 in managing TVA's extensive, complex operations and delivering on its public power mission. As a result of its high level of performance, TVA achieved nearly all of its performance objectives at target or above for both its annual and long-term incentives for 2022 - at 119 percent and 137 percent, respectively. TVA is a utility company that competes with other utilities - including investor-owned utilities - for talent, but since TVA is a mission-based organization, TVA compensates its CEO conservatively relative to its compensation peers. TVA's benchmarking and compensation-setting process is described below under *Compensation Setting Process Demonstrates Strong Governance – TVA Competes With Peers for Talent*. TVA generally determines target total direct compensation based on TVA's relevant labor market. Currently, TVA's CEO target compensation is positioned below the 50th percentile (median) of 2022 compensation peers. TVA's performance along with its compensation structure results in differentiated value delivered directly to the residents of the Tennessee Valley and reflects a keen focus on TVA's mission of serving those residents.

Notable 2022 Actions

The following are key actions during 2022:

Changes to Compensation Plan to Streamline Administration

On May 11, 2022, the TVA Board approved an amended and restated TVA Compensation Plan and Compensation Delegations to allow for a standing authority to the CEO to approve compensation for certain employees, which had previously been granted annually.

Supplemental Compensation Plan Changes to Better Align to Market

Short-Term Incentive Plans Amended (plan design changes effective for 2023 performance cycle)

On May 10, 2022, the CEO approved amended and restated short-term incentive plans, including the Executive Annual Incentive Plan ("EAIP"). The maximum TVA Enterprise Scorecard⁽¹⁾ opportunity increased from 150 percent to 200 percent to remain competitive through better alignment with market practices of TVA's pay comparator peer group. This increased opportunity also better rewards achievement of stretch performance goals while maintaining the current plan design maximum payout based on a combination of scorecard results, a Corporate Multiplier, and an Individual Performance Multiplier. The approved changes also introduce positive discretion on the Corporate Multiplier (maximum increased from 1.0 to 1.1) to provide flexibility to recognize corporate achievements not directly captured in the scorecard results.

Note

⁽¹⁾ The TVA Enterprise Scorecard sets forth the performance goals applicable to the Winning Performance Team Incentive Plan and the Executive Annual Incentive Plan.

Long-Term Incentive Plan Amended (plan design changes effective beginning with performance cycle ending 2023)

On May 10, 2022, the CEO approved an amended and restated Long-Term Incentive Plan ("LTIP"). The maximum scorecard opportunity increased from 150 percent to 200 percent to remain competitive through better alignment with market practices of TVA's pay comparator peer group and to better reward achievement of stretch performance goals.

TVA's Executive Compensation Philosophy is Guided by the TVA Act

TVA's mission is to serve the people of the Tennessee Valley to make life better. TVA aims to achieve its mission by attracting, retaining, and motivating highly qualified and committed executives to guide the organization's strategy, performance, and public power mission. TVA follows a Compensation Plan as adopted by the TVA Board in accordance with the guidance of the TVA Act.

The Compensation Plan is designed to:

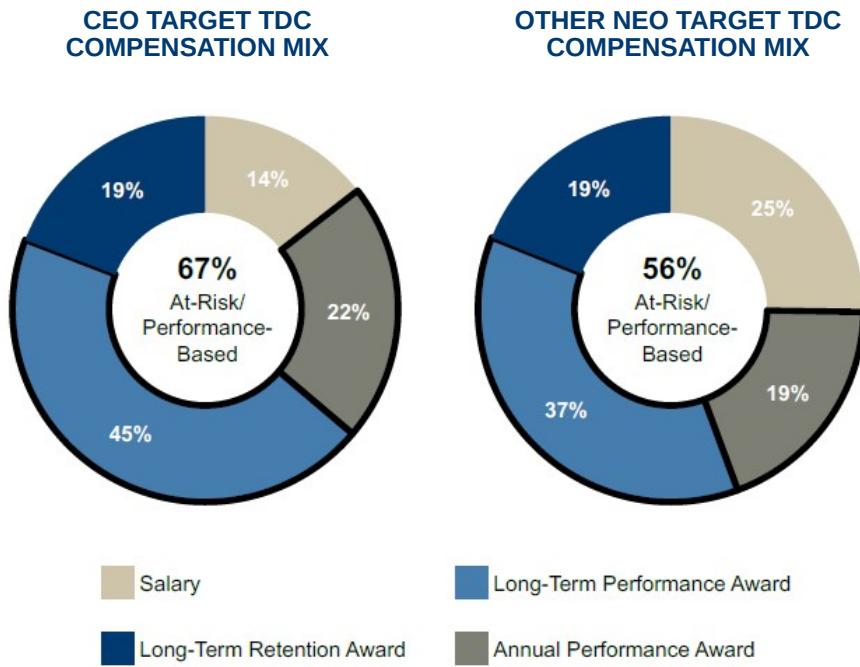
- Provide **market-based, competitive compensation levels** so TVA can attract, retain, and motivate highly competent employees. Target total direct compensation generally is determined by considering a number of factors, including reference to the median (50th percentile) of the relevant labor market. Executives may be positioned above or below the median based on labor market scarcity and other factors such as tenure in the role.
- Set performance goals that are **aligned with TVA's strategic priorities**.
- **Incentivize and reward short-term and long-term performance** by providing a mix of salary and performance-based short-term and long-term incentives, typically targeting a majority portion of long-term compensation in the form of at-risk, performance-based compensation.
- Align performance and productivity improvement at all levels by setting **consistent performance goals and objectives** for all levels of the organization.

The TVA Board follows these requirements of the TVA Act in designing and implementing its Compensation Plan:

- Compensation will be based on an annual survey of benchmark compensation for similar positions in private industry, including engineering and electric energy companies, publicly owned electric companies, and federal, state, and local governments; and
- Compensation will take into account education, experience, level of responsibility, geographic differences, and retention and recruitment needs.

TVA's Executive Compensation Program Aligns Pay with Performance

Two-thirds of the CEO's target total direct compensation ("TDC") is performance-based and at risk, based on achievement of performance goals that further advance TVA's mission and strategic objectives. More than half of the other NEO's target TDC opportunity is performance-based and at risk. This alignment of compensation with performance also results in compensation being aligned with value delivered to TVA's stakeholders, including LPCs, businesses, and communities, and to the economy of the Tennessee Valley.



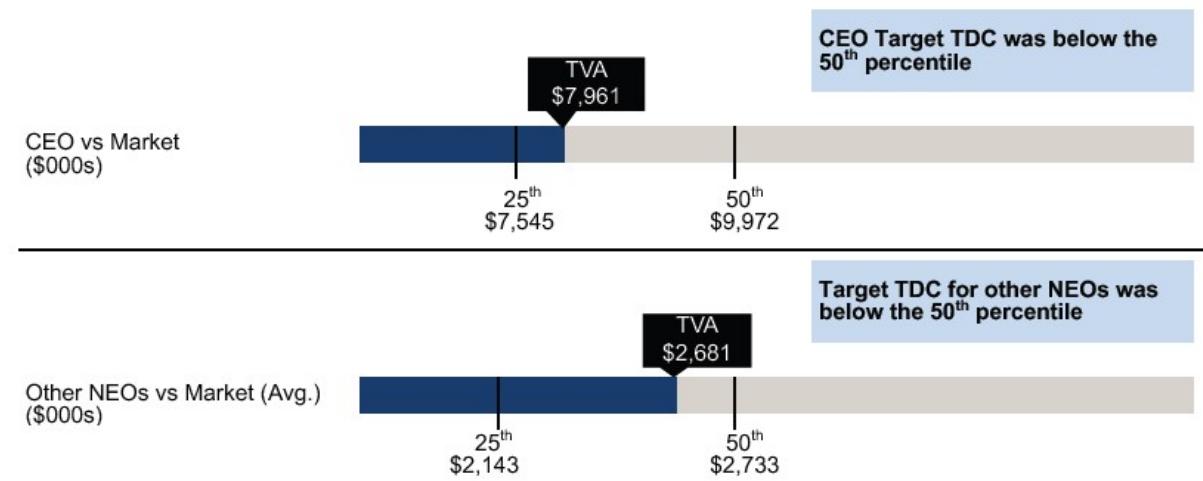
2022 CEO Target Total Direct Compensation Is Below the Peer Median

The TVA Act encourages competitive, market-based executive compensation. Many of TVA's peers, with similarly complex and large-scale operations, are investor-owned utilities. The TVA Board considers TVA's federal agency status in setting compensation components and pay levels, both directly – by incorporating government agencies into the executive compensation survey sample used to develop benchmarks, as required by the TVA Act – and indirectly by positioning TDC below the 50th percentile (median) of the market composite data. The consultant for the People and Governance Committee (the "Committee") performed a market study in January 2021, which validated TVA's current methodology for benchmarking CEO compensation.

The TVA Board increased Mr. Lyash's pay for 2022 to reflect his leadership and experience. While the change moved Mr. Lyash's pay closer to the median in 2022, his target TDC is below the median of the 2022 market composite.

The use of benchmarking data is described in detail under *Compensation Setting Process Demonstrates Strong Governance – TVA Competes With Peers For Talent* below.

The graphics below illustrate 2022 target TDC for the CEO and the average 2022 target TDC for the other NEOs as compared to the 2022 market composite 25th and 50th (median) percentiles.



Note

Target market assessment was effective October 2021 and included a market composite of Willis Towers Watson ("WTW") survey sample and proxy peer group. See *List of Compensation Peer Companies* below for a list of companies in the survey sample and proxy peers.

CEO Compensation at a Glance

ACTUAL 2022 TOTAL DIRECT COMPENSATION ("TDC") EARNED - \$8,192,678

\$1,152,250 BASE SALARY	\$2,570,958 ANNUAL PERFORMANCE AWARD	\$3,207,170 LONG-TERM PERFORMANCE ("LTP") AWARD⁽¹⁾	\$1,262,300 LONG-TERM RETENTION ("LTR") AWARD⁽²⁾
At risk, performance based Under the Executive Annual Incentive Plan ("EAIP"), 119 percent of target enterprise performance achieved, 125 percent Individual Performance Multiplier applied	At risk, performance based Under the Long-Term Incentive Plan ("LTIP"), 137 percent of LTP achieved for the three-year performance cycle ended September 30, 2022	At risk, performance based Under the Long-Term Incentive Plan ("LTIP"), 137 percent of LTP achieved for the three-year performance cycle ended September 30, 2022	Under LTIP, award amount consists of three 2022 tranches – 2020 LTR award, 2021 LTR award, and 2022 LTR award

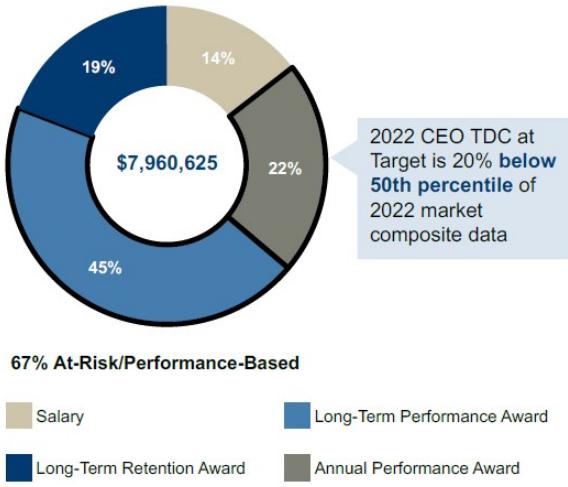
Notes

⁽¹⁾ Mr. Lyash was granted an LTP award with a target amount of \$2,341,000 effective October 1, 2019, for the 2020-2022 performance cycle.

⁽²⁾ Mr. Lyash's long-term incentives earned in 2022 reflect three overlapping retention awards (typically granted annually with ratable vesting over three years subject to continued employment).

TDC earned reflects the decisions made by the Committee at the end of 2022 to reward the CEO for his past performance. Under Mr. Lyash's leadership as CEO, TVA has made meaningful progress on improving its public power mission. The company's performance under key operational metrics strengthened TVA's ability to deliver low-cost and reliable energy to the Tennessee Valley.

2022 TARGET TDC OPPORTUNITY - MAJORITY IS AT-RISK/PERFORMANCE-BASED



Target TDC opportunity is forward-looking – it represents potential compensation set by the Committee, effective at the beginning of 2022, to incentivize superior performance. Some of the \$7,960,625 opportunity was earned in 2022 (salary, annual performance award and 1/3 of the LTR award) while most will not be earned until future satisfaction of performance or employment conditions: Mr. Lyash will earn the LTP award component only upon achievement of certain performance targets at the end of the three-year performance period (September 30, 2024), and he will receive the second and third tranches of the LTR award opportunity only upon his continued employment on each of September 30, 2023 and September 30, 2024. See *2022 Performance Goals and Performance Achievement* below for more information on annual and long-term incentive plans.

The CEO's annual performance award and long-term performance award total 67% of target total direct compensation, and require achievement of financial, operational, and individual goals for the CEO to realize value.

There is no minimum payment guaranteed under the annual and long-term performance awards. The amount that he will receive upon the vesting of those awards will be determined at the end of the performance periods and depends on the level of performance against preset performance goals.

KEY COMPANY PERFORMANCE METRICS

The 2022 annual key performance metrics objectives were established in 2021 and, despite challenges presented by the ongoing COVID-19 pandemic, market conditions, executive orders and mandates, and competition for talent, TVA exceeded nearly all targeted objectives, delivering high operational, safety, and financial strength performance for 2022. The LTP performance metrics below were for the 2020-2022 performance cycle. Organizational performance under the 2020-2022 LTP program was strong in achieving several key operational measures, as noted below.

Annual Metric ⁽¹⁾	Target Performance	Actual Performance	Weight	Performance Against Target
TVA Total Spend (\$M)	\$6,291	\$5,580	40%	Exceeded stretch goal
Load Not Served (System Minutes)	3.9	4.5	30%	Met threshold goal
Annualized Nuclear Online Reliability Loss Factor	2.71 %	1.13 %	15%	Exceeded stretch goal
Combined Cycle Equivalent Availability Factor	80.0 %	83.3 %	10%	Exceeded target goal
Coal Equivalent Availability Factor	63.2 %	74.9 %	5%	Exceeded stretch goal

LTP Metric ⁽¹⁾	Target Performance	Actual Performance	Weight	Performance Against Target
Non-Fuel Delivered Cost of Power	3.31	3.18	40%	Achieved stretch goal
Load Not Served (System Minutes)	3.9	3.5	30%	Achieved stretch goal
External Performance Indicators for TVA Nuclear Fleet	91.0	94.0	15%	Exceeded stretch goal
External Measures	80.0	78.0	15%	Above threshold goal

Note

⁽¹⁾ See 2022 Performance Goals and Performance Achievement below for further information on each performance metric and 2022 results.

Compensation Setting Process Demonstrates Strong Governance

Who Is Involved In Setting Compensation

The TVA Board, under the authority of the TVA Act, has responsibility for establishing compensation for TVA employees, including the NEOs. The TVA Board is directed under Section 2 of the TVA Act to establish a plan that specifies all compensation (such as salary and any other pay, benefits, incentives, or other form of remuneration) for the CEO and TVA employees. The TVA Act also provides that the TVA Board will annually approve all compensation (such as salary and any other pay, benefits, incentives, or other form of remuneration) for all managers and technical personnel who report directly to the CEO (including any adjustment(s) to compensation).

Under the authority of the TVA Act, the TVA Board, its Committee, and individual TVA Board members are involved in compensation matters. The TVA Board has taken the following actions to delegate authority with respect to compensation:

Delegation to TVA Board Chair

- Authority to evaluate and rate the CEO's performance during the year, and the authority to approve any payout to the CEO under the EAIP, based on, among other things, the CEO's evaluated performance during the year, in consultation with the Committee and with input from individual members of the TVA Board.

Delegation to CEO

- Authority to set or adjust total target compensation for present or future direct reports within a compensation range of 80 percent to 110 percent of the target TDC, as well as to approve the parameters of supplemental compensation and benefit plans, provided that the CEO may not finally take such actions until the TVA Board members have been notified of the proposed actions and given the opportunity to ask the Committee, or the full TVA Board, to review the proposed actions before they become effective.
- Authority to approve the individual performance goals for the CEO's direct reports and the authority to evaluate and rate the performance of the CEO's direct reports during the year against such performance goals, in consultation with the Committee and with input from individual members of the TVA Board.
- Authority to approve, or delegate to others the authority to approve, the salaries and all other compensation of employees whose annual salaries would be in excess of Level IV of the Executive Schedule of the U.S. Government (\$176,300 in 2022) for anyone except the CEO and the Inspector General.
- Authority to approve, or delegate to others the authority to approve, all personnel and compensation actions that the TVA Board has not reserved for itself.

Delegation to Committee

- The Committee is responsible for oversight of executive compensation pursuant to the Compensation Plan and review of this CD&A.

Role of Compensation Consultant

The Committee engaged the independent consulting firm Frederic W. Cook & Co., Inc. ("FW Cook") in 2022 to determine the peer group and the benchmarking process, to help evaluate competitive compensation, and to assist with incentive plan design. The Committee assessed certain independence factors and determined the firm's work raised no potential conflict of interest.

Compensation Setting – Annual Roles and Responsibilities

The following chart sets forth the roles of the TVA Board, Board Chair, Committee, and CEO, and typical timeframe, in setting compensation for the NEOs.

What	When	How
Compensation Governance	January April - May	<ul style="list-style-type: none"> Committee reviews and evaluates independent compensation consultant. CEO reviews and approves any changes to supplemental compensation plans (i.e., short-term incentive ("STI") and long-term incentive ("LTI") plans). Committee reviews TVA Compensation Plan, peer group, and benchmarking process and recommends any changes to the TVA Board. TVA Board reviews and approves any changes to compensation governance.
Incentive Plan Measures and Goals	January - October April July - August	<ul style="list-style-type: none"> Committee monitors performance quarterly. Committee reviews proposed performance targets for next fiscal year ("FY"). Committee reviews and recommends to the TVA Board the STI corporate multiplier measures and goals and LTIP measures and goals for upcoming cycles. CEO sets and approves STI Enterprise performance measures and goals for upcoming cycle. TVA Board approves STI corporate multiplier measures and goals and LTIP performance measures and goals for upcoming cycles.
Corporate Multiplier (WPTIP/EAIP)	October - November	<ul style="list-style-type: none"> CEO qualitatively assesses performance compared to target and recommends final corporate multiplier for the past FY to the Committee and TVA Board. Committee reviews and recommends to the TVA Board the corporate multiplier for past FY. TVA Board reviews and approves corporate multiplier for past FY.
Long-Term Incentive Plan – Long-Term Performance ("LTP")	October - November	<ul style="list-style-type: none"> CEO qualitatively assesses performance compared to target and recommends final LTIP payout percentage for cycle ending in past FY to the Committee and TVA Board. Committee reviews and recommends to TVA Board the LTIP payout percentage for cycle ending in past FY. TVA Board reviews and approves LTIP payout percentage for cycle ending in past FY. The TVA Board has the discretionary authority to review the results of performance measures and goals and to approve any adjustments to payouts in appropriate circumstances.
Executive Schedule ("ES") Level IV	October - November	<ul style="list-style-type: none"> The Board has delegated to the CEO the authority to approve, or delegate to others the authority to approve, the salaries and all other compensation of employees whose annual salaries would be in excess of ES Level IV (\$176,300 for 2022) for anyone except the CEO and the Inspector General.
CEO Performance Evaluation	September - November	<ul style="list-style-type: none"> Individual TVA Board members complete CEO performance assessment and return to TVA's Compensation organization. TVA's Compensation organization summarizes comments and information and presents to the Board Chair. Board Chair consults with Committee. Board Chair informs EVP, Chief People and Communications Officer, he/she has: <ul style="list-style-type: none"> Evaluated the CEO's performance, and Determined the EAIP award. Board Chair and Committee Chair jointly inform CEO of his/her performance evaluation.
CEO Compensation Adjustment	October - November	<ul style="list-style-type: none"> Committee reviews the compensation consultant's benchmarking and market analysis report. Committee decides whether to recommend compensation adjustments for the CEO (recommends to the full TVA Board). TVA Board reviews and approves at the November TVA Board meeting, if applicable, for the next FY.
CEO Executive Annual Incentive Plan ("EAIP") Award	October - November	<ul style="list-style-type: none"> Board Chair obtains input from TVA Board members, consults with Committee, and approves any payout, or adjustments to payout, to the CEO under the EAIP. Board Chair informs EVP, Chief People and Communications Officer, via memo.
CEO Annual Performance Goals	October - November	<ul style="list-style-type: none"> Board Chair reviews and discusses with CEO performance goals for the next FY. Board Chair consults with appropriate TVA Board committee. Board Chair solicits input from individual TVA Board members. Board Chair informs CEO of approved goals.
CEO Direct Report Compensation	October - November	<ul style="list-style-type: none"> CEO determines compensation adjustments for CEO direct reports. The TVA Board has delegated this responsibility to the CEO for the CEO direct reports within an approved range (80-110 percent of targeted TDC). CEO reviews CEO direct reports' performance with Committee and informs TVA Board members of compensation adjustments under consideration prior to approving the compensation adjustments. CEO notifies EVP, Chief People and Communications Officer, of approved compensation adjustments via memo.
Compensation Discussion and Analysis ("CD&A")	October - November	<ul style="list-style-type: none"> Committee reviews and recommends inclusion in TVA's Annual Report on Form 10-K.

TVA Competes with Peers for Talent

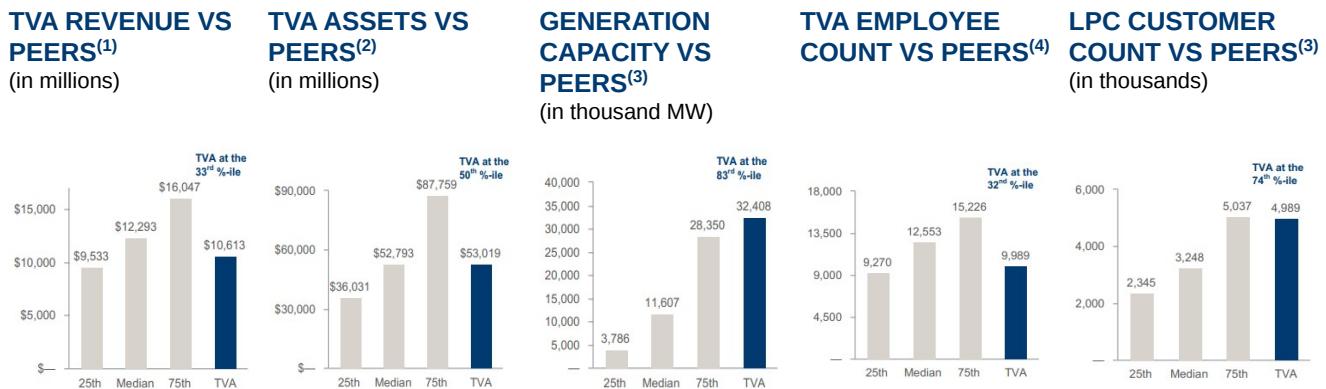
A fundamental goal of TVA's executive compensation program is to attract, retain, and motivate the highly competent talent necessary to manage TVA's complex operations and achieve superior performance. TVA competes for this talent with large investor-owned energy companies, and thus TVA needs to offer compensation programs that are competitive with those peers.

Use of Market Data and Benchmarking

TVA generally determines target TDC for executives based on the relevant labor market. After compiling market compensation for the positions at the beginning of 2022, the Committee, with assistance from FW Cook, used the information to:

- Assess target compensation level and incentive opportunity competitiveness; and
- Determine appropriate target compensation levels and incentive opportunities to maintain the desired degree of market competitiveness taking into consideration other factors such as experience, skill set, performance, and internal parity.

The relevant labor market for most of TVA's executives, including the NEOs, consists of both private and publicly owned companies in the energy services industry that have similar revenue and scope as TVA. Each year, the Committee's compensation consultant recommends a peer group for approval by the Committee. For 2022 compensation opportunities, TVA's market data was determined based on a review of executive compensation survey data and proxy peer group data. For the survey-based analysis, TVA referenced a sample from the 2021 Willis Towers Watson Energy Services Executive Compensation Database consisting of (i) 33 IOUs with revenue greater than or equal to \$3.0 billion plus (ii) 9 additional government entities with revenue greater or equal to \$1.0 billion. Data from this sample were further regressed to TVA's size based on revenue. For NEO roles, the survey analysis was supplemented with public compensation data from a separate proxy peer group of IOUs. The Committee reviews the proxy peers annually to ensure continued appropriateness, including comparable business content and model, company size measured primarily by revenue and assets, and other refining factors such as generating capacity, number of employees, and number of customers. When making compensation decisions for 2022, the Committee reviewed peer group size data, which is shown below. At that time, TVA was centrally positioned within the current peer group; the primary financial metrics, revenue and assets, were positioned between the 25th percentile and median and near the median, respectively, while secondary metrics are balanced, with generating capacity above the 75th percentile, employee count between the 25th percentile and median, and customer count near the 75th percentile.



Notes

- (1) Peer data sourced from S&P's Capital IQ based on data from the consecutive four quarters ended June 30, 2021. TVA data reflects TVA's 2020 revenue, normalized for estimated partnership and pandemic credits provided to customers
- (2) Peer data sourced from S&P's Capital IQ based on data from December 31, 2021. TVA data reflects TVA's December 31, 2021 asset balance
- (3) Based on data reported by S&P's Capital IQ in March 2021; customer count is reflective of metered households of LPCs that deliver power to approximately 10 million people of the Tennessee Valley
- (4) Peer data sourced from S&P's Capital IQ. Reflects TVA employee count at September 30, 2020

For executives with both proxy and survey benchmarks, competitive comparisons were made relative to a "market composite" or an average of the survey and proxy data.

List of Compensation Peer Companies

The following chart outlines the companies that constituted the survey sample and proxy peer group used to benchmark NEO compensation for 2022:

Company	Investor Owned Utilities with Revenue Greater Than or Equal to \$3.0 Billion Which Participated in 2021 Willis Towers Watson Energy Services Survey	Government Entities with Revenue Greater Than or Equal to \$1.0 Billion Which Participated in 2021 Willis Towers Watson Energy Services Survey	Proxy Peer Group of Investor Owned Utilities
AES Corp.	n		n
Alliant Energy	n		
Ameren	n		n
American Electric Power Co., Inc.	n		n
Berkshire Hathaway Energy	n		
Calpine	n		
CenterPoint Energy, Inc.	n		n
CMS Energy Corp.	n		n
Consolidated Edison	n		n
CPS Energy		n	
Dominion Energy	n		n
DTE Energy Co.	n		n
Duke Energy Corp.	n		n
Edison International	n		n
Entergy Corp.	n		n
Evergy	n		
Eversource Energy	n		n
Exelon Corp.	n		n
FirstEnergy Corp.	n		n
JEA		n	
LG&E and KU Energy	n		
Lower Colorado River Authority		n	
Nebraska Public Power		n	
NextEra Energy, Inc.	n		n
NiSource	n		n
NRG Energy	n		n
Oak Ridge National Lab		n	
Oglethorpe Power		n	
Oncor Electric	n		
Omaha Public Power		n	
Pacific Gas and Electric Co.	n		n
Pinnacle West Capital	n		
PPL Corp.	n		n
Public Service Enterprise Group Inc.	n		n
Puget Sound Energy	n		
Salt River Project		n	
Santee Cooper		n	
Sempra Energy	n		n
Southern Company	n		n
Vistra Energy	n		n
WEC Energy	n		
Xcel Energy	n		n

Assessment of Risk

TVA's Enterprise Risk Management organization, in coordination with other members of TVA's management, including Total Rewards and Strategic Performance, conducts an annual assessment of enterprise level risks including risks arising from TVA's compensation policies and practices.

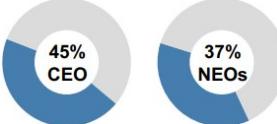
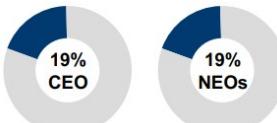
Based on the results of this assessment, no risks were identified with the compensation policies and practices that are reasonably likely to have a material adverse effect on the organization and its achievement of its strategic goals and objectives.

2022 Executive Compensation Program Components

Total Direct Compensation ("TDC")

In setting executive compensation each year, the Committee focuses on TDC, which includes those compensation elements that incentivize future performance or reward past performance. TDC is comprised of annual salary, annual incentive award under the EAIP, LTP award under the LTIP, and LTR award under the LTIP.

Each year, two key compensation decisions are made with respect to NEO compensation: (1) the amount of the *TDC opportunity* to grant, which is forward-looking, incentivizes the NEO to perform, and is determined toward the beginning of the fiscal year, and (2) the amount of *TDC earned*, which rewards the NEO for prior performance and (other than salary) is determined at the end of the year. The TDC components and weightings for TDC opportunities granted to the NEOs in 2022 are summarized below and described in the sections that follow. Since TVA is a governmental entity that issues no equity, all direct compensation is denominated and paid out in cash.

Compensation Component And % of Target TDC	Objective	Key Features
Annual Salary 	Provides fixed base level of compensation to executives to encourage hiring and retention of qualified individuals	<ul style="list-style-type: none"> Annual salary is typically determined by considering, among other things, the median (50th percentile) for similar positions at other companies in TVA's peer group; above the median (50th to 75th percentile) for positions affected by market scarcity, recruitment and retention issues, and other business reasons; or below median due to incumbent experience, position scope, or other business reasons. Typically reviewed annually to consider changes in benchmark salaries and/or exceptional individual merit performances.
Executive Annual Incentive Plan (EAIP) 	Incentivizes performance by providing at-risk compensation tied to attainment of pre-established performance goals for the fiscal year	<ul style="list-style-type: none"> Annual incentive payouts are based on the results of enterprise goals as determined from year to year by the TVA Board or the CEO, as applicable. Annual incentive payouts may be impacted by a corporate multiplier or adjusted by the TVA Board or CEO, as applicable, based on the evaluation of performance during the year. Target annual incentive opportunities increase with position and responsibility and are based in part on the opportunities other companies in TVA's peer group provide to those in similar positions. Typically reviewed annually to consider changes in benchmark annual incentives.
Long-Term Incentive Plan (LTIP)		<ul style="list-style-type: none"> Participation is limited to key positions that have the ability to significantly impact the long-term financial and/or operational objectives critical to TVA's overall success.
Long-Term Performance Award (LTP) 	Incentivizes performance by providing at-risk compensation tied to attainment of pre-established performance goals over a three-year performance period	<ul style="list-style-type: none"> LTP awards are granted with a three-year vesting cycle. Awards are variable at-risk opportunities based on achievement against performance goals established at the beginning of the three-year performance period. The Committee's policy is for a majority of each executive's total long-term incentive opportunity to be in the form of performance-based awards, with the remaining percent to be retention oriented. LTP awards will vest and pay out in three equal increments annually over three years, subject to the participant being employed through such dates, but are payable upon death, disability, or retirement if earlier on a pro-rated basis.
Long-Term Retention Award (LTR) 	Incentivizes retention by providing retention-based grants that are tied to a three-year vesting schedule	<ul style="list-style-type: none"> Since TVA issues no equity, TVA offers retention awards to be competitive with the industry marketplace for talent, providing a retention incentive similar to restricted stock or restricted stock units. These grants are intended to encourage executives to remain with TVA and to provide, in combination with salary, EAIP, and LTP grants, a competitive level of TDC.

Setting Competitive Compensation Amounts and Opportunities Relevant to Labor Market

Salary

Annual salary is considered a "fixed" compensation component. Salary levels are typically reviewed annually to consider changes in benchmark salaries and/or exceptional individual merit performances.

The 2022 salaries for the NEOs are described under each executive's compensation scorecard under *2022 Pay Decisions - 2022 NEO Pay Decisions and Compensation Scorecards* below and reported in the *Executive Compensation Tables and Narrative Disclosures - Summary Compensation Table*.

Incentive Opportunities

The annual and long-term incentive opportunities for the NEOs are set at levels that (i) are competitive with the relevant labor market, with target total direct compensation generally determined by considering the 50th percentile of the relevant labor market, and (ii) result in a majority of each executive's total long-term incentive opportunity in the form of performance-based awards and the remaining percent of each executive's total long-term incentive opportunity in the form of retention awards. More than half of TVA's NEO's target TDC opportunity is performance-based and at-risk as described above in *TVA's Executive Compensation Program Aligns Pay with Performance*.

Long-term incentive awards are intended to provide a similar pay component as equity-based compensation at peer IOUs. Since TVA does not issue equity, the compensation program cannot provide a component similar to equity awards that capture long-term value, reflect the continuing efforts of executives, and have the potential for significant gains or losses, based on market fluctuations. As a result, TVA's long-term incentives are not necessarily intended to match market pay levels.

Target incentive opportunities increase with position scope and responsibility to hold management accountable for delivery of results and are based in part on the opportunities other companies in TVA's peer group provide to those in similar positions. Incentive opportunities are typically reviewed annually to consider changes in benchmark annual and long-term incentives. The Committee reviews peer benchmark information by position for each component of pay as well as for overall TDC.

Non-Direct Compensation Elements

Other Compensation

In order to recruit high-quality talent, TVA may offer recruitment awards as well as relocation assistance and reimbursement. These types of deferred cash incentive awards are intended to compensate the individuals for amounts they may have forfeited from their previous employer in order to join TVA and/or provide substitute compensation when the individual is not eligible to receive certain incentive payments until a future date.

In June 2022, Mr. Fountain received the third and final installment of a deferred cash recruitment incentive, in the amount of \$50,000, that was part of his employment offer.

In July 2022, Mr. Moul received the second of three annual installments of a deferred cash recruitment and relocation incentive, in the amount of \$450,000, that was part of his employment offer. In 2022, Mr. Moul received an additional \$469,352 in relocation benefits as reported in the All Other Compensation table.

Retirement Benefits

TVA provides its NEOs with retirement benefits through its qualified plans as well as through a non-qualified supplemental executive retirement plan ("SERP") in order to provide compensation beginning with retirement or termination of employment (if vesting requirements are satisfied), with enhanced compensation for certain executives to provide an additional incentive for hiring and retention of qualified individuals.

TVA sponsors a qualified defined benefit plan ("pension plan") and a qualified defined contribution plan ("401(k) plan"), which are administered by the TVA Retirement System ("TVARS"). The availability of, and level of benefits provided by, these qualified plans are comparable to similar qualified plans provided by companies in TVA's peer group.

In addition to its qualified retirement plans, TVA has a SERP for selected executives who are critical to the ongoing success of the enterprise. TVA's SERP is a non-qualified plan that provides supplemental pension benefits at compensation levels that are higher than the limits specified by IRS regulations for qualified pension plans. The provision of such non-qualified plans to executives is a common practice among companies in TVA's peer group. The purpose of the SERP is to:

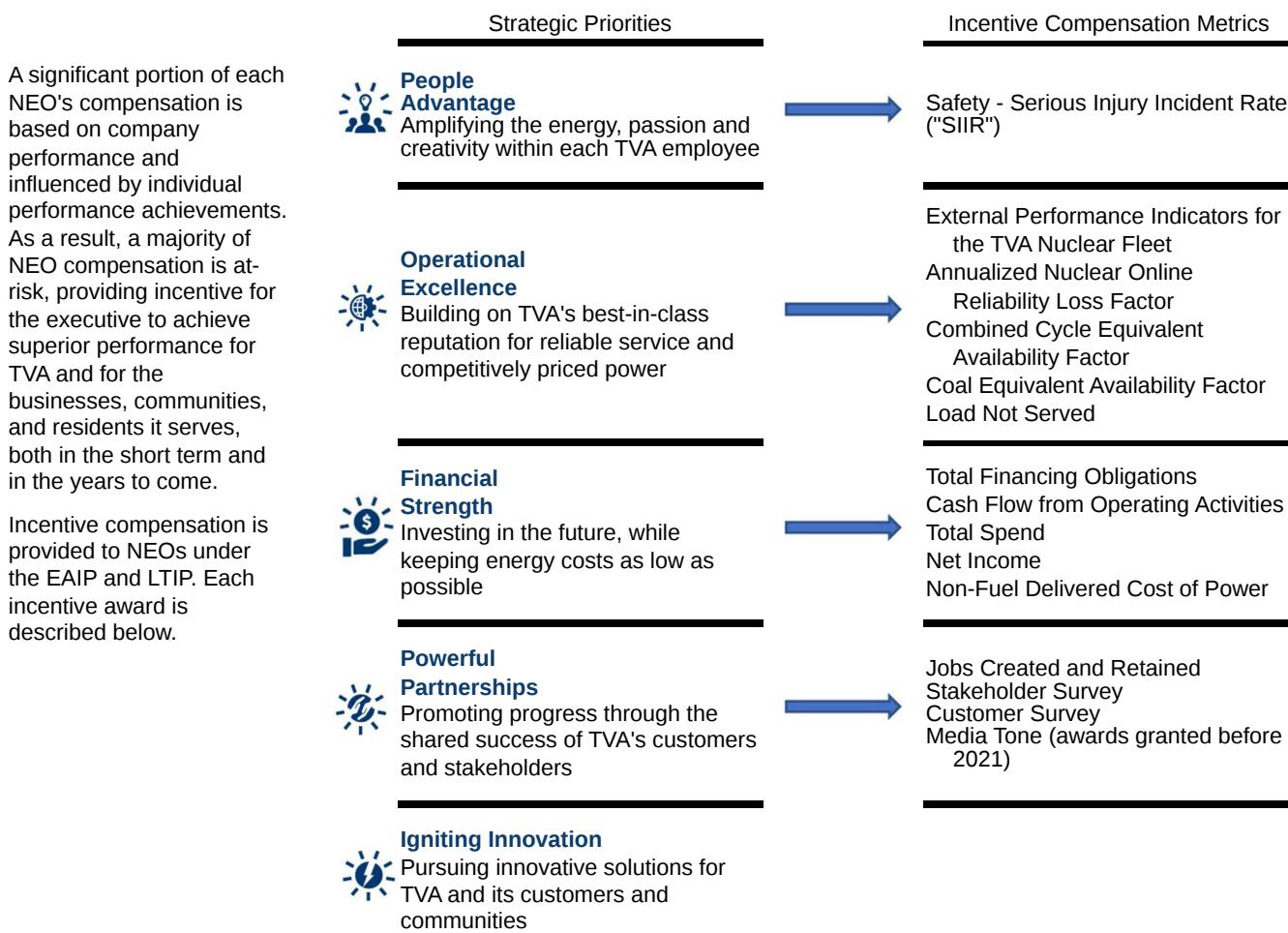
- Provide a competitive retirement benefit level that cannot be delivered solely through TVA's qualified retirement plans due to Internal Revenue Service ("IRS") limitations, and
- Provide a benefit level (as a percentage replacement of pre-retirement pay) that is more comparable to that of employees who are not subject to the IRS limitations.

More information regarding these retirement benefits is found following the Pension Benefits Table.

Health and Other Benefits

TVA offers a group of health and other benefits (medical, dental, vision, life and accidental death and disability insurance, and long-term disability insurance) that are available to a broad group of employees. The NEOs are eligible to participate in TVA's health benefit plans and other non-retirement benefit plans on the same terms and at the same contribution rates as other TVA employees.

2022 Performance Goals and Performance Achievement



Executive Annual Incentive Plan

All TVA employees participate in an annual incentive program (subject to eligibility requirements), since every employee contributes to the success of TVA and the execution of its public power mission. While the metrics used for annual incentives are the same for all employees, they are provided under two plans: the WPTIP provides for annual incentive awards for eligible non-executives, and the EAIP provides for annual incentive awards for eligible executives, including the NEOs.

The EAIP is designed to encourage and reward executives for successfully achieving annual financial and operational goals. For 2022, each NEO's annual incentive payment was calculated as follows:

$$\text{EAIP Amount} = \text{Annual Salary} \times \text{Annual Target Incentive Opportunity} \times \text{Percent of Scorecard Opportunity Achieved (0% to 150%)} \times \text{Corporate Multiplier (0 to 1.0)} \times \text{Individual Performance Multiplier (0% to 150%)}$$

Each component of this calculation is discussed below (except for annual salary, which is discussed above). The award for certain participants in the WPTIP and the EAIP may be adjusted by the participant's supervisor based on an evaluation of the participant's individual achievements and performance during the year. In addition, pursuant to discretion granted under the TVA Compensation Plan, awards may be further adjusted by the TVA Board or the CEO (1) as a result of any unusual or nonrecurring event affecting TVA or the financial statements of TVA or (2) as a result of changes in business conditions or the business strategy of TVA. There is no guaranteed minimum payout under the EAIP or WPTIP, and the maximum payout under both plans is 225 percent of the target payout.

Annual Target Incentive Opportunity

Following a review of benchmarking and individual performance, the TVA Board evaluated the appropriateness of the EAIP award opportunity for the CEO and made no changes for 2022. Similarly, the CEO evaluated the appropriateness of the EAIP award opportunities for the other NEOs and approved an increase in Mr. Moul's EAIP target opportunity from 70% to 80%, positioning his target opportunity closer to the market median; no other changes were made for 2022. Accordingly, target EAIP award opportunities of the NEOs for 2022 were as follows:

Named Executive Officers	2022 Target Annual Incentive Opportunity ⁽¹⁾
Mr. Lyash	150 %
Mr. Thomas	80 %
Mr. Moul	80 %
Mr. Rausch	70 %
Mr. Fountain	70 %

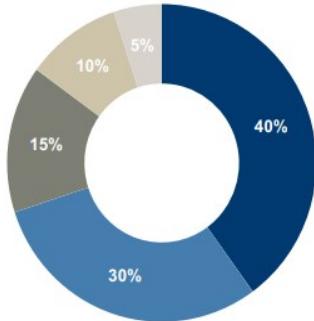
Note

⁽¹⁾ Represents a percent of each NEO's annual salary.

2022 Incentive Plan Performance Metrics

The metrics used to measure performance under the WPTIP and EAIP are the same for all TVA employees. These metrics tie directly to key enterprise metrics used by senior management in its annual budget and strategic planning process, which in turn tie directly to the achievement of TVA's strategic objectives and mission. The 2022 WPTIP and EAIP metrics and goals were set out in an organizational scorecard ("TVA Enterprise Scorecard") applicable to all employees. The 2022 performance measures, along with the weighting ascribed to each, are shown below as a percentage of the total WPTIP/EAIP award opportunity at target-level performance.

2022 WPTIP/EAIP METRICS



- █ TVA Total Spend
- █ Load Not Served
- █ Annualized Nuclear Online Reliability Loss Factor
- █ Combined Cycle Equivalent Availability Factor
- █ Coal Equivalent Availability Factor

The 2022 WPTIP/EAIP metrics are described in detail below.

TVA Total Spend

What this measures: TVA's ability to keep costs low
Total Non-Fuel Operating and Maintenance, Capital, Non-Fuel Inventory, and Cloud Implementation expenses for corporate and operational Strategic Business Unit organizations (excludes Board of Directors).

Why Is This Metric Used?

Supports the overall TVA goal of maintaining costs and managing rates based on spending levels approved by TVA management and the TVA Board.

Load Not Served

What this measures: Transmission system outages that affect TVA customers
Load Not Served ("LNS") is a measure of the magnitude and duration of transmission system outages that affect TVA customers expressed in System Minutes. An automatic customer interruption with a duration of one minute or greater is tracked as a LNS event. LNS events caused by TVA on a distributor system will also count as a TVA event even if the TVA system remains energized. LNS excludes interruptions due to declared major events, variances, gunfire, vandalism, and verified tornadoes.

Why Is This Metric Used?

TVA manages this critical indicator to reduce the impact of customer outages.

Annualized Nuclear Online Reliability Loss Factor

What this measures: Nuclear plant availability
Annualized Nuclear Online Reliability Loss Factor is the 12-month ratio of all generation losses (minus refueling outage ("RFO") and exempt losses) to energy generation (minus RFO and exempt losses) in a normal Fuel Cycle period, per external standard nuclear industry guidelines.

Why Is This Metric Used?

Monitors performance between refueling outages to obtain high unit and energy production reliability.

Combined Cycle Equivalent Availability Factor

What this measures: Combined cycle plant reliability
Combined Cycle Equivalent Availability Factor ("EAF") reflects the percentage of time over a given period that combined cycle generating assets were available to generate power for TVA combined cycle generating assets, based on Generating Availability Data System ("GADS") event reporting guidelines for megawatt hour losses. Combined Cycle EAF excludes events classified as outside management control and variances.

Why Is This Metric Used?

Combined Cycle EAF focuses on ensuring TVA assets are available and reliable to meet system demand.

Coal Equivalent Availability Factor

What this measures: Coal plant reliability
Coal EAF reflects the percentage of time over a given period that a generating unit was available to generate power for TVA coal-fired generating assets, based on GADS event reporting guidelines for megawatt hour losses. Coal EAF excludes events classified as outside management control and variances.

Why Is This Metric Used?

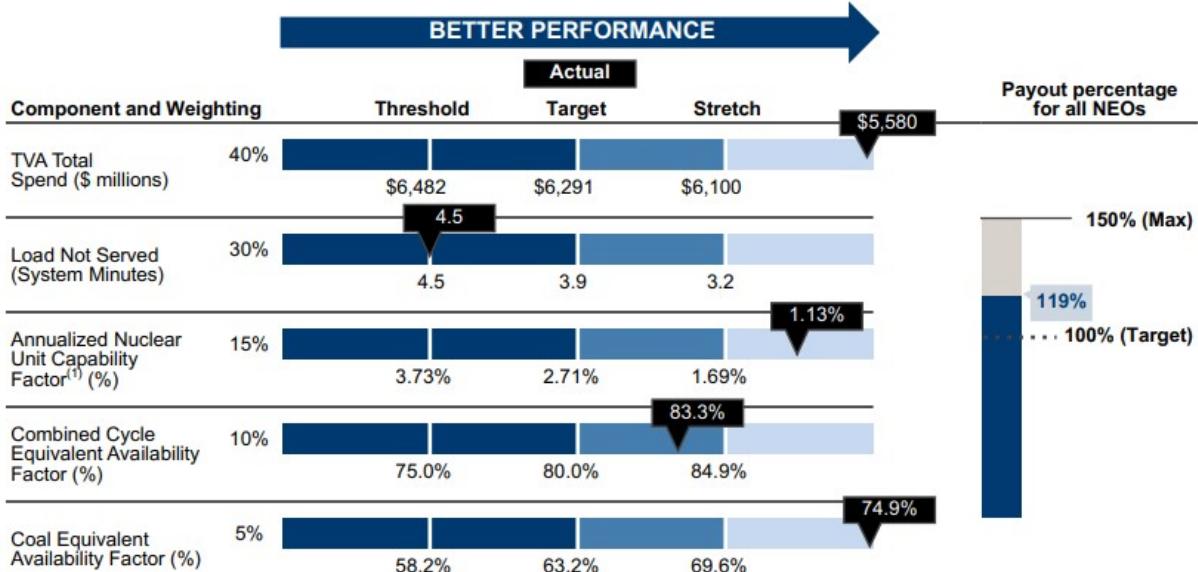
Coal EAF focuses on ensuring TVA coal generating assets are available and reliable to meet system demand.

In setting the goal for each metric, consideration is given to TVA's historic performance, its strategic business plan priorities and strategic benchmarking goals, customer and stakeholder feedback, environmental and regulatory concerns and goals, and the competitive environment. Achievement of the target goal would result in a 100 percent payout with respect to that goal. A threshold goal is also set for each metric, so that no payout would occur with respect to metrics that fail to achieve that threshold. Additionally, a stretch goal for each metric is set to incentivize and reward exceptional performance. Linear interpolation is used for results between threshold and stretch goals.

2022 Executive Annual Incentive Plan Results

The performance results on the 2022 TVA Enterprise Scorecard are set forth below. Performance resulted in a 119 percent payout (on a scale from 0 percent – 150 percent payout).

TVA'S 2022 ENTERPRISE SCORECARD PERFORMANCE



Note

⁽¹⁾ On January 28, 2022, the CEO approved revised 2022 performance goals for the Combined Cycle Equivalent Availability Factor measure to account for additional planned outage hours that were unintentionally excluded from the original approved target for the fleet due to a system error. The threshold and target goals were changed from 77.6 and 82.6, respectively, to 75.0 and 80.0, respectively. The stretch goal remained unchanged at 84.9. No changes were made to the goals for the other measures. The TVA Enterprise Scorecard sets forth the performance goals applicable to the Winning Performance Team Incentive Plan and the Executive Annual Incentive Plan.

Corporate Multiplier Allows TVA Board to Adjust for Overall Performance

As in previous years, the TVA Board approved the use of a corporate multiplier for the 2022 WPTIP/EAIP program. The corporate multiplier ranges between 0 and 1.0 and can be used only for purposes of reducing the amount of the award. The multiplier was based on performance in 2022 against goals set in August 2021 for six organizational metrics. For 2022, the TVA Board determined that the corporate multiplier should be 1.0 based on the following:

- Continued strong safety performance – top decile in SIIR for 2022
- Financial health and performance – strong fiscal responsibility
- Jobs created and retained - efforts continued to help attract and encourage the expansion of business and industries in 2022
 - Over \$10.2 billion in projected investments, and
 - Expected to create or retain approximately 66,500 jobs
- Overall performance - achieved strong operational and financial performance results despite the challenges associated with the continued COVID-19 pandemic, market conditions, executive orders and mandates, and competition for talent.

Why does the TVA Board use a multiplier?

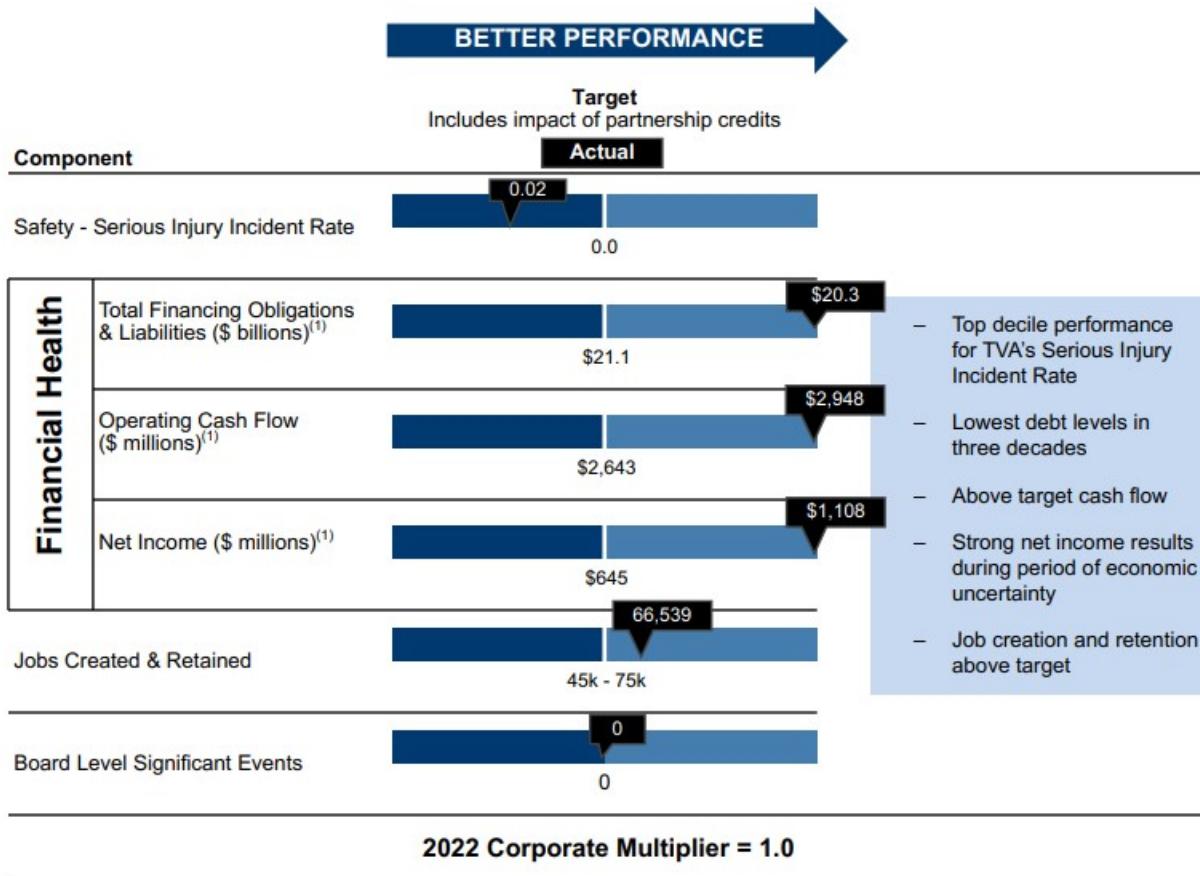
The multiplier allows the TVA Board to qualitatively assess the organization's performance, emphasizing the importance of safety, financial health, reputation, and economic development.

Corporate Multiplier Factors

Metric	Definition	Why Is This Metric Used?
Safety – Serious Injury Incident Rate (SIIR)	A mathematical calculation used by Edison Electric Institute that quantifies the extent of injury for serious injuries and fatalities from events within the control of the employee and/or the employer.	TVA shares a professional and personal commitment to protect the safety of its employees, its contractors, its customers, and those in communities that TVA serves.
Financial Health	Total Financing Obligations (TFO) and Liabilities	All statutory debt and other financing obligations. TFO and Liabilities is calculated by subtracting contributions to unfunded liabilities from the sum of (1) long-term debt, net (including unamortized premiums/discounts), (2) short-term debt, net, (3) leaseback obligations, (4) energy prepayment obligations, and (5) variable interest entities. TVA's TFOs are driven by its business plan and reflect the application of sound financial guiding principles. Focusing on this measure will improve TVA's fiscal performance and strengthen TVA's balance sheet.
	Cash Flow from Operating Activities	Amount of cash generated from power production and other mission-related activities and generally defined as operating revenues received less cash payments made for operating expenses. See Item 8, Financial Statements and Supplementary Data – <i>Consolidated Statements of Cash Flows</i> for additional information. Cash Flow from Operating Activities is considered a key indicator of overall financial health as it measures TVA's ability to use cash received from customers to sufficiently fund outgoing cash expenditures.
	Net Income	Consists of the entity's net earnings derived by adjusting revenues for the cost of doing business, including the cost of sales, depreciation, interest, taxes, and other expenses. See Item 8, Financial Statements and Supplementary Data – <i>Consolidated Statements of Operations</i> for additional information. Standard accounting measure that provides a view of TVA's financial performance and position.
Jobs Created and Retained	Measures the number of new or retained jobs in the Tennessee Valley for which TVA has played a role in the recruitment or retention of the economic development project.	Tracks its progress using an industry standard measure. Jobs Created and Retained is a measure that economic developers can speak to and easily understand, and an established tracking mechanism is in place to measure TVA's economic development efforts.
Board Level Significant Events	Includes items deemed significant by the TVA Board of Directors. These items may affect TVA's reputation with its customers and its stakeholders, the organizational health of the workforce, or its impact on the public at large. Both favorable and unfavorable events will be considered.	An incentive pay program, by design, cannot cover the entire scope of activities that could occur during a given cycle. This measure allows the TVA Board to deem certain reputational, environmental, or other items as significant impacts to TVA's business. Items that may be considered significant (either favorably or unfavorably) include customer survey results, stakeholder survey results, key indicators of organizational health, environmental events, or other major events not covered in other performance measures.

The TVA Board and the CEO qualitatively assessed TVA's performance at the end of the 2022 performance period. Based on the performance of the 2022 corporate multiplier measures, the TVA Board determined to apply a 1.0 multiplier, or no reduction to the calculated WPTIP/EAIP payout.

CORPORATE MULTIPLIER MEASURES (0.0 – 1.0 MULTIPLIER)



Note

⁽¹⁾ Includes impact of partnership credits. Partnership credits are wholesale bill credits provided to local power company customers who have signed long-term Partnership Agreements with TVA. For more information, see Item 1, Business — *Customers*.

Individual Performance Multiplier Reinforces Pay for Performance

Annually, individual goals for the NEOs are established at the beginning of each performance cycle. These goals tie to the achievement of TVA's mission and strategic objectives. A 50 percent weighting is assigned to business goals, and a 50 percent weighting is assigned to leadership competencies. No numerical measures are assigned to the goals. Rather, at the end of the performance period, the CEO assesses the performance of the other NEOs and informs the Committee of his decision on a multiplier for each NEO. For the CEO Individual Performance Multiplier, each TVA Board member assesses the CEO's performance at the end of a performance period on a scale of 1–5, with "5" representing superior performance. Results of the assessment are provided to the TVA Board Chair who, after consultation with the Committee, determines the multiplier to be applied to the CEO. For each NEO, the individual performance multiplier can range between 0% to 150% of the calculated payout and can be used to reduce (multiplier below 100%) or increase (multiplier above 100%) the amount of the award.

For 2022, the NEOs were evaluated on individual performance goals and the following leadership competencies:

Leadership Competencies

Inspiring Trust and Engagement	Continuous Improvement	Vision, Innovation, & Strategic Execution	Leadership Courage	Building Organizational Talent
Accountability and Driving for Results	Adaptability	Business Acumen	Effective Communication	Leveraging Diversity

The 2022 individual multipliers and award payouts to the NEOs under the 2022 EAIP are described under each executive's compensation scorecard under *2022 Pay Decisions - 2022 NEO Pay Decisions and Compensation Scorecards* below. Award payouts are also reported in the "Non-Equity Incentive Plan Compensation" column in the *Executive Compensation Tables and Narrative Disclosures - Summary Compensation Table*.

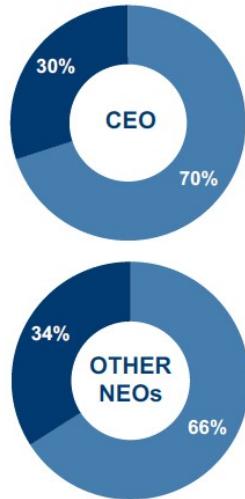
Long-Term Incentive Plan Compensation

Certain executives in critical positions, including the NEOs, participate in the company's long-term incentive plan. These individuals make decisions that significantly influence the development and execution of TVA's long-term strategic objectives. As such, awards under TVA's LTIP are designed to reward executives for sustainable success. Since long-term success is supported by a commitment to continued employment, the NEOs are incentivized to remain with the company through the vesting of the long-term performance awards and long-term retention awards, as discussed below.

LONG-TERM AWARDS REWARD LONG-TERM SUCCESS

- Enterprise-wide performance criteria that are directly aligned with TVA's mission
- "Cumulative" performance approach to measure performance achieved over a three-year period with a new three-year performance cycle beginning each year
- Potential payment range of 0 percent to 150 percent of target incentive opportunity to enable awards that are commensurate with performance achievements
- Award opportunities established for each performance cycle at or below median levels of competitiveness with TVA's peer group
- LTP awards vest upon the completion of the three-year performance period, contingent upon continued employment through vesting date and subject to achievement of performance goals
- LTR awards vest in one-third increments over three years, contingent upon continued employment on each vesting date

LONG-TERM INCENTIVE AWARDS



█ 2022 - 2024 Target LTP Award
█ 2022 Target LTR Award

The TVA Board and Mr. Lyash evaluated the appropriateness of the long-term incentive award opportunities for the CEO and other NEOs, respectively. For 2022, the value of the long-term performance awards (at target) and the long-term retention awards were increased from 2021 levels, so that TDC moved closer to market median, following a review of benchmarking and individual performance and reflective of increased tenure and experience. Accordingly, target long-term incentive award opportunities of the NEOs for 2022 were as follows:

Named Executive Officers	2022–2024 LTP ⁽¹⁾	Value at target	% Increase from 2021–2023 LTP target value	2022 LTR ⁽¹⁾	Value	% Increase from 2021 LTR award value	% Increase from 2021 Total LTI (LTP and LTR) target values
Mr. Lyash	308.6 %	\$ 3,556,000	22.0 %	132.3 %	\$ 1,524,000	22.0 %	22.0 %
Mr. Thomas ⁽²⁾	175.3 %	\$ 1,395,000	34.3 %	73.5 %	\$ 585,000	32.7 %	33.8 %
Mr. Moul ⁽²⁾	153.6 %	\$ 1,175,000	99.6 %	102.6 %	\$ 785,000	33.3 %	66.5 %
Mr. Rausch	104.7 %	\$ 596,000	19.2 %	58.0 %	\$ 330,000	— %	11.6 %
Mr. Fountain ⁽²⁾	133.3 %	\$ 770,000	36.9 %	57.1 %	\$ 330,000	4.3 %	25.1 %

Notes

⁽¹⁾ Represents the percent of each NEO's salary

⁽²⁾ LTP and LTR percent values reflect a higher than usual year-over-year increase due to the effects of 2021 prorated grants. These grants were provided in association with a mid-year job title and responsibility change for Mr. Thomas, position selection for Mr. Fountain, and new hire selection for Mr. Moul, as disclosed in TVA's 2021 Annual Report on Form 10-K, Item 10, Directors, Executive Officers, and Corporate Governance, and Item 11, Executive Compensation - *Compensation Discussion and Analysis*.

Long-Term Performance Awards

TVA's executive compensation program provides for an annual grant of an LTP award with a three-year performance period. During 2022, there were three overlapping LTP awards:

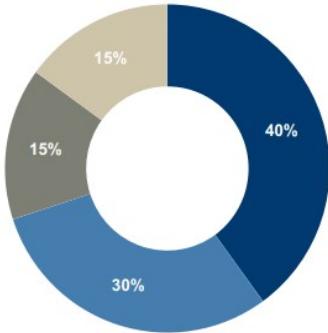
2020–2022 LTP Award	Vested September 30, 2022
2021–2023 LTP Award	Vesting September 30, 2023
2022–2024 LTP Award	Vesting September 30, 2024

The performance metrics and threshold, target, and stretch goals for each metric are determined annually by the TVA Board. Following the TVA Board's approval of performance achievement at the end of each three-year performance period, awards are paid out in cash early in the subsequent fiscal year, or upon death, disability, or retirement, as described in TVA's Long-Term Incentive Plan. For the 2020–2022 LTP award cycle, target performance provides for a 100 percent payout opportunity, performance below threshold provides for no payout, performance at threshold provides for a 50 percent payout opportunity, and performance at stretch provides for a 150 percent payout opportunity. For the 2021–2023 and 2022–2024 LTP award cycles, performance at stretch will provide for a 200 percent payout opportunity. Linear interpolation is used for results between threshold and stretch goals. The TVA Board can use its discretion to adjust the final payout for LTP awards based on achievements, peer group comparisons, and performance over the performance cycle.

$$\boxed{\text{LTP Incentive Amount}} = \boxed{\text{Target Value}} \times \boxed{\text{Percent of Opportunity Achieved (0% to 150%)}}$$

For the three-year performance period ended September 30, 2022, the TVA Board previously approved four overall long-term incentive measures of TVA performance to be applied to all participants in the LTP. The 2020–2022 performance measures, along with the weighting ascribed to each, are shown below as a percentage of the total LTP award opportunity at target-level performance.

2020-2022 LTP PERFORMANCE METRICS



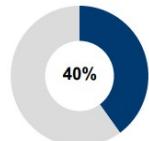
- Non-Fuel Delivered Cost of Power
- Load Not Served
- External Performance Indicators for the TVA Nuclear Fleet
- External Measures

The 2020–2022 LTP metrics are described in detail below.

Non-Fuel Delivered Cost of Power

What this measures: Non-fuel expenses (cents/kWh)

The Non-Fuel Delivered Cost of Power is a financial measure equal to the sum of (i) non-fuel operating and maintenance ("O&M") expense, (ii) base capital cost, (iii) interest expense, and (iv) other expense divided by budgeted electric power sales.



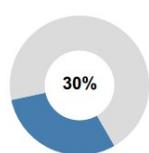
Why Is This Metric Used?

This measure drives performance through activities that management can control. It aligns with TVA's strategic objective of maintaining low rates and focuses on aligning TVA's non-fuel costs associated with generation, transmission, statutory mission services, and additional customer services with revenue. Non-Fuel Delivered Cost of Power supports retail rate objectives and aligns to the Business Plan commitment.

Load Not Served

What this measures: Transmission system outages that affect TVA customers

Load Not Served ("LNS") is a measure of the magnitude and duration of transmission system outages that affect TVA customers expressed in system minutes. An automatic customer interruption with a duration of one minute or greater is tracked as an LNS event. LNS events caused by TVA on a distributor system will also count as a TVA event even if the TVA system remains energized. LNS excludes interruptions due to declared major events, variances, gunfire, vandalism, and verified tornadoes.



Why Is This Metric Used?

TVA manages this critical indicator to reduce the impact of customer outages.

External Performance Indicators for the TVA Nuclear Fleet

What this measures: nuclear operations performance

External Performance Indicators for the TVA Nuclear Fleet is calculated using a weighted combination of key performance indicators based on standard nuclear industry definitions for station performance, with the maximum obtainable being 100 points.



Why Is This Metric Used?

This measure is a recognized industry standard for nuclear operations performance based on safety and reliability.

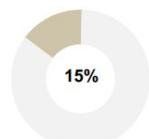
External Measures

What this measures: External perception and reputational events

Media Tone – Measures the percent of positive and balanced media coverage out of total TVA news coverage.

Stakeholder Survey – Conducted among the general public, public officials, economic development leaders, and business/community leaders in the TVA service area to assess public opinion of TVA.

Customer Survey – Annual survey of LPCs and Direct-Serve Customers focused on better understanding customer loyalty and related performance drivers.



Why Is This Metric Used?

Targets for these measures represent incremental improvement in external perceptions of TVA's performance and brand.

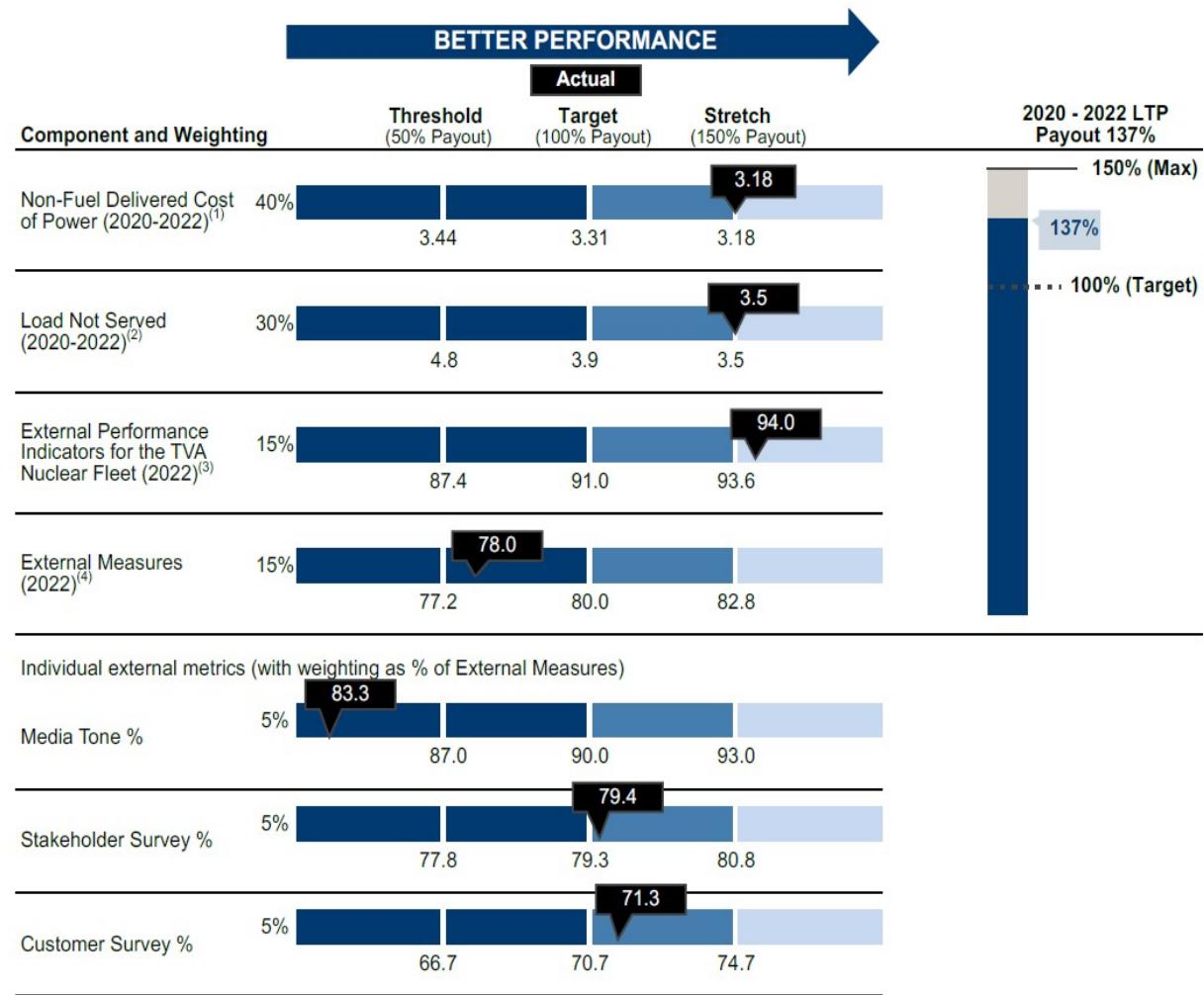
Consistent with its public power mission, TVA's long-term performance metrics include the results of surveys that assess the external reputation and perception of TVA and TVA's effectiveness in carrying out its mission and strategic objectives. These metrics reflect TVA's focus on meeting or exceeding customer expectations and identifying areas for continuous improvement.

In setting the goal for each metric, the TVA Board considers budgeted amounts in the company's approved business plans, actual performance in recent years, and level of attainment. The TVA Board also considers TVA's strategic business plan priorities and strategic benchmarking goals, customer and stakeholder feedback, environmental and regulatory concerns and goals, and the competitive environment. Achievement of the target goal would result in a 100 percent payout opportunity with respect to that goal. A threshold goal is also set for each metric, so that no payout would occur with respect to metrics that fail to achieve that threshold. Additionally, a stretch goal for each metric is set to incentivize and reward exceptional performance. Linear interpolation is used for results between threshold and stretch goals.

2020–2022 LTP Award Performance Results

The performance results on the 2022 TVA Long-Term Performance Scorecard are set forth below. Performance resulted in a payout of 137 percent of target opportunity.

2020–2022 Long-Term Performance Scorecard



Notes

- ⁽¹⁾ Non-Fuel Delivered Cost of Power = (Non-Fuel Operating and Maintenance Expense + Base Capital Cost + Interest Expense + Other Expense) / Budgeted Electric Power Sales. For the 2020–2022 performance cycle, the Non-Fuel Delivered Cost of Power measure was calculated using an average of the 2020, 2021, and 2022 results.
- ⁽²⁾ Load Not Served = (Percentage of Total Load Not Served) x (Number of Minutes in the Period). For the 2020–2022 performance cycle, the Load Not Served measure was calculated using an average of the 2020, 2021, and 2022 results.
- ⁽³⁾ The External Performance Indicators for TVA Nuclear Fleet measure is calculated using a weighted combination of key performance indicators based on standard nuclear industry definitions for station performance, with the maximum obtainable being 100 points. For the 2020–2022 performance cycle, the External Performance Indicators for the TVA Nuclear Fleet measure was calculated using the 2022 results.
- ⁽⁴⁾ For the 2020–2022 performance cycle, the External Measures metrics were calculated using an average of the 2020, 2021, and 2022 results.

In reviewing the 2020–2022 performance period, the TVA Board considered strong performance in several areas, including the single area where performance was below target, Media Tone. Below are key highlights for this performance period:

- ü Continued strong safety performance in 2022
 - Top quartile performance for TVA's Recordable Injury Rate in 2022
 - Top decile performance for TVA's Serious Injury Incident Rate in 2022
- ü Strong transmission system reliability performance
- ü Strong financial performance
 - In 2020, TVA achieved and surpassed its strategic goal of reducing debt to \$21.8 billion by 2023, and made even further reductions in debt in 2021 and 2022
 - TFOs at September 30, 2022 are the lowest in 35 years
 - Lower interest expense in 2022 compared to 2021 mainly due to lower average debt balances and lower average long-term rates
 - Delivered three years of customer credits
- ü Nuclear Performance - Browns Ferry rated "Exemplary" by industry peers - August 2022
- ü Strengthened customer relationships:
 - 96% of 153 LPCs have signed with TVA under 20-year Partnership Agreement
 - Offered regulatory relief and flexibility so LPCs could help their communities
 - Provided approximately \$13 million in credits under the Back-to-Business Credit Program since inception through 2021
 - Continued to partner with LPCs through the Community Care Fund established in 2020
 - Three-year Stakeholder Survey results exceeded target and show continued improvement over performance period
 - Customer Survey reflects increasing commitment levels with improving scores from 2020 to 2021 and highest ever score in 2022
- ü Continued efforts in 2020-2022 to help attract and encourage the expansion of business and industries, resulting in companies announcing \$27.6 billion in investments and approximately 214,000 jobs created or retained

The TVA Board determined that the calculated payout appropriately reflected executive performance in executing on TVA's long-term priorities and did not exercise its discretion to adjust the calculated payout. Payouts to the NEOs for the 2020–2022 LTP Award are described under each executive's compensation scorecard under *2022 Pay Decisions – 2022 NEO Pay Decisions and Compensation Scorecards* below and reported in the *Executive Compensation Tables and Narrative Disclosures -Summary Compensation Table* under "Non-Equity Incentive Plan Compensation."

2021–2023 Outstanding LTP Performance Cycle

The TVA Board previously approved the following overall LTP measures of TVA performance for all participants for the three-year cycle ending September 30, 2023 (awards to be paid in November 2023):



Performance Metric and Weighting		Threshold (50% Payout)	Target (100% Payout)	Stretch (200% Payout)
Non-Fuel Delivered Cost of Power ⁽¹⁾	45%	3.62	3.48	3.34
Load Not Served ⁽²⁾	30%	4.6	3.9	3.4
External Performance Indicators for the TVA Nuclear Fleet ⁽³⁾	15%	92.1	94.9	97.7
Stakeholder Survey ⁽⁴⁾	5%	75.2	77.7	80.2
Customer Survey ⁽⁵⁾	5%	67.3	71.3	75.3

Notes

- ⁽¹⁾ Metric has same definition as for the 2020-2022 LTP awards. For the 2021-2023 performance cycle, the Non-Fuel Delivered Cost of Power measure will be calculated using an average of the 2021, 2022, and 2023 results.
- ⁽²⁾ Metric has same definition as for the 2020-2022 LTP awards. For the 2021-2023 performance cycle, the Load Not Served measure will be calculated using an average of the 2021, 2022, and 2023 results.
- ⁽³⁾ Metric has same definition as for the 2020-2022 LTP awards. For the 2021-2023 performance cycle, the External Performance Indicators for the TVA Nuclear Fleet measure will be calculated based on 2023 results.
- ⁽⁴⁾ For the 2021-2023 performance cycle, the Stakeholder Survey metric will be the average score of a survey conducted among the general public, public officials, economic development leaders, and business and community leaders in the TVA service area to assess public opinion of TVA. This measure will be calculated using an average of the 2021, 2022, and 2023 results.
- ⁽⁵⁾ For the 2021-2023 performance cycle, the Customer Survey metric will be a composite score of customer survey results based on responses to key survey questions related to the impact of customer experience on loyalty to TVA. This measure will be calculated using an average of the 2021, 2022, and 2023 results.

External Performance Indicators for the TVA Nuclear Fleet, Customer Survey, and Stakeholder Survey remain measures but are no longer components of External Measures, which has been removed as a composite metric. Additionally, Media Tone has been removed as a metric, and the weighting for Non-Fuel Delivered Cost of Power has been increased to 45%.

2022–2024 Outstanding LTP Performance Cycle

In August 2021, the TVA Board approved the following overall LTP measures of TVA performance for all participants for the three-year cycle ending September 30, 2024 (awards to be paid in November 2024):



Performance Metric and Weighting	45%	Threshold Target Stretch (50% Payout) (100% Payout) (200% Payout)		
		3.67	3.53	3.39
Non-Fuel Delivered Cost of Power ⁽¹⁾	30%	4.5	3.9	3.2
Load Not Served ⁽²⁾	15%	93.5	96.0	98.5
External Performance Indicators for the TVA Nuclear Fleet ⁽³⁾	10%	74.0	78.0	82.0
Powerful Partnerships Survey ⁽⁴⁾				

Notes

- ⁽¹⁾ Metric has same definition as for the 2020-2022 LTP awards. For the 2022-2024 performance cycle, the Non-Fuel Delivered Cost of Power measure will be calculated using an average of the 2022, 2023, and 2024 results.
- ⁽²⁾ Metric has same definition as for the 2020-2022 LTP awards. For the 2022-2024 performance cycle, the Load Not Served measure will be calculated using an average of the 2022, 2023, and 2024 results.
- ⁽³⁾ Metric has same definition as for the 2020-2022 LTP awards. For the 2022-2024 performance cycle, the External Performance Indicators for the Nuclear Fleet measure will be calculated using 2024 results.
- ⁽⁴⁾ The Powerful Partnerships Survey is conducted among customers, elected officials, business and economic development leaders, and the general public in the TVA service area to assess the strength of various stakeholder relationships with TVA. For the 2022-2024 performance cycle, the Powerful Partnerships Survey measure will be calculated using an average of the 2022, 2023, and 2024 results.

For the 2022-2024 performance cycle, the Powerful Partnerships Survey has been added as a new metric, with a weighting of 10%, and replaces the former Customer Survey and Stakeholder Survey metrics as illustrated in the above chart, beginning with this performance cycle.

Long-Term Retention Awards

As a corporate agency of the U.S., TVA does not have equity securities that it can use to provide stock awards, options, or other equity-based awards as compensation for its employees. The purpose of the retention awards under the LTIP is to provide a retention incentive similar to restricted stock or restricted stock units. These grants are intended to encourage executives to remain with TVA and to provide, in combination with salary, EAIP, and LTP grants, a competitive level of TDC. Grants are generally effective as of October 1 and will become one-third vested on each subsequent September 30 or upon death, disability, or retirement if earlier on a pro-rated basis. Each award will be paid in a lump sum within two months of vesting.

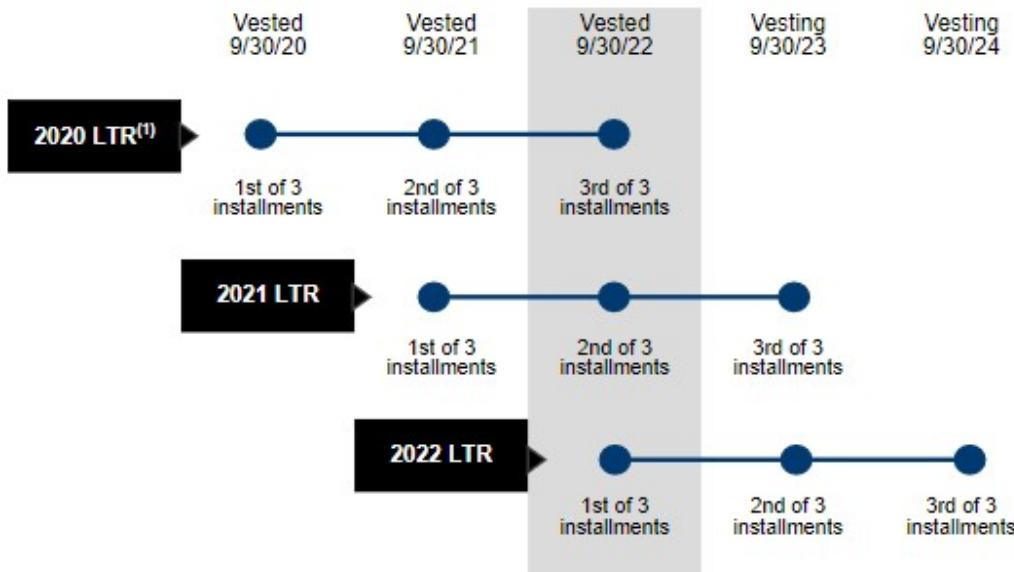
2022 Long-Term Retention Award Grant

Following the market assessment conducted by FW Cook, effective October 1, 2021, TVA granted LTR awards to the NEOs. These awards vest in three equal tranches on September 30, 2022, September 30, 2023, and September 30, 2024, contingent upon continued employment on each vesting date. The amounts of these awards are set forth under "Long-Term Incentive Plan Compensation" above.

2022 Vesting of Outstanding Retention Awards

LTR awards that vested in 2022 are described under *2022 Pay Decisions - 2022 NEO Pay Decisions and Compensation Scorecards* below and are reported in the *Executive Compensation Tables and Narrative Disclosures - Summary Compensation Table* under "Non-Equity Incentive Plan Compensation." The vesting schedule for the three LTR awards outstanding in 2022 is set forth below.

2022 VESTING OF OUTSTANDING RETENTION AWARDS



Note

⁽¹⁾ Mr. Fountain did not receive a 2020 LTR grant.

2022 Pay Decisions

2022 CEO Pay Decisions Overview

CEO TDC EARNED IN 2022 - \$8,192,678

Base Salary	\$ 1,152,250	
Annual Performance Incentive under Executive Annual Incentive Plan	\$ 2,570,958	119 percent of target enterprise performance achieved Reflects Individual Performance Multiplier of 125 percent
Long-Term Performance Incentive	\$ 3,207,170	137 percent of long-term performance achieved for the three-year performance cycle ended September 30, 2022
Long-Term Retention Incentive	\$ 1,262,300	2022 tranche of 2020, 2021 and 2022 LTR awards

Each year, the Committee makes two key compensation decisions with respect to CEO compensation: the amount of TDC opportunity (which is forward-looking and incentivizes the CEO to perform), and the amount of TDC earned (which rewards the CEO for his prior performance).

2022 CEO Total Direct Compensation Opportunity

On November 10, 2021, the TVA Board approved compensation adjustments for Mr. Lyash for 2022, increasing each component of Mr. Lyash's TDC over 2021 levels. The adjustments were made following the annual review of FW Cook's market analysis and benchmarking of CEO compensation, and in consideration of Mr. Lyash's increased tenure with TVA and his 2021 performance. The target TDC opportunity granted to Mr. Lyash in 2022 is illustrated below.

CEO 2022 TARGET TOTAL DIRECT COMPENSATION OPPORTUNITY⁽¹⁾⁽²⁾



Note

⁽¹⁾ Target market assessment effective October 2021 and included market composite of WTW survey sample and proxy peer group. This composite group includes **42 investor-owned utilities and government entities** further described in Item 11, Executive Compensation - *Compensation Discussion and Analysis - List of Compensation Peer Companies*.

⁽²⁾ Market 50th Percentile amounts are benchmarks for each compensation component which are determined independently and do not sum together.

2022 CEO TARGET TOTAL DIRECT COMPENSATION OPPORTUNITY BELOW MARKET⁽¹⁾



Note

⁽¹⁾ Target market assessment effective October 2021 and included market composite of WTW survey sample and proxy peer group. This composite group includes **42 investor-owned utilities and government entities** further described in Item 11, Executive Compensation - *Compensation Discussion and Analysis - List of Compensation Peer Companies*.

2022 CEO Total Direct Compensation Earned

The TDC that Mr. Lyash earned for 2022 reflected company and individual performance that met and exceeded most targets and was approximately 71% performance-based compensation.

CEO 2022 TOTAL DIRECT COMPENSATION EARNED



Note

⁽¹⁾ 2020-2022 Long-Term Performance Incentive award reflects a three-year performance cycle.

⁽²⁾ Long-Term Retention Incentive amount reflects the 2022 tranches of the 2020, 2021, and 2022 LTR awards.

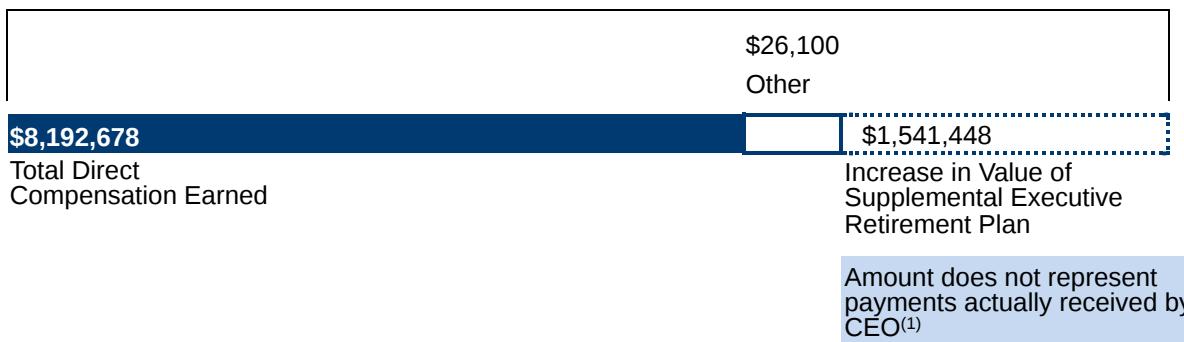
The annual incentive award that Mr. Lyash received reflected an Individual Performance Multiplier of 125 percent. The Committee and TVA Board were extremely pleased with Mr. Lyash's performance for 2022. See *2022 Pay Decisions - 2022 NEO Pay Decisions and Compensation Scorecards* below for more information.

Why Total Compensation Earned Differs From Compensation Reported

2022 CEO TOTAL COMPENSATION COMPONENTS

Summary Compensation Table Total Compensation

= **\$ 9,760,226**



Note

⁽¹⁾ Amount reflects change in present value of the accumulated pension/SERP benefits during the prior year, determined using assumptions consistent with those used in the financial statements in this Annual Report, set forth in Note 20 - *Benefit Plans*.

Unlike the amounts reported in the Summary Compensation Table, Mr. Lyash's TDC Earned represents the annual pay decisions by the Committee that specifically reflect its assessment of the company's performance and individual performance and reward the employee for satisfaction of incentive award conditions (enterprise performance and continued employment). Other elements included in the *Summary Compensation Table*, such as changes in pension values and vesting of recruitment and relocation incentives, are excluded from TDC Earned because they do not relate to performance and are outside the scope of the Committee's annual pay decisions. The Committee therefore believes that TDC Earned renders a more accurate and up-to-date reflection of its assessment of performance.

CEO Pay Ratio Disclosure

As required by Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 and Item 402(u) of Regulation S-K, TVA is providing the following information regarding the annual total compensation of TVA's CEO position and the annual total compensation of the median employee of the company:

- The total compensation for the CEO position for 2022 was \$9,760,226.
- For 2022, the median employee's annual total compensation was \$149,400.

Based on this information, the pay ratio of the total compensation for the CEO position to the median employee was approximately 65 to 1.

To identify the median employee and to determine the annual total compensation of the median employee, TVA took the following steps:

- TVA selected September 30, 2022, as the date on which to identify its median employee. On September 30, 2022, TVA's employee population that had earnings in 2022 (including full-time, part-time, and temporary employees) consisted of 10,346 individuals located in the U.S.
- In order to identify the median employee from its employee population, TVA compared the compensation that would be included in Box 5 (Medicare Wages and Tips) of Form W-2, which includes salary, overtime, and incentive compensation, for the period from October 1, 2021 to September 30, 2022. Box 5 compensation was used as it is representative of the compensation received by all employees and is readily available and objective.
- After identifying its median employee, TVA calculated that employee's compensation for 2022 as though that compensation was being calculated for purposes of the Summary Compensation Table, resulting in annual total compensation of \$149,400.

The above pay ratio is a reasonable estimate calculated in a manner consistent with Item 402(u) of Regulation S-K. Because Item 402(u) provides companies with flexibility to select the methodology and assumptions used to identify the median employee and to calculate the pay ratio, the pay ratio reported by TVA may not be comparable to the pay ratios reported by other companies.

2022 CEO Pay Ratio Below Median Among Peers

As reflected above, TVA's CEO target TDC is low compared to its 2022 compensation peer group on an absolute basis and is also low compared to its peers in the context of organizational pay ratios. Based on TVA's 2022 pay ratio noted above and the pay ratio disclosed in its peers' most recent public disclosures, TVA's current pay ratio is well below the 50th percentile, at the 7th percentile of its peers. Peers used are those shown under Proxy Peer Group of Investor-Owned Utilities in the *List of Compensation Peer Companies*.



2022 NEO Pay Decisions and Compensation Scorecards

The following pages show each NEO's 2022 Total Direct Compensation earned, 2022 TDC opportunities granted, and the Committee's (or the CEO's in the case of NEOs other than the CEO) rationale for those pay decisions.

[Table of Contents](#)

JEFFREY J. LYASH

President and CEO

Joined TVA April 2019

2022 INDIVIDUAL PERFORMANCE HIGHLIGHTS

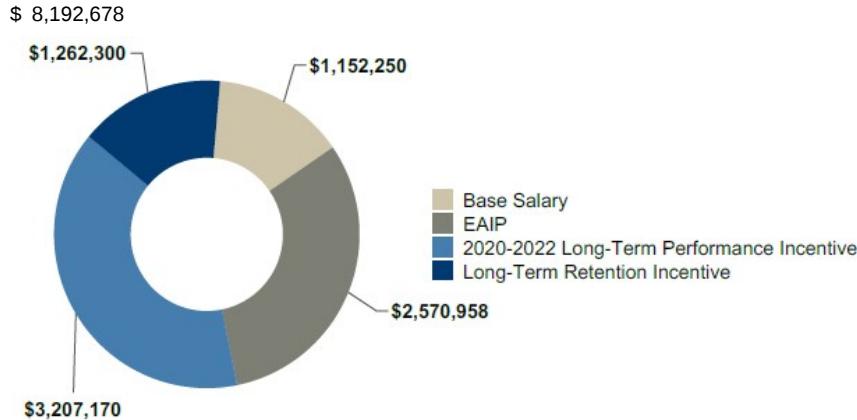
- Sustained high levels of service and outstanding performance as employees successfully led company through all strategic areas as the COVID-19 pandemic lingered into 2022.
- Delivered a wide range of pandemic support programs to LPCs, businesses, and communities – helped businesses across the Tennessee Valley to recover.
- Guided effective COVID-19 planning and responses through Pandemic Response Team; strengthened union partnerships with united focus on enhanced safety, well-being, and communications to support the workforce.
- Evolving TVA workplace flexibility focused on “We Work Everywhere to Serve” and enhanced community presence.
- TVA received numerous recognitions/awards for military friendly, veterans, and diversity as well as Forbes best-in-state employers for 4th consecutive year.
- Outstanding system-wide performance during unprecedented high-demand summer season.
- Industry-leading innovation to explore advanced small modular reactor technology in support of decarbonization efforts.
- Outstanding Nuclear Fleet performance with results trending ahead of goal towards Nation’s Top Nuclear Fleet.
- TVA issued its first-ever Diversity, Equity, Inclusion and Accessibility Report.
- Strong financial performance – debt lowest level in 35 years and maintained flat wholesale base rates since 2019.
- Strengthened customer relationships: 96% of LPCs have signed TVA 20-year Partnership Agreement.
- Demonstrated how TVA values people as a business priority by increasing Environmental, Social, and Governance focus and support through enhancements to sustainability and human capital management reporting.
- Strengthened public power model through partnerships designed to advance electric vehicles and charging stations that support the Tennessee Valley.

2022 COMMUNITY/INDUSTRY ENGAGEMENT

- Nuclear Energy Institute - Board Chair
- Institute of Nuclear Power Operations - Vice Chair of Board
- World Association of Nuclear Operators - Governor, Global Board and Chairman, Atlanta Centre
- Drexel University - Board of Trustees
- Boys and Girls Clubs of the Tennessee Valley and the United Way - actively engaged supporter

Dre

2022 TOTAL DIRECT COMPENSATION EARNED



Base Salary. Mr. Lyash's salary was increased 4.75 percent to \$1,152,250 at the beginning of 2022, reflecting superior performance and positioning to a more competitive base salary. This amount is below the 2022 compensation peer group median.

EAIP Payment Earned. Organizational performance, including strong fiscal responsibility and operational/reliability performance, under the TVA EAIP Scorecard exceeded target for all measures except one, resulting in a 119 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the continued challenges presented by COVID-19, market conditions, executive orders and mandates, and competition for talent. As a result, the TVA Board approved a 1.0 Corporate Multiplier.

The TVA Board approved an Individual Performance Multiplier of 125 percent for Mr. Lyash for 2022 given his superior performance, including those considerations noted under 2022 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.0)	X	Individual Performance Multiplier (0% to 150%)	=	EAIP Payout
\$1,152,250		150%		119%		1.0		125%		\$2,570,958

Long-Term Incentives Earned

Long-Term Performance Awards Earned. Organizational performance under the 2020–2022 LTP program was strong in several areas, including key areas where performance exceeded target expectations. In light of strong financial performance, operational and reliability performance, and strengthened customer and stakeholder relationships, the TVA Board determined that the 137 percent calculated payout appropriately reflected executive performance in executing on TVA's long-term priorities and did not exercise its discretion to adjust the payout.

Target Amount	X	Percent of Opportunity Achieved (0% to 150%)	=	LTP Incentive Amount
\$2,341,000		137%		\$3,207,170

Long-Term Retention Award Earned. Mr. Lyash earned \$1,262,300 in 2022 upon the vesting of the 2022 tranches of his 2020, 2021, and 2022 LTR program awards. The LTR awards vest ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2022–2024 Long-Term Performance Award Opportunity. Effective October 1, 2021, Mr. Lyash was granted a 2022–2024 LTP program award with a target opportunity of \$3,556,000, which will vest on September 30, 2024. Actual payout will depend on performance against targets at the end of the three-year performance period.

2022 Long-Term Retention Award Opportunity. Effective October 1, 2021, Mr. Lyash was granted a 2022 LTR program award of \$1,524,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2022 as described above.

JOHN M. THOMAS, III

Executive Vice President and Chief Financial and Strategy Officer
Joined TVA November 2005

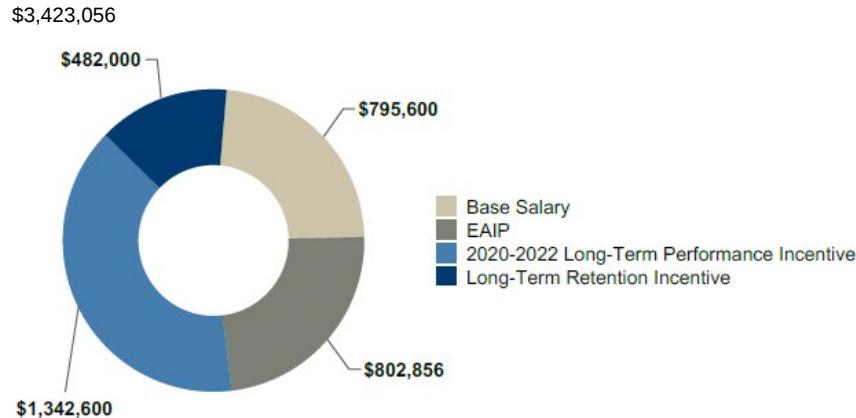
2022 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- Advancement of Green Invest Program community partnerships and visibility.
- Issued a carbon-free Request for Proposal ("RFP") for up to 5,000 MW of carbon-free and renewable energy projects.
- Partnerships with auto industry, Tennessee Valley states, LPCs, and customers to advance electric vehicles and charging stations installs by 2028; projected significant reinvestment in the local economy. Four Fast Charge Network sites are complete and operational with 28 additional sites under contract for development.
- Interest expense lower in 2022 compared to 2021 mainly due to lower average debt balances and lower average long-term rates.
- Achieved reduction in costs compared to the Corporate Insurance budget.
- Additional measures were put in place to better manage externally facing applications and logins that could threaten the operations of TVA (in response to Executive Order 14028, "Improving the Nation's Cybersecurity").
- Executed CFO, strategic planning, and business planning functions delivering results that exceeded enterprise goals in O&M expense, debt reduction, net income, and cash flow.
- Implemented continued advancement of Cybersecurity capabilities.
- Maintained flat wholesale base rates since 2019 while continuing to stabilize debt.
- Continued to keep the customers in mind while supporting communities through extended pandemic credits and through reinstating a natural gas financial hedging program designed to mitigate fuel cost volatility.
- Maintaining investor relations and financial integrity through timely SEC reporting with unqualified opinion and no significant issues.
- TVA's rates are in the top quartile of lowest rates among the top 100 U.S. Utilities.
- Broke ground on the first TVA-owned battery project.
- Completed Financial Services digital roadmap to support enterprise digital transformation.

2022 COMMUNITY/INDUSTRY ENGAGEMENT

- Siskin Children's Institute - Executive Committee; chair, Finance Committee
- Electric Power Research Institute - Audit Committee
- Chattanooga Chamber of Commerce - CEO Round Table

2022 TOTAL DIRECT COMPENSATION EARNED



Base Salary. Mr. Thomas' salary was increased 4.00 percent to \$795,600 at the beginning of 2022, reflecting strong performance and positioning to maintain a competitive base salary.

EAIP Payment Earned. Organizational performance, including strong fiscal responsibility and operational/reliability performance, under the TVA EAIP Scorecard exceeded target for all measures except one, resulting in a 119 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the continued challenges presented by COVID-19, market conditions, executive orders and mandates, and competition for talent. As a result, the TVA Board approved a 1.0 Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 106 percent for Mr. Thomas for 2022 given his strong performance, including those considerations noted under 2022 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.0)	X	Individual Performance Multiplier (0% to 150%)	=	EAIP Payout
\$795,600		80%		119%		1.0		106%		\$802,856

Long-Term Incentives Earned

Long-Term Performance Awards Earned. Organizational performance under the 2020–2022 LTP program was strong in several areas, including key areas where performance exceeded target expectations. In light of strong financial performance, operational and reliability performance, and strengthened customer and stakeholder relationships, the TVA Board determined that the 137 percent calculated payout appropriately reflected executive performance in executing on TVA's long-term priorities and did not exercise its discretion to adjust the payout.

Target Amount	X	Percent of Opportunity Achieved (0% to 150%)	=	LTP Incentive Amount
\$980,000		137%		\$1,342,600

Long-Term Retention Award Earned. Mr. Thomas earned \$482,000 in 2022 upon the vesting of the 2022 tranches of his 2020, 2021, and 2022 LTR program awards. The LTR awards vest ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2022–2024 Long-Term Performance Award Opportunity. Effective October 1, 2021, Mr. Thomas was granted a 2022–2024 LTP program award with a target opportunity of \$1,395,000, which will vest on September 30, 2024. The actual payout of the award will depend on performance against targets at the end of the three-year performance period.

2022 Long-Term Retention Award Opportunity. Effective October 1, 2021, Mr. Thomas was granted a 2022 LTR program award of \$585,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2022 as described above.

[Table of Contents](#)

DONALD A. MOUL

Executive Vice President and
Chief Operating Officer

Joined TVA June 2021

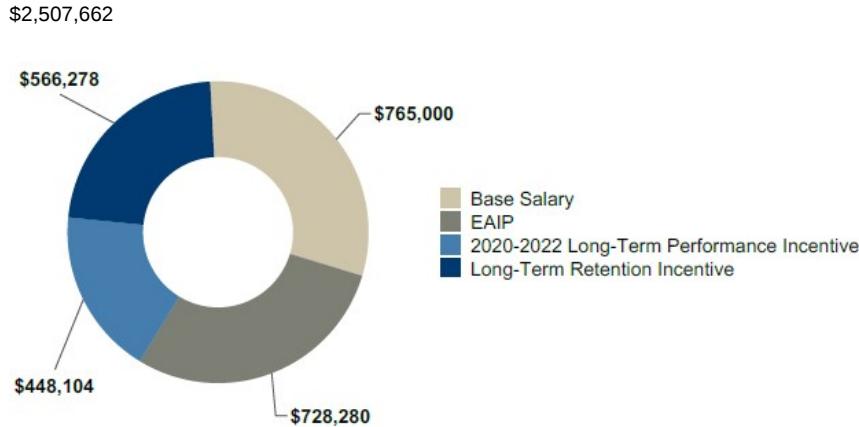
2022 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- Effective planning and response to COVID-19 through Pandemic Response Team and union partnerships – focusing on enhanced safety, well-being, and communications to support the workforce, including negotiating Employee Responsibility Policy with TVA's 17 unions.
- Implemented New Nuclear Program to explore advanced small modular reactor technology options.
- Power Operations fleet was favorable for all reliability and performance metrics and met all operational reliability commitments despite significant weather events and system challenges.
- Delivered uninterrupted power during an unprecedented high-demand summer season.
- Led the organizational response and provided oversight of the completion of reviews following the fatality in 2022 and improvements to processes, training, and work planning based on reviews completed.
- Transmission and Power Supply ("T&PS") continued to champion efforts to ensure the energy TVA produces makes it to its customers.
- Continued energy and sustainability efforts by implementing projects at TVA facilities through the Internal Energy Management Program.
- Successfully completed the Boone Dam project, the single largest dam safety repair project undertaken at TVA.
- Focused on the needs of TVA's customers, T&PS responded to damage from the December tornados across the service territory.
- Partnered in development of the 10-year Labor Strategy and Workforce Optimization Plan.

2022 COMMUNITY/INDUSTRY ENGAGEMENT

- Zoo Knoxville - Board of Directors and Circle of Friends
- University of Tennessee Nuclear Engineering - Board of Advisors
- Penn State University - Founder, Moul Family Fund for Reactor Operator Internship
- Leadership Knoxville - Class of 2023

2022 TOTAL DIRECT COMPENSATION EARNED



Base Salary. Mr. Moul's salary remained the same at \$765,000 at the beginning of 2022.

EAIP Payment Earned. Organizational performance, including strong fiscal responsibility and operational/reliability performance, under the TVA EAIP Scorecard exceeded target for all measures except one, resulting in a 119 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the continued challenges presented by COVID-19, market conditions, executive orders and mandates, and competition for talent. As a result, the TVA Board approved a 1.0 Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 100 percent for Mr. Moul for 2022 given his solid performance, including those considerations noted under 2022 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.0)	X	Individual Performance Multiplier (0% to 150%)	=	EAIP Payout
\$765,000		80%		119%		1.0		100%		\$728,280

Long-Term Incentives Earned

Long-Term Performance Awards Earned. Organizational performance under the 2020–2022 LTP program was strong in several areas, including key areas where performance exceeded target expectations. In light of strong financial performance, operational and reliability performance, and strengthened customer and stakeholder relationships, the TVA Board determined that the 137 percent calculated payout appropriately reflected executive performance in executing on TVA's long-term priorities and did not exercise its discretion to adjust the payout.

Target Amount	X	Percent of Opportunity Achieved (0% to 150%)	=	LTP Incentive Amount
\$327,083		137%		\$448,104

Long-Term Retention Award Earned. Mr. Moul earned \$566,278 in 2022 upon the vesting of the 2022 tranches of his 2020, 2021, and 2022 LTR program awards. The LTR program awards vest ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2022–2024 Long-Term Performance Award Opportunity. Effective with his hire, Mr. Moul was granted a prorated 2022–2024 LTP program award with a target opportunity of \$1,175,000 which will vest on September 30, 2024. The actual payout will depend on performance against targets at the end of the three-year performance period.

2022 Long-Term Retention Award Opportunity. Effective with his hire, Mr. Moul was granted a prorated 2022–2024 LTR program award of \$785,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2022 as described above.

Other Compensation

Recruitment and Relocation Incentive. Mr. Moul was paid \$450,000 in 2022 as the second installment of a deferred cash relocation incentive under his employment offer letter. In addition, Mr. Moul received an additional \$469,352 in relocation benefits as reported in the All Other Compensation table.



TIMOTHY S. RAUSCH

Executive Vice President and
Chief Nuclear Officer

Joined TVA October 2018

2022 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- Through leadership and talent development and the continued investment in TVA's assets and people, TVA continues to move forward by having the Nation's Top Nuclear Fleet by 2025 as part of its Operational Excellence priority.
- Nuclear is achieving its goals ahead of schedule.
- TVA's Browns Ferry Nuclear Plant received an Exemplary Rating based on external nuclear performance indicators.
- Browns Ferry Nuclear Plant Unit 3 broke its own continuous run record (690 day run).
- Watts Bar Nuclear Plant was recognized by the Department of Energy for its contributions to the Tritium Modernization Program.
- Implemented New Nuclear Program to explore advanced small modular reactor technology options.
- The fleet continued providing uninterrupted power during an unprecedented high-demand summer season.
- While the COVID-19 pandemic continued in 2022, it did not hinder the successful execution of outages and other maintenance activities.
- Work Management Index improved moving TVA from 3rd to 1st Quartile.
- Nuclear achieved industry Top Quartile Fleet Performance in 2022.
- Annualized Nuclear Online Reliability Loss Factor improved from 3rd to 2nd Quartile.

2022 COMMUNITY/INDUSTRY ENGAGEMENT

- University of Tennessee at Chattanooga - Engineering & Computer Science Advisory Board
- American Association of Blacks in Energy - active member
- Chambliss Center for Children - fundraiser platinum sponsor
- Nuclear Energy Institute - Nuclear Strategy Industry Advisory Committee
- INPO Senior Nuclear Plant Manager - quarterly course instructor

2022 TOTAL DIRECT COMPENSATION EARNED



Base Salary. Mr. Rausch's salary was increased 3.20 percent to \$569,321 at the beginning of 2022, reflecting solid performance and positioning to maintain a competitive base salary.

EAIP Payment Earned. Organizational performance, including strong fiscal responsibility and operational/reliability performance, under the TVA EAIP Scorecard exceeded target for all measures except one, resulting in a 119 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the continued challenges presented by COVID-19, market conditions, executive orders and mandates, and competition for talent. As a result, the TVA Board approved a 1.0 Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 125 percent for Mr. Rausch for 2022 given his superior performance, including those considerations noted under 2022 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.0)	X	Individual Performance Multiplier (0% to 150%)	=	EAIP Payout
\$569,321		70%		119%		1.0		125%		\$592,805

Long-Term Incentives Earned

Long-Term Performance Awards Earned. Organizational performance under the 2020–2022 LTP program was strong in several areas, including key areas where performance exceeded target expectations. In light of strong financial performance, operational and reliability performance, and strengthened customer and stakeholder relationships, the TVA Board determined that the 137 percent calculated payout appropriately reflected executive performance in executing on TVA's long-term priorities and did not exercise its discretion to adjust the payout.

Target Amount	X	Percent of Opportunity Achieved (0% to 150%)	=	LTP Incentive Amount
\$500,000		137%		\$685,000

Long-Term Retention Award Earned. Mr. Rausch earned \$330,000 in 2022 upon the vesting of the 2022 tranches of his 2020, 2021, and 2022 LTR program award. The LTR program awards vest ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2022–2024 Long-Term Performance Award Opportunity. Effective October 1, 2021, Mr. Rausch was granted a 2022–2024 LTP program award with a target opportunity of \$596,000, which will vest on September 30, 2024. Actual payout will depend on performance against targets at the end of the three-year performance period.

2022 Long-Term Retention Award Opportunity. Effective October 1, 2021, Mr. Rausch was granted a 2022 LTR program award of \$330,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2022 as described above.

DAVID B. FOUNTAIN

Executive Vice President and General Counsel

Joined TVA June 2020

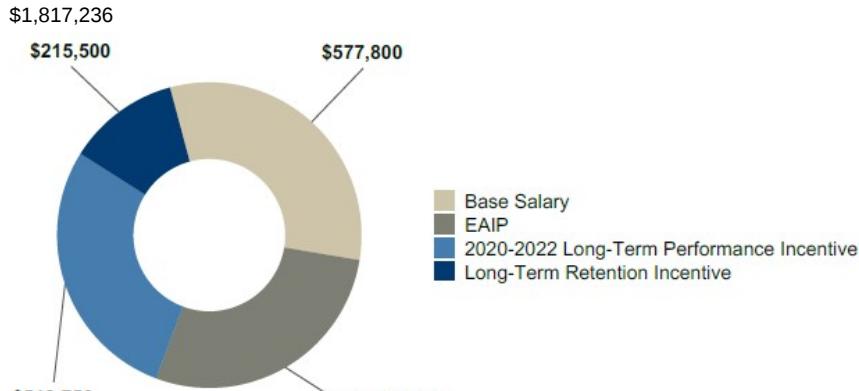
2022 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- Guided TVA to become the first U.S. federal agency to achieve Ethisphere® Compliance Leader Verification™ designation in recognition of TVA's best-in-class Ethics & Compliance program.
- Counseled TVA for favorable outcomes throughout a variety of novel legal challenges including challenges to the public power model.
- Coordinated TVA's Environmental, Social, and Governance initiatives across the enterprise.
- Implemented a Trade Control Compliance Program.
- Developed the new Board Code of Conduct adopted in 2022, and updated TVA's Code of Conduct and Supplier Code of Conduct.
- Counseled TVA on evolving health and safety regulatory requirements related to the COVID-19 pandemic.
- Served a critical role as an insightful, strategic, and trusted advisor to the Enterprise Leadership Team and to the TVA Board.
- Supported TVA's We Work Everywhere to Serve initiative to drive TVA's transition from paper to electronic records lifecycle management.

2022 COMMUNITY/INDUSTRY ENGAGEMENT

- University of North Carolina, Kenan-Flagler Business School Energy Center - Advisory Board
- Shepherd's Table Soup Kitchen - board of directors
- YMCA of the Triangle - board of directors (6-yr term concluded December 2021)

2022 TOTAL DIRECT COMPENSATION EARNED



Base Salary. Mr. Fountain's salary was increased 7.00 percent to \$577,800 at the beginning of 2022, reflecting his solid performance and positioning to maintain a competitive base salary.

EAIP Payment Earned. Organizational performance, including strong fiscal responsibility and operational/reliability performance, under the TVA EAIP Scorecard exceeded target for all measures except one, resulting in a 119 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the continued challenges presented by COVID-19, market conditions, executive orders and mandates, and competition for talent. As a result, the TVA Board approved a 1.0 Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 106 percent for Mr. Fountain for 2022 given his strong performance, including those considerations noted under 2022 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.0)	X	Individual Performance Multiplier (0% to 150%)	=	EAIP Payout
\$577,800		70%		119%		1.0		106%		\$510,186

Long-Term Incentives Earned

Long-Term Performance Awards Earned. Organizational performance under the 2020–2022 LTP program was strong in several areas, including key areas where performance exceeded target expectations. In light of strong financial performance, operational and reliability performance, and strengthened customer and stakeholder relationships, the TVA Board determined that the 137 percent calculated payout appropriately reflected executive performance in executing on TVA's long-term priorities and did not exercise its discretion to adjust the payout.

Target Amount	X	Percent of Opportunity Achieved (0% to 150%)	=	LTP Incentive Amount
\$375,000		137%		\$513,750

Long-Term Retention Award Earned. Mr. Fountain earned \$215,500 in 2022 upon the vesting of the 2022 tranches of his 2021 and 2022 LTR program awards. The LTR awards vest ratably over a three-year period, subject to continued employment on each vesting date.

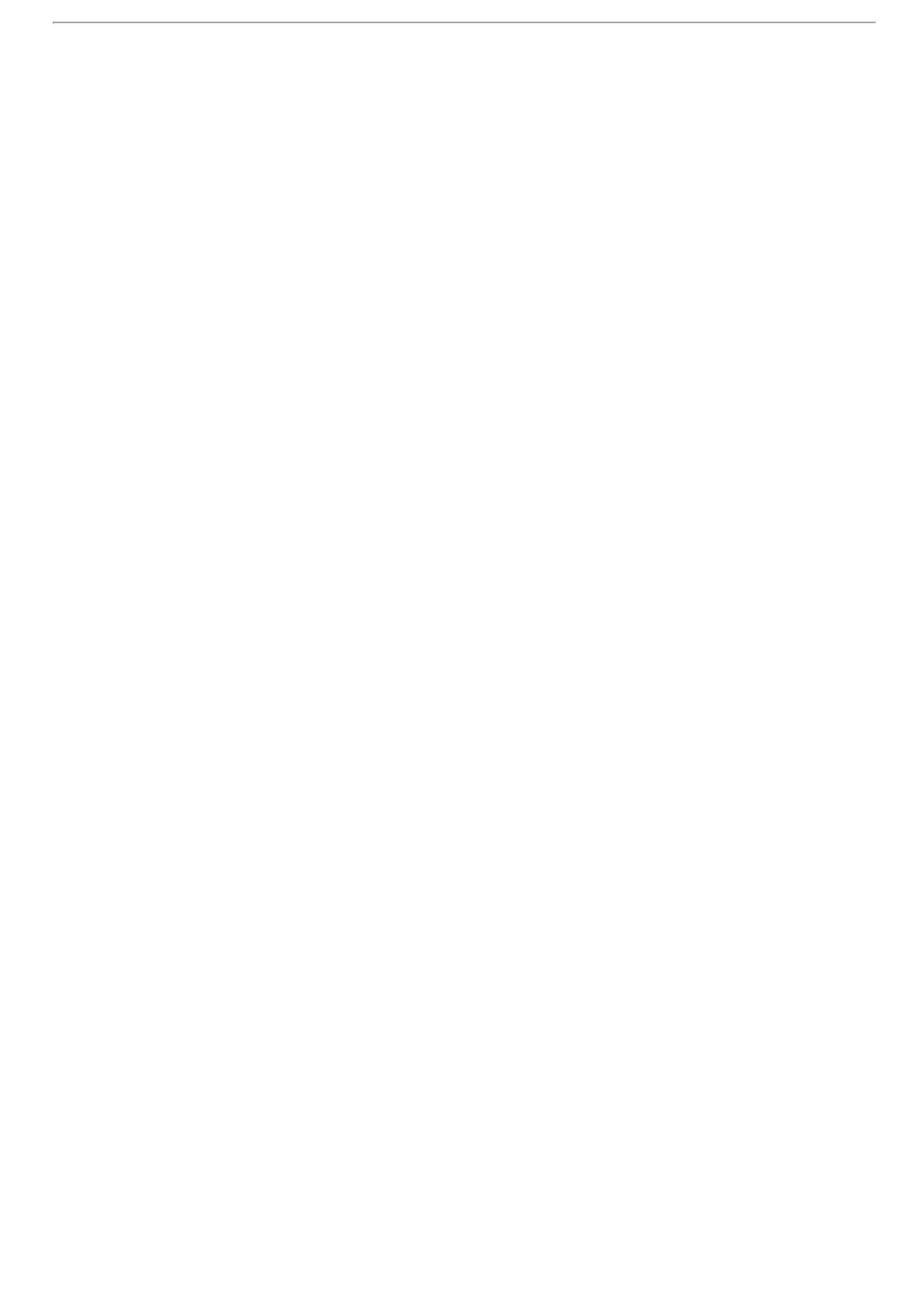
Long-Term Incentive Opportunities Granted

2022–2024 Long-Term Performance Award Opportunity. Effective October 1, 2021, Mr. Fountain was granted a 2022–2024 LTP program award with a target opportunity of \$770,000 which will vest on September 30, 2024. The actual payout will depend on performance against targets at the end of the three-year performance period.

2022 Long-Term Retention Award Opportunity. Effective October 1, 2021, Mr. Fountain was granted a 2022 LTR program award of \$330,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2022 as described above.

Other Compensation

Recruitment and Relocation Incentive. Mr. Fountain was paid \$50,000 in 2022 as the third and final installment of a deferred cash relocation incentive under his employment offer letter.



Executive Compensation Tables and Narrative Disclosures

Summary Compensation and Grants of Plan-Based Awards

The following table provides information on compensation earned by each of the NEOs in 2022 (and 2021 and 2020, as applicable).

SUMMARY COMPENSATION TABLE

Name and Principal Position	Year	Salary	Bonus ⁽¹⁾	Non-Equity Incentive Plan Compensation ⁽²⁾	Change in Pension Value and Nonqualified Deferred Compensation Earnings ⁽³⁾	All Other Compensation ⁽⁴⁾	Total
Jeffrey J. Lyash President and Chief Executive Officer	2022	\$ 1,152,250	\$ —	\$ 7,040,428	\$ 1,541,448	\$ 26,100	\$ 9,760,226
	2021	1,100,000	—	6,354,730 ⁽⁵⁾	2,110,300 ⁽⁶⁾	317,650	9,882,680
	2020	1,058,000	—	2,729,609 ⁽⁷⁾	2,271,647 ⁽⁸⁾	1,237,977	7,297,233
John M. Thomas, III Executive Vice President and Chief Financial and Strategy Officer	2022	\$ 795,600	\$ —	\$ 2,627,456	\$ 57,928	\$ 21,750	\$ 3,502,734
	2021	710,711	—	2,423,003 ⁽⁹⁾	767,504 ⁽¹⁰⁾	21,375	3,922,593
	2020	666,584	—	2,210,410	980,220	21,000	3,878,214
Donald A. Moul Executive Vice President and Chief Operating Officer	2022	\$ 765,000	\$ —	\$ 1,742,662	\$ 139,756	\$ 945,452	\$ 3,592,870
	2021	205,962	—	648,869	—	678,098	1,532,929
	2020	—	—	—	—	—	—
Timothy S. Rausch Executive Vice President and Chief Nuclear Officer	2022	\$ 569,321	\$ —	\$ 1,607,805	\$ 219,325	\$ 26,100	\$ 2,422,551
	2021	551,668	—	1,387,136 ⁽¹⁴⁾	237,895 ⁽¹⁵⁾	25,650	2,202,349
	2020	535,600	—	1,031,390	106,428	159,794	1,833,212
David B. Fountain Executive Vice President and General Counsel	2022	\$ 577,800	\$ —	\$ 1,239,436	\$ 185,739	\$ 76,100	\$ 2,079,075
	2021	507,444	—	567,163	4,167	479,295	1,558,069
	2020	—	—	—	—	—	—

Notes

(1) There were no bonus awards in 2022.

(2) The 2022 data is outlined in the Non-Equity Incentive Plan Compensation table below.

(3) The 2022 data is outlined in the Change in Pension Value and Nonqualified Deferred Compensation Earnings table below.

(4) The 2022 data is outlined in the All Other Compensation table below.

(5) Represents \$2,928,750 awarded under the EAIP, \$2,671,680 awarded under the LTP, and \$754,300 awarded under the LTR.

(6) Reflects increase of \$2,110,300 under the SERP.

(7) Represents \$2,391,609 awarded under the EAIP and \$338,000 awarded under the LTR.

(8) Reflects increase of \$2,271,647 under the SERP.

(9) Represents \$847,736 awarded under the EAIP, \$1,161,600 awarded under the LTP, and \$413,667 awarded under the LTR.

(10) Reflects increases of \$17,652 under the Cash Balance Pension and \$749,852 under the SERP.

(11) Represents \$730,576 awarded under the EAIP, \$1,096,500 awarded under the LTP, and \$383,334 awarded under the LTR.

(12) Reflects increases of \$34,401 under the Cash Balance Pension and \$945,819 under the SERP.

(13) Represents \$235,435 awarded under the EAIP, \$86,350 awarded under the LTP, and \$327,084 awarded under the LTR.

(14) Represents \$575,776 awarded under the EAIP, \$533,610 awarded under the LTP, and \$277,750 awarded under the LTR.

(15) Reflects increase of \$237,895 under the SERP.

(16) Represents \$513,640 awarded under the EAIP, \$167,750 awarded under the LTR, and \$350,000 awarded under a Performance Incentive Arrangement.

(17) Reflects increase of \$106,428 under the SERP.

(18) Represents \$461,663 awarded under the EAIP and \$105,500 awarded under the LTR.

(19) Reflects increase of \$4,167 under the SERP.

NON-EQUITY INCENTIVE PLAN COMPENSATION

	Jeffrey J. Lyash	John M. Thomas, III	Donald A. Moul	Timothy S. Rausch	David B. Fountain
EAIP	\$ 2,570,958	\$ 802,856	\$ 728,280	\$ 592,805	\$ 510,186
LTP	3,207,170	1,342,600	448,104	685,000	513,750
LTR 2020-03 ^(A)	338,000	140,000	109,028	110,000	—
LTR 2021-02 ^(B)	416,300	147,000	196,250	110,000	105,500
LTR 2022-01 ^(C)	508,000	195,000	261,000	110,000	110,000
Total	\$ 7,040,428	\$ 2,627,456	\$ 1,742,662	\$ 1,607,805	\$ 1,239,436

Notes

(A) LTR grant representing the third tranche of the LTR award effective October 1, 2019.

(B) LTR grant representing the second tranche of the LTR award effective October 1, 2020.

(C) LTR grant representing the first tranche of the LTR award effective October 1, 2021.

CHANGE IN PENSION VALUE AND NONQUALIFIED DEFERRED COMPENSATION EARNINGS

	Jeffrey J. Lyash	John M. Thomas, III	Donald A. Moul	Timothy S. Rausch	David B. Fountain
Decrease under TVARS Plans ^(A)	\$ —	\$ (38,167)	\$ —	\$ —	\$ —
Increase under SERP	1,541,448	96,095	139,756	219,325	185,739
Total	\$ 1,541,448	\$ 57,928	\$ 139,756	\$ 219,325	\$ 185,739

Notes

^(A) The present value of the TVARS Plans and SERP are impacted by plan assumption changes and actual plan experience which may be different than previously assumed.

ALL OTHER COMPENSATION

	Jeffrey J. Lyash	John M. Thomas, III	Donald A. Moul	Timothy S. Rausch	David B. Fountain
401(k) Matching Contribution	\$ 13,050	\$ 13,050	\$ 13,050	\$ 13,050	\$ 13,050
Non-Elective 401(k) Contribution	13,050	8,700	13,050	13,050	13,050
Deferred Cash Recruitment/Relocation Incentive	—	—	450,000 ^(A)	—	50,000 ^(B)
Relocation Benefits	—	—	469,352	—	—
Total	\$ 26,100	\$ 21,750	\$ 945,452	\$ 26,100	\$ 76,100

Notes

^(A) Under the terms of his offer letter, Mr. Moul is required to repay to TVA deferred cash recruitment and relocation incentive payments in the amount of \$650,000 if, prior to June 21, 2023, he (1) voluntarily terminates employment unless the separation is for reasons beyond his control and acceptable to TVA, or (2) is terminated for cause. Mr. Moul is required to repay to TVA deferred cash recruitment and relocation incentive payments in the amount of \$450,000 if, prior to June 21, 2024, he (1) voluntarily terminates employment unless the separation is for reasons beyond his control and acceptable to TVA, or (2) is terminated for cause.

^(B) Under the terms of his offer letter, Mr. Fountain is required to repay to TVA deferred cash relocation incentive payments in the amount of \$100,000 if, prior to June 1, 2023, he (1) voluntarily terminates employment unless the separation is for reasons beyond his control and acceptable to TVA, or (2) is terminated for cause.

The following table provides information on non-equity incentive plan opportunities and grants provided to NEOs and the possible range of payouts associated with the opportunities and grants. Awards under the EAIP, LTP, and LTR that vested as of September 30, 2022, will be paid in cash during the first quarter of 2022.

[Table of Contents](#)

GRANTS OF PLAN-BASED AWARDS TABLE

as of September 30, 2022

Name	Plan	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards ⁽¹⁾			Estimated Possible Future Payouts Under Non-Equity Incentive Plan Awards ⁽¹⁾			Performance Period Ending/Vesting Date
		Threshold ⁽²⁾	Target ⁽²⁾	Maximum ⁽²⁾	Threshold ⁽²⁾	Target ⁽²⁾	Maximum ⁽²⁾	
Jeffrey J. Lyash	EAIP	⁽³⁾	\$ 864,188	\$ 1,728,375	\$ 2,592,563			9/30/2022
	LTP 2020	⁽⁴⁾	1,170,500	2,341,000	3,511,500			9/30/2022
	LTR 2020-03	⁽⁵⁾		338,000	338,000			9/30/2022
	LTR 2021-02	⁽⁵⁾		416,300	416,300			9/30/2022
	LTR 2022-01	⁽⁵⁾		508,000	508,000			9/30/2022
	LTP 2021	⁽⁶⁾			\$ 1,457,050	\$ 2,914,100	\$ 5,828,200	9/30/2023
	LTR 2021-03	⁽⁵⁾				416,300	416,300	9/30/2023
	LTR 2022-02	⁽⁵⁾				508,000	508,000	9/30/2023
	LTP 2022	⁽⁷⁾				1,778,000	3,556,000	7,112,000
	LTR 2022-03	⁽⁵⁾					508,000	508,000
John M. Thomas, III	EAIP	⁽³⁾	\$ 318,240	\$ 636,480	\$ 954,720			9/30/2022
	LTP 2020	⁽⁴⁾	490,000	980,000	1,470,000			9/30/2022
	LTR 2020-03	⁽⁵⁾		140,000	140,000			9/30/2022
	LTR 2021-02	⁽⁵⁾		147,000	147,000			9/30/2022
	LTR 2022-01	⁽⁵⁾		195,000	195,000			9/30/2022
	LTP 2021	⁽⁶⁾			\$ 519,500	\$ 1,039,000	\$ 2,078,000	9/30/2023
	LTR 2021-03	⁽⁵⁾				147,000	147,000	9/30/2023
	LTR 2022-02	⁽⁵⁾				195,000	195,000	9/30/2023
	LTP 2022	⁽⁷⁾				697,500	1,395,000	2,790,000
	LTR 2022-03	⁽⁵⁾					195,000	195,000
Donald A. Moul	EAIP	⁽³⁾	\$ 306,000	\$ 612,000	\$ 918,000			9/30/2022
	LTP 2020	⁽⁴⁾⁽¹⁰⁾	163,542	327,083	490,625			9/30/2022
	LTR 2020-03	⁽⁵⁾⁽⁸⁾		109,028	109,028			9/30/2022
	LTR 2021-02	⁽⁵⁾⁽⁹⁾		196,250	196,250			9/30/2022
	LTR 2022-01	⁽⁵⁾		261,000	261,000			9/30/2022
	LTP 2021	⁽⁶⁾⁽¹¹⁾			\$ 294,375	\$ 588,750	\$ 1,177,500	9/30/2023
	LTR 2021-03	⁽⁵⁾⁽⁹⁾				196,250	196,250	9/30/2023
	LTR 2022-02	⁽⁵⁾				262,000	262,000	9/30/2023
	LTP 2022	⁽⁷⁾				587,500	1,175,000	2,350,000
	LTR 2022-03	⁽⁵⁾					262,000	262,000
Timothy S. Rausch	EAIP	⁽³⁾	\$ 199,262	\$ 398,525	\$ 597,787			9/30/2022
	LTP 2020	⁽⁴⁾	250,000	500,000	750,000			9/30/2022
	LTR 2020-03	⁽⁵⁾		110,000	110,000			9/30/2022
	LTR 2021-02	⁽⁵⁾		110,000	110,000			9/30/2022
	LTR 2022-01	⁽⁵⁾		110,000	110,000			9/30/2022
	LTP 2021	⁽⁶⁾			\$ 250,000	\$ 500,000	\$ 1,000,000	9/30/2023
	LTR 2021-03	⁽⁵⁾				110,000	110,000	9/30/2023
	LTR 2022-02	⁽⁵⁾				110,000	110,000	9/30/2023
	LTP 2022	⁽⁷⁾				298,000	596,000	1,192,000
	LTR 2022-03	⁽⁵⁾					110,000	110,000
David B. Fountain	EAIP	⁽³⁾	\$ 202,230	\$ 404,460	\$ 606,690			9/30/2022
	LTP 2020	⁽⁴⁾	187,500	375,000	562,500			9/30/2022
	LTR 2021-02	⁽⁵⁾		105,500	105,500			9/30/2022

LTR 2022-01	(5)	110,000	110,000			9/30/2022
LTP 2021	(6)		\$ 281,250	\$ 562,500	\$ 1,125,000	9/30/2023
LTR 2021-03	(5)		208		105,500	105,500

[Table of Contents](#)

LTR 2022-02	(5)	\$ 110,000	\$ 110,000	9/30/2023
LTP 2022	(7)	385,000	770,000	1,540,000
LTR 2022-03	(5)		110,000	110,000

Notes

- (¹) TVA does not have any equity securities and therefore has no equity-based awards.
- (²) Threshold, Target, and Maximum represent amounts that could be earned by an NEO based on performance during the applicable performance cycle. Threshold, Target, and Maximum targets for EAIP and LTIP were 50 percent, 100 percent, and 150 percent for 2022. In 2023, the Maximum target will increase to 200 percent.
- (³) Target incentive opportunities as a percentage of salaries were as follows: Mr. Lyash, 150 percent; Mr. Thomas, 80 percent; Mr. Moul, 80 percent; Mr. Rausch, 70 percent; and Mr. Fountain, 70 percent. Additionally, a corporate multiplier ranging between 0.00 and 1.00 may be applied which can reduce the award to \$0. An individual performance multiplier of up to 150 percent may also be applied which may increase the award to 225 percent of target. Actual EAIP awards earned for performance in 2022 are reported for each of the NEOs under the "Non-Equity Incentive Plan Compensation" column in the Summary Compensation Table.
- (⁴) The LTP awards for Mr. Moul and Mr. Fountain were granted as part of their employment offers and vested September 30, 2022. All other LTP awards were granted October 1, 2019, and vested September 30, 2022. At the end of the performance period, TVA's LTIP Scorecard was applied to the grants in order to determine award payouts. Award payouts are reported for each of the NEOs under the "Non-Equity Incentive Plan Compensation" column in the Summary Compensation Table.
- (⁵) All LTR awards will be paid in a lump sum within two months of the September 30th vesting date. The awards will be paid in cash after deducting applicable federal, state, and local withholding taxes. In the case of death, the beneficiary will be paid as soon as administratively practicable but in no event later than the last day of the second full calendar month following the participant's death. Disability awards will be paid as soon as administratively practicable but in no event later than the last day of the second full calendar month following the participant's separation from service due to disability. Actual LTR awards earned in 2022 are reported for each of the NEOs under the "Non-Equity Incentive Plan Compensation" column in the Summary Compensation Table.
- (⁶) Mr. Moul's LTP award was granted as part of his employment offer and will vest September 30, 2023. Effective March 5, 2021, Mr. Fountain was awarded a prorated 2021-2023 LTP grant of \$562,500, which will vest on September 30, 2023, and replaced the 2021-2023 LTP grant of \$375,000 made on October 1, 2020. In addition, effective June 7, 2021, Mr. Thomas was awarded a prorated 2021-2023 LTP grant of \$1,039,000, which will vest on September 30, 2023, and replaced the 2021-2023 LTP grant of \$1,000,000 made on October 1, 2020. At the end of the performance period, TVA's LTIP Scorecard will be applied to the grants in order to determine award payouts. All other LTP awards were granted effective October 1, 2020 and will vest September 30, 2023. At the end of the performance period, TVA's LTIP Scorecard will be applied to the grants in order to determine award payouts. The final award may be adjusted by the TVA Board based on the evaluation of the participant's individual achievements, peer group comparisons, and performance results over the performance cycle.
- (⁷) All LTP awards were originally granted October 1, 2021, and will vest September 30, 2024. The final award may be adjusted by the TVA Board based on the evaluation of the participant's individual achievements, peer group comparisons, and performance results over the performance cycle.
- (⁸) Reflects prorated amount of 15/36th of the LTR grant of \$785,000 for the 2020-2022 retention cycle.
- (⁹) Reflects prorated amount of 27/36th of the LTR grant of \$785,000 for the 2021-2023 retention cycle.
- (¹⁰) Reflects 15/36th of the target grant amount of \$785,000 for the 2020-2022 LTP performance cycle.
- (¹¹) Reflects 27/36th of the target grant amount of \$785,000 for the 2021-2023 LTP performance cycle.

Retirement and Pension Plans

The table below provides the actuarial present value of the NEOs' accumulated benefits, including the number of years of credited service, under TVA's retirement and pension plans as of September 30, 2022, determined using a methodology and interest rate and mortality rate assumptions consistent with those used in the financial statements in this Annual Report, set forth in Note 20 — *Benefit Plans*.

PENSION BENEFITS TABLE

Name	Plan Name	Number of Years of Credited Service ⁽¹⁾	Present Value of Accumulated Benefit	Payments During Last Year
Jeffrey J. Lyash	TVARS	N/A	N/A ⁽³⁾	\$ —
	SERP Tier 1	13.417 ⁽²⁾	\$ 11,894,268	—
John M. Thomas, III	TVARS	16.833	391,434	—
	SERP Tier 1	16.833	5,480,806	—
Donald A. Moul	TVARS	N/A	N/A ⁽³⁾	—
	SERP Tier 1	1.250	139,756	—
Timothy S. Rausch	TVARS	N/A	N/A ⁽³⁾	—
	SERP Tier 1	3.917	636,432	—
David B. Fountain	TVARS	N/A	N/A ⁽³⁾	—
	SERP Tier 1	2.333	189,906	—

Notes

⁽¹⁾ Limited to 24 years when determining supplemental benefits available under SERP Tier 1, described below.

⁽²⁾ Mr. Lyash was granted five years of credited service for calculating his SERP benefit. In the event of involuntary termination except for cause prior to five years of actual service, the vesting requirement will be waived, and he will be entitled to the additional five years of granted credited service plus his actual years of service for calculating his SERP benefit. In the event of termination for cause or voluntary termination for any reason prior to five years of actual service, the vesting requirement will be waived and his SERP benefit will be calculated based on a total of five years of credited service. After five years of actual service with TVA, he will be granted five additional years of credited service for a total of 15 years of credited service for calculating his SERP benefit. As of September 30, 2022, Mr. Lyash had 3.417 years of service. The present value of the accumulated SERP benefit with 8.417 years of credited services is \$7,715,986. The present value of the accumulated SERP benefit with 13.417 years of credited service is \$11,894,268.

⁽³⁾ Mr. Lyash, Mr. Rausch, Mr. Fountain, and Mr. Moul are not eligible to participate in the TVARS Pension Plan since they were hired after June 30, 2014.

Qualified Retirement Plans

The retirement benefits for which employees are eligible and receive under the TVARS pension plan and 401(k) plan depend on the employee's hire date, years of service, and individual elections, as follows:

- Employees who were first hired prior to January 1, 1996, receive (i) a traditional pension benefit calculated based on the employee's creditable service, the employee's average monthly salary for the highest three consecutive years of eligible compensation, and a pension factor based on the employee's age and years of service, less a Social Security offset, and (ii) 401(k) plan matching contributions from TVA. The 401(k) plan matching contribution is \$0.25 on every dollar contributed by the employee up to six percent of eligible compensation, for a maximum matching contribution of 1.5 percent of eligible compensation. None of the NEOs are in this group.
- Employees who were first hired prior to January 1, 1996, and who elected to switch pension structures from traditional to cash balance, receive (i) a cash balance pension benefit calculated based on (a) pay-based credits and interest that accrue over time in the employee's account and (b) the employee's age at the time of retirement, and (ii) 401(k) plan matching contributions from TVA. The monthly pay credits are equal to six percent of eligible compensation, and monthly interest is credited at an annual interest rate equal to the change in the CPI-U plus three percent (with a minimum of six percent and maximum of 10 percent). The interest rate during 2022 was 6.75 percent. The 401(k) plan matching contribution is \$0.75 on every dollar contributed by the employee up to six percent of eligible compensation, for a maximum matching contribution of 4.5 percent of eligible compensation. None of the NEOs are in this group.
- Employees who were first hired on or after January 1, 1996, and who had 10 or more years of service as of October 1, 2016, receive (i) a cash balance pension benefit calculated based on (a) pay-based credits and interest that accrue over time in the employee's account and (b) the employee's age at the time of retirement, and (ii) 401(k) plan non-elective and matching contributions from TVA. The monthly pay credits are equal to three percent of eligible compensation, and monthly interest is credited at an annual interest rate equal to the change in the CPI-U plus two percent (with a minimum of 4.75 percent and a maximum of 6.25 percent). The interest rate during 2022 was 5.75 percent. The 401(k) plan automatic, non-elective contribution is equal to three percent of eligible compensation, and the matching contribution is \$0.75 on every dollar contributed by the employee up to six percent of eligible compensation, for a maximum matching contribution of 4.5 percent of eligible compensation. Mr. Thomas is in this group.

- Employees who were first hired on or after January 1, 1996, and who had less than 10 years of service as of October 1, 2016, receive (i) a cash balance pension benefit calculated based on pay-based credits and interest that accrue over time in the employee's account and the employee's age at the time of retirement, and (ii) 401(k) plan non-elective and matching contributions from TVA. As of October 1, 2016, the cash balance accounts of these employees receive no additional pay-based credits; however, the accounts continue to receive monthly interest credits at an annual interest rate equal to the change in the CPI-U plus two percent (with a minimum of 4.75 percent and a maximum of 6.25 percent). The interest rate during 2022 was 5.75 percent. The 401(k) plan automatic, non-elective contribution is equal to six percent of eligible compensation, and the matching contribution is dollar-for-dollar on employee contributions up to six percent of eligible compensation, for a maximum matching contribution of six percent of eligible compensation. None of the NEOs are in this group.
- Employees who were hired prior to July 1, 2014, and who elected to waive their cash balance retirement benefit and transfer their cash balance account to the 401(k) plan effective October 1, 2018, receive a retirement benefit in the 401(k) plan only. The 401(k) plan is an automatic, non-elective contribution that is equal to six percent of eligible compensation, and the matching contribution is dollar-for-dollar on employee contributions up to six percent of the eligible compensation, for a maximum matching contribution of six percent of eligible compensation. None of the NEOs are in this group.
- Employees who were first hired on or after July 1, 2014 (or who were rehired and were either previously not vested in the pension plan or cashed out their pension benefit) receive a retirement benefit in the 401(k) plan only. The 401(k) plan automatic, non-elective contribution is equal to 4.5 percent of eligible compensation, and the matching contribution is \$0.75 on every dollar contributed by the employee up to six percent of eligible compensation, for a maximum matching contribution of 4.5 percent of eligible compensation. Mr. Lyash, Mr. Moul, Mr. Rausch, and Mr. Fountain are in this group.

Cash Balance Pension. For NEOs who are eligible for retirement benefits under the pension plan, which includes Mr. Thomas, eligible compensation is defined as annual salary only for benefit calculation purposes and is shown under the column titled "Salary" in the Summary Compensation Table. The eligible compensation in 2022 could not exceed \$290,000 pursuant to the IRS annual compensation limit applicable to qualified plans. Employees with cash balance benefits who have at least five years of cash balance service are eligible at retirement or termination of employment to receive an immediate benefit in the form of a monthly pension with survivor benefit options or in a lump-sum payment with cash out or rollover options. The pension plan does not provide for early retirement benefits to any NEO or any other employee eligible for cash balance benefits.

401(k) Plan. All employees eligible to participate in the 401(k) plan, including the NEOs, may elect to contribute to the 401(k) plan on a before-tax, Roth, and/or after-tax basis, and in-plan Roth rollovers by participation election are available. For purposes of matching and non-elective contributions from TVA to the 401(k) accounts of the NEOs, eligible compensation is defined as annual salary only for benefit calculation purposes and is shown under the column titled "Salary" in the Summary Compensation Table. The eligible compensation in 2022 could not exceed \$290,000 pursuant to the IRS annual compensation limit applicable to qualified plans. Any participant in the 401(k) plan must have three years of TVA service to be vested in matching and non-elective contributions from TVA.

Supplemental Executive Retirement Plan

All NEOs are participants in the SERP. The SERP is a non-qualified defined benefit pension plan similar to those typically found in other companies in TVA's peer group and is provided to a limited number of executives, including the NEOs. TVA's SERP was created to recruit and retain key executives. The plan is designed to provide a competitive level of retirement benefits in excess of the limitations on contributions and benefits imposed by TVA's qualified defined benefit plan and Internal Revenue Code Section 415 limits on qualified retirement plans.

The SERP provides two distinct levels of participation, Tier 1 and Tier 2. Each participant is assigned to one of the two tiers at the time he or she is approved to participate in the SERP. The level of participation ("Tier") defines the level of retirement benefits under the SERP at the time of retirement.

Under the SERP, normal retirement eligibility is age 62 with five years of vesting service. No vested and accrued benefits are payable prior to age 55, and benefits are reduced for retirements prior to age 62. The level of reduction in benefits for retirements prior to age 62 depends on whether a participant's termination is "approved" or "unapproved." In the event of an approved termination of TVA employment, any vested and accrued benefits are reduced by 5/12 percent for each month that the date of benefit commencement precedes the participant's 62nd birthday, up to a maximum reduction of 35 percent. In the event of an unapproved termination of TVA employment, the participant's accrued benefits are first subject to a reduced percentage of vesting if the participant's years of service are between five and 10. At five years of vesting service, the vested percentage of retirement benefits is 50 percent and increases thereafter by 10 percent for each full additional year of service, reaching 100 percent vesting for 10 or more years of vesting service. Thereafter, any vested and accrued benefits are reduced by 10/12 percent for each month that the date of benefit commencement precedes the participant's 62nd birthday up to a maximum reduction of 70 percent.

For purposes of the SERP, an "approved" termination means termination of employment with TVA due to (i) retirement on or after the participant's 62nd birthday, (ii) retirement on or after attainment of actual age 55, if such retirement has the approval of the TVA Board or its delegate, (iii) death in service as an employee, (iv) disability (as defined under the Rules and Regulations of the TVARS) as determined by the Retirement Committee, or (v) any other circumstance approved by the TVA Board or its delegate. For purposes of the SERP, an "unapproved" termination means a termination of employment with TVA when such termination does not constitute an "approved" termination as defined in the preceding sentence.

SERP Tier 1. The Tier 1 structure is designed to replace 60 percent of the amount of a participant's compensation at the time the participant reaches age 62 and has accrued 24 years of TVA service. Tier 1 benefits are based on a participant's highest average compensation during three consecutive SERP years and a pension multiple of 2.5 percent for each year of credited service up to a maximum of 24 years. Compensation is defined as salary and EAIP for benefit calculation purposes. Tier 1 benefits are offset by Social Security benefits, benefits provided under TVA's qualified defined benefit pension plan, and prior employer pension benefits when applicable.

SERP Tier 2. The purpose of this restoration plan is to adjust qualified plan benefits to executives when benefits are lost due to IRS limits. Pension benefits are based on a participant's average compensation over three consecutive fiscal years and a pension multiplier of 1.3 percent for each year of service. For benefit calculation, pension includes salary and annual incentives.

Nonqualified Deferred Compensation

The following table provides information regarding deferred contributions, earnings, and balances for each of the NEOs. The amounts reported under this table do not represent compensation in addition to the compensation that was earned in 2022 and already reported in the Summary Compensation Table, but rather the amounts of compensation earned by the NEOs in 2022 or prior years that were or have been deferred.

NONQUALIFIED DEFERRED COMPENSATION TABLE⁽¹⁾

Name	Executive Contributions in 2022	Registrant Contributions in 2022	Aggregate Earnings in 2022	Aggregate Withdrawals/Distributions	Aggregate Balance at September 30, 2022
Jeffrey J. Lyash	\$ —	\$ —	\$ —	\$ —	\$ —
John M. Thomas, III	—	—	—	—	—
Donald A. Moul	—	—	—	—	—
Timothy S. Rausch	—	—	—	—	—
David B. Fountain	—	—	—	—	—

Note
⁽¹⁾ None of TVA's NEOs had activity or an outstanding balance in their nonqualified deferred compensation plans as of September 30, 2022.

TVA's compensation plans may allow participants to defer all or a portion of compensation earned under the plans as defined by plan terms and IRS regulations. All deferrals are credited to each participant in a deferred compensation account, and the deferral amounts are then funded into a rabbi trust. Each participant may elect one or more investment options made available by TVA or allow some or all funds to accrue interest at the rate established by the beginning of each fiscal year equal to the composite rate of all Treasury issues. Participants may elect to change from either one notional investment option or the TVA interest bearing option to another at any time. Upon termination of employment, funds are distributed pursuant to elections made in accordance with applicable IRS regulations.

Executive Severance Plan

TVA established the TVA Executive Severance Plan (the "Severance Plan"), including the eligibility of TVA's NEOs (other than the CEO) to participate in the Severance Plan. The TVA Board also approves the CEO's participation in the Severance Plan as part of the overall market review of CEO compensation. The Severance Plan provides that if TVA terminates an NEO's employment other than for Gross Misconduct (as defined below) or such participant terminates employment for Good Reason (as defined below), such participant will be eligible to receive the following benefits in addition to his or her accrued compensation:

- A lump sum severance payment equal to the applicable multiplier times the sum of the employee's annual base salary and target annual incentive, and continued healthcare benefits for a number of complete or partial years equal to such multiplier. The applicable multiplier is 1.5 for the CEO and 1.0 for the other NEOs, or, if the qualifying separation occurs within 24 months following a Change in Control (as defined below) of TVA, then the applicable multiplier is 3.0 for the CEO and 2.0 for the other NEOs.
- Any earned but unpaid incentive payments, and a prorated annual incentive payment for the year of termination based on actual (or, if the qualifying separation occurs within 24 months following a Change in Control of TVA, based on target) achievement of performance goals.
- If the qualifying separation occurs within 24 months following a Change in Control of TVA, then a lump sum cash payment equal to the sum of (a) any LTIP performance awards the performance cycle of which is in progress on the participant's separation date, non-prorated and calculated based on target achievement of performance goals, and (b) any LTIP retention awards the retention cycle of which is in progress on the participant's separation date, non-prorated and calculated as if all such awards are fully vested.
- If the qualifying separation occurs within 24 months following a Change in Control of TVA, a waiver of the five-year vesting requirement set forth in Section 4.1(a) of the TVA Supplemental Executive Retirement Plan pursuant to its terms.

In order to receive severance benefits under the Severance Plan, participants must timely execute (and not revoke) a release of claims in favor of TVA and comply with all applicable post-separation restrictive covenants. The terms of the Severance Plan will supersede rights and obligations with respect to severance under existing agreements to which Severance Plan participants are a party.

Under the Severance Plan, a Change in Control shall be deemed to have occurred on the earliest of the following dates:

- the date when the United States ceases to have an ownership interest of at least fifty percent (50%) of TVA;
- the date one or more entities acquire (or have acquired during the 12-month period ending on the date of the most recent acquisition by such entity or entities) assets from TVA that have a total gross fair market value (without regard to any debt) equal to or more than thirty percent (30%) of the total gross fair market value of all of the assets of TVA immediately before such most recent acquisition;
- the date that a majority of the members of the TVA Board is no longer appointed and confirmed in accordance with the provisions of Section 2(a)(1) of the TVA Act;
- the date a complete liquidation or winding-up of TVA is consummated;
- the date that an entity such as an organization, board, commission, authority, department, or agency succeeds to the principal functions of, or powers and duties granted to, TVA; or
- the date of enactment or effectiveness of any applicable law, statute, rule, regulation, order, decree, ruling, or writ of a governmental or regulatory agency, entity, or official of competent jurisdiction that materially limits the TVA Board's authority to establish or renew a participant's total direct compensation.

Under the Severance Plan, Good Reason shall mean the occurrence of any of the following:

- a material adverse change in the participant's authority, duties, or responsibilities (excluding during any period of participant's physical or mental incapacity) with respect to his or her employment with TVA without the participant's prior written consent;
- a material reduction in the participant's base salary without the participant's prior written consent (other than any reduction applicable to management employees generally);

- an actual change in the participant's principal work location by more than 50 miles and more than 50 miles from the participant's principal place of abode as of the date of such change in job location without the participant's prior written consent; or
- a material breach by TVA of any term or provision of the Severance Plan without the participant's prior written consent.

A participant may be considered to have Good Reason to terminate employment for purposes of the Severance Plan only if the participant provides written notice to TVA of termination within 30 days of the occurrence of the applicable event(s) or, if later, within 30 days of the date the participant has knowledge that such event(s) occurred. An event constituting Good Reason shall no longer constitute Good Reason if the circumstances described in the Good Reason notice are cured by TVA within 30 days following receipt of the Good Reason notice.

Under the Severance Plan, Gross Misconduct shall mean any of the following:

- misconduct involving dishonesty, fraud, or gross negligence that directly results in significant economic or reputational harm to TVA;
- insubordination, intentional neglect of duties, or refusal to cooperate with investigations of TVA's business practices;
- conviction of a crime amounting to a felony under the laws of the United States or any of the several states, or a crime of moral turpitude;
- a significant violation of TVA's Code of Ethics or Code of Conduct; or
- disclosure without authorization of proprietary or confidential information of TVA.

Potential Payments on Account of Resignation, Retirement, Termination without Cause, Termination with Cause, Death, or Disability

The tables below show certain potential payments that would have been made to each NEO if his or her employment had been terminated on September 30, 2022, under various scenarios. All of the NEOs would also be entitled to payments from plans generally available to TVA employees under the specific circumstances of termination of employment, including the health and welfare and pension plans and amounts in the 401(k) plan.

Jeffrey J. Lyash	Resignation ⁽¹⁾		Termination without Cause or Resignation for Good Reason (Non-CIC) ⁽²⁾	Termination without Cause or Resignation for Good Reason (CIC) ⁽²⁾	Termination with Cause	Death/Disability
	Retirement	Termination without Cause or Resignation for Good Reason (Non-CIC) ⁽²⁾				
Severance Agreement	\$ —	\$ —	\$ 4,320,938	\$ 8,641,875	\$ —	\$ —
SERP ⁽³⁾	4,466,239	4,466,239	7,715,986	7,715,986	4,466,239	7,715,986 ⁽⁴⁾
EAIP	2,570,958	2,570,958	2,570,958	2,570,958	2,570,958	2,570,958
Deferred Cash Recruitment/Relocation Incentive	—	—	—	—	—	—
LTR	1,262,300	1,262,300	1,262,300	2,694,600	1,262,300	1,893,783 ⁽⁵⁾ ⁽⁶⁾
LTP	3,207,170	3,207,170 ⁽⁷⁾	3,207,170	9,677,270	3,207,170	6,335,237 ⁽⁸⁾ ⁽⁹⁾
Deferred Compensation	—	—	—	—	—	—
Total Value of Potential Payments	\$ 11,506,667	\$ 11,506,667	\$ 19,077,352	\$ 31,300,689	\$ 11,506,667	\$ 18,515,964

Notes

- (1) The Resignation column covers resignations that do not qualify as resignations for Good Reason under TVA's Severance Plan. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definition of Good Reason.
- (2) The Severance Plan provides that if TVA terminates an NEO's employment other than for Gross Misconduct or such participant terminates employment for Good Reason, such participant will be eligible to receive certain benefits in addition to his or her accrued compensation. The amount of additional benefits will vary depending on whether the qualifying separation from service occurs within 24 months following a Change in Control. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definitions of Gross Misconduct, Good Reason, and Change in Control and for a discussion of the benefits provided to NEOs under the Severance Plan.
- (3) In February 2019, TVA entered into an arrangement with Mr. Lyash that provides that at the commencement of his employment with TVA, he will be granted five years of credited service for calculating his SERP benefit. In the event of involuntary termination except for cause prior to five years of actual service, the vesting requirement will be waived, and he will be entitled to the additional five years of granted credited service plus his actual years of service for calculating his SERP benefit. In the event of termination for cause or voluntary termination for any reason prior to five years of actual service, the vesting requirement will be waived and his SERP benefit will be calculated based on a total of five years of credited service.
- (4) In the event of death while employed by TVA, the beneficiary will receive a lump sum payment equal to the actuarial equivalent of the benefit that would have been paid had the participant terminated employment on the date of death and elected a joint and 50 percent survivor benefit. Survivor will receive 50 percent of the reported value.
- (5) The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to any portion of a LTR award that had vested at the time of the participant's death but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award for each vesting period will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.
- (6) The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to any portion of a LTR award that had vested at the time of the separation from service but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.
- (7) Is not eligible to retire based on definition in the LTIP plan.
- (8) The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to (1) any LTP award that had vested at the time of the participant's death but not been paid and (2) any LTP awards that had not vested at the time of the participant's death and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was participating in the plan during the applicable performance cycle.
- (9) The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to (1) any LTP award that had vested at the time of the participant's separation from service but not been paid and (2) any LTP awards that had not vested at the time of the participant's separation from service and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was employed by TVA during the applicable performance cycle.

John M. Thomas, III	Resignation ⁽¹⁾		Retirement		Termination without Cause or Resignation for Good Reason (Non-CIC) ⁽²⁾	Termination without Cause or Resignation for Good Reason (CIC) ⁽²⁾	Termination with Cause	Death/Disability
	\$	—	\$	—				
Severance Agreement	\$	—	\$	—	\$ 1,432,080	\$ 2,864,160	\$ —	\$ —
SERP	5,480,806	⁽³⁾ ⁽⁴⁾ ⁽⁵⁾	5,480,806	⁽³⁾ ⁽⁴⁾ ⁽⁵⁾	5,480,806	⁽³⁾ ⁽⁴⁾ ⁽⁵⁾	5,480,806	⁽³⁾ ⁽⁴⁾ ⁽⁵⁾
EAIP	802,856		802,856		802,856		802,856	
Deferred Cash Recruitment/Relocation Incentive	—		—		—		—	
LTR	482,000		482,000		482,000		1,019,000	482,000
LTP	1,342,600		2,500,267	⁽⁹⁾	2,500,267		3,776,600	1,342,600
Deferred Compensation	—		—		—		—	—
Total Value of Potential Payments	\$ 8,108,262		\$ 9,265,929		\$ 10,698,009		\$ 13,943,422	\$ 8,108,262
								\$ 9,501,929

Notes

- (1) The Resignation column covers resignations that do not qualify as resignations for Good Reason under TVA's Severance Plan. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definition of Good Reason.
- (2) The Severance Plan provides that if TVA terminates an NEO's employment other than for Gross Misconduct or such participant terminates employment for Good Reason, such participant will be eligible to receive certain benefits in addition to his or her accrued compensation. The amount of additional benefits will vary depending on whether the qualifying separation from service occurs within 24 months following a Change in Control. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definitions of Gross Misconduct, Good Reason, and Change in Control and for a discussion of the benefits provided to NEOs under the Severance Plan.
- (3) Represents the present value of the accumulated benefit.
- (4) Actual benefit would be paid in five annual installments beginning at age 55.
- (5) Assumes that the TVA Board or its delegate determines that the termination is an approved termination under SERP. See *Executive Compensation Tables and Narrative Disclosures — Retirement and Pension Plans — Supplemental Executive Retirement Plan* above for a discussion of approved and unapproved terminations under SERP.
- (6) In the event of death while employed by TVA, the beneficiary would receive a lump sum payment equal to the actuarial equivalent of the benefit that would have been paid had the participant terminated employment on the date of death and elected a joint and 50 percent survivor benefit. Survivor will receive 50 percent of the reported value.
- (7) The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to any portion of a LTR award that had vested at the time of the participant's death but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award for each vesting period will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.
- (8) The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to any portion of a LTR award that had vested at the time of the separation from service but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.
- (9) The LTIP provides that in the event of the retirement of a participant, the participant is entitled to (1) any LTP award that had vested at the time of the participant's separation from service but not been paid and (2) any LTP awards that had not vested at the time of the participant's separation from service and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated using the actual percent of opportunity achieved and (b) will be prorated based on the number of whole months the participant was employed by TVA during the applicable performance cycle. The amount included in the table assumes that the percent of opportunity achieved will be 100 percent of target for the performance cycles ending on September 30, 2023 and September 30, 2024.
- (10) The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to (1) any LTP award that had vested at the time of the participant's death but not been paid and (2) any LTP awards that had not vested at the time of the participant's death and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was participating in the plan during the applicable performance cycle.
- (11) The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to (1) any LTP award that had vested at the time of the participant's separation from service but not been paid and (2) any LTP awards that had not vested at the time of the participant's separation from service and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was employed by TVA during the applicable performance cycle.

Donald A. Moul	Resignation ⁽¹⁾		Retirement		Termination without Cause or Resignation for Good Reason (Non-CIC) ⁽²⁾	Termination without Cause or Resignation for Good Reason (CIC) ⁽²⁾	Termination with Cause	Death/Disability
	\$	—	\$	—				
Severance Agreement	\$	—	\$	—	\$ 1,377,000	\$ 2,754,000	\$ —	\$ —
SERP	—	(3)	—	(3)	—	139,756 ⁽⁴⁾ ₍₅₎	—	139,756 ⁽⁵⁾ ₍₆₎
EAIP	728,280		728,280		728,280	728,280	728,280	728,280
Deferred Cash Recruitment/Relocation Incentive ⁽⁷⁾	—		—		—	—	—	—
LTR	566,278		566,278		566,278	1,286,528	566,278	882,736 ⁽⁸⁾ ₍₉₎
LTP	448,104		448,104 ⁽¹⁰⁾		448,104	2,211,854	448,104	1,232,271 ⁽¹¹⁾ ₍₁₂₎
Deferred Compensation	—		—		—	—	—	—
Total Value of Potential Payments	\$ 1,742,662		\$ 1,742,662		\$ 3,119,662	\$ 7,120,418	\$ 1,742,662	\$ 2,983,043

Notes

⁽¹⁾ The Resignation column covers resignations that do not qualify as resignations for Good Reason under TVA's Severance Plan. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definition of Good Reason.

⁽²⁾ The Severance Plan provides that if TVA terminates an NEO's employment other than for Gross Misconduct or such participant terminates employment for Good Reason, such participant will be eligible to receive certain benefits in addition to his or her accrued compensation. The amount of additional benefits will vary depending on whether the qualifying separation from service occurs within 24 months following a Change in Control. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definitions of Gross Misconduct, Good Reason, and Change in Control and for a discussion of the benefits provided to NEOs under the Severance Plan.

⁽³⁾ The five-year vesting requirement has not been met.

⁽⁴⁾ The Severance Plan provides that the five-year vesting requirement set forth in Section 4.1(a) of the SERP will be waived pursuant to the terms of such section with respect to each participant whose termination date occurs within 24 months following a Change in Control.

⁽⁵⁾ Represents the present value of the accumulated benefit.

⁽⁶⁾ In the event of death while employed by TVA, the beneficiary will receive a lump sum payment equal to the actuarial equivalent of the benefit that would have been paid had the participant terminated employment on the date of death and elected a joint and 50 percent survivor benefit. Survivor will receive 50 percent of the reported value.

⁽⁷⁾ Under the terms of his offer letter, Mr. Moul is required to repay to TVA deferred cash recruitment and relocation incentive payments in the amount of \$650,000 if, prior to June 21, 2023, he (1) voluntarily terminates employment unless the separation is for reasons beyond his control and acceptable to TVA, or (2) is terminated for cause. Mr. Moul is required to repay to TVA deferred cash recruitment and relocation incentive payments in the amount of \$450,000 if, prior to June 21, 2024, he (1) voluntarily terminates employment unless the separation is for reasons beyond his control and acceptable to TVA, or (2) is terminated for cause.

⁽⁸⁾ The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to any portion of a LTR award that had vested at the time of the separation from service but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.

⁽⁹⁾ The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to any portion of a LTR award that had vested at the time of the participant's death but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award for each vesting period will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.

⁽¹⁰⁾ Is not eligible to retire based on definition in the LTIP plan.

⁽¹¹⁾ The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to (1) any LTP award that had vested at the time of the participant's death but not been paid and (2) any LTP awards that had not vested at the time of the participant's death and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was participating in the plan during the applicable performance cycle.

⁽¹²⁾ The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to (1) any LTP award that had vested at the time of the participant's separation from service but not been paid and (2) any LTP awards that had not vested at the time of the participant's separation from service and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was employed by TVA during the applicable performance cycle.

Timothy S. Rausch	Resignation ⁽¹⁾	Retirement	Termination without Cause or Resignation for Good Reason (Non-CIC) ⁽²⁾	Termination without Cause or Resignation for Good Reason ⁽³⁾ (CIC)	Termination with Cause	Death/Disability
Severance Agreement	\$ —	\$ —	\$ 967,846	\$ 1,935,691	\$ —	\$ —
SERP	— ⁽³⁾	— ⁽³⁾	— ⁽³⁾	636,432 ⁽⁴⁾ ₍₅₎	— ⁽³⁾	636,432 ⁽⁵⁾ ₍₆₎
EAIP	592,805	592,805	592,805	592,805	592,805	592,805
Deferred Cash Recruitment/Relocation Incentive	—	—	—	—	—	—
LTR	330,000	330,000	330,000	660,000	330,000	476,667 ⁽⁷⁾ ₍₈₎
LTP	685,000	685,000 ⁽⁹⁾	685,000	1,781,000	685,000	1,217,000 ⁽¹⁰⁾ ₍₁₁₎
Deferred Compensation	—	—	—	—	—	—
Total Value of Potential Payments	\$ 1,607,805	\$ 1,607,805	\$ 2,575,651	\$ 5,605,928	\$ 1,607,805	\$ 2,922,904

Notes

⁽¹⁾ The Resignation column covers resignations that do not qualify as resignations for Good Reason under TVA's Severance Plan. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definition of Good Reason.

⁽²⁾ The Severance Plan provides that if TVA terminates an NEO's employment other than for Gross Misconduct or such participant terminates employment for Good Reason, such participant will be eligible to receive certain benefits in addition to his or her accrued compensation. The amount of additional benefits will vary depending on whether the qualifying separation from service occurs within 24 months following a Change in Control. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definitions of Gross Misconduct, Good Reason, and Change in Control and for a discussion of the benefits provided to NEOs under the Severance Plan.

⁽³⁾ The five-year vesting requirement has not been met.

⁽⁴⁾ The Severance Plan provides that the five-year vesting requirement set forth in Section 4.1(a) of the SERP will be waived pursuant to the terms of such section with respect to each participant whose termination date occurs within 24 months following a Change in Control.

⁽⁵⁾ Represents the present value of the accumulated benefit.

⁽⁶⁾ In the event of death while employed by TVA, the beneficiary would receive a lump sum payment equal to the actuarial equivalent of the benefit that would have been paid had the participant terminated employment on the date of death and elected a joint and 50 percent survivor benefit. Survivor will receive 50 percent of the reported value.

⁽⁷⁾ The LTIP provides that in the event of a death of a participant, the participant's beneficiary is entitled to any portion of a LTR award that had vested at the time of the participant's death but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award for each vesting period will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.

⁽⁸⁾ The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to any portion of a LTR award that had vested at the time of the separation from service but had not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.

⁽⁹⁾ Is not eligible to retire based on definition in LTIP plan.

⁽¹⁰⁾ The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to (1) any LTP award that had vested at the time of the participant's death but not been paid and (2) any LTP awards that had not vested at the time of the participant's death and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was participating in the plan during the applicable performance cycle.

⁽¹¹⁾ The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to (1) any LTP award that had vested at the time of the participant's separation from service but had not been paid and (2) any LTP awards that had not vested at the time of the participant's separation from service and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was employed by TVA during the applicable performance cycle.

David B. Fountain	Resignation ⁽¹⁾	Retirement	Termination without Cause or Resignation for Good Reason (Non-CIC) ⁽²⁾	Termination without Cause or Resignation for Good Reason (CIC) ⁽²⁾	Termination with Cause	Death/Disability
Severance Agreement	\$ —	\$ —	\$ 982,260	\$ 1,964,520	\$ —	\$ —
SERP	— ⁽³⁾	— ⁽³⁾	— ⁽³⁾	189,906 ⁽⁴⁾ ₍₅₎	— ⁽³⁾	189,906 ⁽⁵⁾ ₍₆₎
EAIP	510,186	510,186	510,186	510,186	510,186	510,186
Deferred Cash Recruitment/Relocation Incentive ⁽⁷⁾	—	—	—	—	—	—
LTR	215,500	215,500	215,500	541,000	215,500	359,917 ⁽⁸⁾ ₍₉₎
LTP	513,750	513,750 ⁽¹⁰⁾	513,750	1,846,250	513,750	1,145,417 ⁽¹¹⁾ ₍₁₂₎
Deferred Compensation	—	—	—	—	—	—
Total Value of Potential Payments	\$ 1,239,436	\$ 1,239,436	\$ 2,221,696	\$ 5,051,862	\$ 1,239,436	\$ 2,205,426

Notes

- ⁽¹⁾ The Resignation column covers resignations that do not qualify as resignations for Good Reason under TVA's Severance Plan. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definition of Good Reason.
- ⁽²⁾ The Severance Plan provides that if TVA terminates an NEO's employment other than for Gross Misconduct or such participant terminates employment for Good Reason, such participant will be eligible to receive certain benefits in addition to his or her accrued compensation. The amount of additional benefits will vary depending on whether the qualifying separation from service occurs within 24 months following a Change in Control. See *Executive Compensation Tables and Narrative Disclosures - Executive Severance Plan* for definitions of Gross Misconduct, Good Reason, and Change in Control and for a discussion of the benefits provided to NEOs under the Severance Plan.
- ⁽³⁾ The five-year vesting requirement has not been met.
- ⁽⁴⁾ The Severance Plan provides that the five-year vesting requirement set forth in Section 4.1(a) of the SERP will be waived pursuant to the terms of such section with respect to each participant whose termination date occurs within 24 months following a Change in Control.
- ⁽⁵⁾ Represents the present value of the accumulated benefit.
- ⁽⁶⁾ In the event of death while employed by TVA, the beneficiary will receive a lump sum payment equal to the actuarial equivalent of the benefit that would have been paid had the participant terminated employment on the date of death and elected a joint and 50 percent survivor benefit. Survivor will receive 50 percent of the reported value.
- ⁽⁷⁾ Under the terms of his offer letter, Mr. Fountain is required to repay to TVA deferred cash relocation incentive payments in the amount of \$100,000 if, prior to June 1, 2023, he (1) voluntarily terminates employment unless the separation is for reasons beyond his control and acceptable to TVA, or (2) is terminated for cause.
- ⁽⁸⁾ The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to any portion of a LTR award that had vested at the time of the participant's death but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award for each vesting period will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.
- ⁽⁹⁾ The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to any portion of a LTR award that had vested at the time of the separation from service but not been paid as well as a prorated portion of any LTR grant that had not vested at the time of the participant's separation from service, provided that the LTR award will be prorated based on the number of whole months the participant was employed by TVA during the vesting period in which the participant separated from service as compared to (a) 12 months for the vesting period that includes the day that the participant separated from service, (b) 24 months for the vesting period that immediately follows the vesting period during which the participant separated from service, and (c) 36 months for the second vesting period that follows the vesting period during which the participant separated from service.
- ⁽¹⁰⁾ Is not eligible to retire based on definition in the LTIP plan.
- ⁽¹¹⁾ The LTIP provides that in the event of the death of a participant, the participant's beneficiary is entitled to (1) any LTP award that had vested at the time of the participant's death but not been paid and (2) any LTP awards that had not vested at the time of the participant's death and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was participating in the plan during the applicable performance cycle.
- ⁽¹²⁾ The LTIP provides that if a participant separates from service due to a disability, the participant is entitled to (1) any LTP award that had vested at the time of the participant's separation from service but not been paid and (2) any LTP awards that had not vested at the time of the participant's separation from service and that covered a performance cycle for which the participant had received a LTP grant, provided that the amount of any such LTP award (a) will be calculated assuming that the percent of opportunity achieved is 100 percent of target and (b) will be prorated based on the number of whole months the participant was employed by TVA during the applicable performance cycle.

Other Agreements

Except as described above and in the Compensation Discussion and Analysis, there are no other agreements between TVA and any of the NEOs.

Director Compensation

The TVA Act provides for up to nine directors on the TVA Board. As of November 14, 2022, the TVA Board consisted of five members. Under the TVA Act, each director receives certain stipends that are increased annually by the same percentage increase applicable to adjustments under 5 U.S.C. § 5318, which adjusts the annual rates of pay of employees on the Executive Schedule of the U.S. Government. Effective January 1, 2022, the annual stipend for TVA directors was increased from \$54,613 to \$56,088 per year unless (1) the director chairs a TVA Board committee, in which case the stipend was increased from \$55,693 to \$57,197 per year, or (2) the director is the Chair of the TVA Board, in which case the stipend was increased from \$60,777 to \$62,418 per year. Directors are also reimbursed under federal law for travel, lodging, and related expenses while attending meetings and for other official TVA business.

The annual stipends provided by the TVA Act for each director and for the Chair of the TVA Board as of November 14, 2022, are listed below:

TVA BOARD ANNUAL STIPENDS

Name	Annual Stipend
William Kilbride	\$ 62,418
A.D. Frazier	57,197
Beth Harwell	57,197
Brian Noland	57,197
Jeff W. Smith	57,197

The following table provides information on the compensation received by TVA's directors during 2022:

DIRECTOR COMPENSATION

Name	Fees Earned or Paid in Cash	Stock Awards	Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Nonqualified Deferred Compensation Earnings ⁽¹⁾	All Other Compensation ⁽²⁾	Total
William Kilbride	\$ 61,976	—	—	—	—	\$ 3,099	\$ 65,075
A.D. Frazier	56,792	—	—	—	—	2,840	59,632
Beth Harwell	56,792	—	—	—	—	2,840	59,632
Brian Noland	56,464	—	—	—	—	2,823	59,287
Jeff W. Smith	56,792	—	—	—	—	2,556	59,348

Notes

⁽¹⁾ TVA directors do not participate in the TVARS Retirement Plans, TVA's SERP, or any non-qualified deferred compensation plan available to TVA employees. However, as appointed officers of the U.S. government, the directors are members of FERS. FERS is administered by the federal Office of Personnel Management, and information regarding the value of FERS pension benefits is not available to TVA.

⁽²⁾ These amounts include TVA's non-elective and matching contributions to the Thrift Savings Plan.

The directors are not eligible to participate in any incentive programs available to TVA employees. The directors do not participate in the TVARS Retirement Plans and do not participate in TVA's SERP. However, as appointed officers of the U.S. government, the directors are members of the Federal Employees Retirement System ("FERS"). FERS is a tiered retirement plan that includes three components: (1) Social Security benefits, (2) the Basic Benefit Plan, and (3) the Thrift Savings Plan ("TSP"). As members of FERS, each director is required to make a mandatory percentage contribution of his or her stipend to the Basic Benefit Plan in the amount of 0.8 percent for those directors appointed prior to January 1, 2013, 3.1 percent for those directors appointed between January 1, 2013, and December 31, 2013, and 4.4 percent for those directors appointed on or after January 1, 2014.

The FERS Basic Benefit Plan is a qualified defined benefit plan that provides a retirement benefit based on a final average pay formula that includes age, highest average salary during any three consecutive years of service, and years of

creditable service. A director must have at least five years of creditable service to be eligible to receive retirement benefits. Directors are eligible for immediate, unreduced retirement benefits once (1) they reach age 62 and have five years of FERS creditable service, (2) they reach age 60 and have 20 years of FERS creditable service, or (3) they attain the minimum retirement age and accumulate the specified years of service as set forth in the FERS regulations. Generally, benefits are calculated by multiplying 1.0 percent of the highest average salary during any three consecutive years of service by the number of years of creditable service. Directors who retire at age 62 or later with at least 20 years of FERS creditable service receive an enhanced benefit (a factor of 1.1 percent is used rather than 1.0 percent).

Each director is also eligible to participate in the TSP. The TSP is a tax-deferred retirement savings and investment plan that offers the same type of savings and tax benefits offered under 401(k) plans. Once a director becomes eligible, TVA contributes an amount equal to one percent of the director's stipend into a TSP account for the director. These contributions are made automatically every two weeks regardless of whether the director makes a contribution of his or her own money. Directors are eligible to contribute up to the TSP elective deferral limit. Directors receive matching contributions of 100 percent of each dollar for the first three percent of the director's stipend and 50 percent of each dollar for the next two percent of the director's stipend.

TVA offers a group of health and other benefits (medical, dental, vision, life and accidental death and disability insurance, and long-term disability insurance) that are available to a broad group of employees. Directors are eligible to participate in TVA's health benefit plans and other non-retirement benefit plans on the same terms and at the same contribution rates as other TVA employees.

Compensation Committee Interlocks and Insider Participation

The People and Governance Committee of the TVA Board currently consists of the following two directors: A.D. Frazier and Brian Noland.

No member of this Committee was at any time during 2022 or at any other time an officer or employee of TVA, and no member of this committee had any relationship with TVA requiring disclosure under Item 404 of Regulation S-K. No executive officer of TVA has served on the board of directors or compensation committee of any other entity that has or has had one or more executive officers who served as a member of the People and Governance Committee during 2022.

Compensation Committee Report

The People and Governance Committee has reviewed and discussed the Compensation Discussion and Analysis with management, and based on the review and discussions, the Committee recommended to the TVA Board that the Compensation Discussion and Analysis be included in this Annual Report.

PEOPLE AND GOVERNANCE COMMITTEE

Brian Noland, Chair
A.D. Frazier

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Not applicable.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Director Independence

The composition of the TVA Board is governed by the TVA Act. The TVA Act contains certain provisions that are similar to the considerations for independence under section 10A(m)(3) of the Exchange Act, including that to be eligible for appointment to the TVA Board, an individual shall not be an employee of TVA and shall make full disclosure to Congress of any investment or other financial interest that the individual holds in the energy industry.

Related Party Transactions

Conflict of Interest Provisions

All TVA employees, including directors and executive officers, are subject to the conflict of interest laws and regulations applicable to employees of the federal government. Accordingly, the general federal conflict of interest statute (18 U.S.C. § 208) and the Standards of Ethical Conduct for Employees of the Executive Branch (5 C.F.R. part 2635) ("Standards of Ethical Conduct") form the basis of TVA's policies and procedures for the review, approval, or ratification of related party transactions. The general federal conflict of interest statute, subject to certain exceptions, prohibits each government employee, including TVA's directors and executive officers, from participating personally and substantially (by advice, decision, or otherwise) as a government employee in any contract, controversy, proceeding, request for determination, or other particular matter in which, to his or her knowledge, he or she (or his or her spouse, minor child, general partner, organization with which he or she serves as officer, director, employee, trustee, or general partner, or any person or organization with which he or she is negotiating, or has an arrangement, for future employment) has a financial interest. Exceptions to the statutory prohibition relevant to TVA employees are (1) financial interests which have been deemed by the U.S. Office of Government Ethics, in published regulations, to be too remote or inconsequential to affect the integrity of the employee's services, or (2) interests which are determined in writing, after full disclosure and on a case-by-case basis, to be not so substantial as to be deemed likely to affect the integrity of the employee's services for TVA. In accordance with the statute, individual waiver determinations are made by the official responsible for the employee's appointment. In the case of TVA directors, the determination may be made by the Chair of the TVA Board, and in the case of the Chair of the TVA Board, the determination may be made by the Counsel to the President of the U.S.

More broadly, Subpart E of the Standards of Ethical Conduct provides that where an employee (1) knows that a particular matter involving specific parties is likely to have a direct and predictable effect on the financial interests of a member of his or her household, or that a person with whom the employee has a "covered relationship" (which includes, but is not limited to, persons with whom the employee has a close family relationship and organizations in which the employee is an active participant) is or represents a party to the matter, and (2) determines that the circumstances would cause a reasonable person with knowledge of relevant facts to question his or her impartiality in the matter, the employee should not participate in the matter absent agency authorization. This authorization may be given by the employee's supervising officer, as agency designee, in consultation with the TVA Designated Agency Ethics Official, upon the determination that TVA's interest in the employee's participation in the matter outweighs the concern that a reasonable person may question the integrity of TVA's programs and operations.

The previously described restrictions are reflected in TVA's policies which require employees, including directors and executive officers, to comply with the guidelines outlined in the Standards of Ethical Conduct and which restate the standard of the conflict of interest statute.

Additionally, the TVA Board approved a written conflict of interest policy that applies to all TVA employees, including TVA's directors and executive officers. The conflict of interest policy reaffirms the requirement that all TVA employees must comply with applicable federal conflict of interest laws, regulations, and policies. It also establishes an additional policy that is applicable to TVA's directors and CEO. This additional policy provides that TVA's directors and CEO shall not hold a financial interest in (1) any distributor of TVA power; (2) any entity engaged primarily in the wholesale or retail generation, transmission, or sale of electricity, except where substantially all such business is conducted outside of North America; or (3) any entity that may reasonably be perceived as likely to be adversely affected by the success of TVA as a producer or transmitter of electric power. Any waiver of this additional policy may be made only by the TVA Board and will be disclosed promptly to the public, subject to the limitations on disclosure imposed by law.

TVA also has a protocol titled the "Obtaining Things of Value from TVA Protocol" (the "Protocol"). The Protocol describes what a TVA employee should do if a person covered by the Protocol asks for assistance in obtaining a specified thing of value from TVA. Similarly, the TVA Board Practice on External Inquiries describes what a member of the TVA Board should do if a person covered by the practice asks for assistance in obtaining a specified thing of value from TVA.

TVA relies on the policies, practices, laws, and regulations discussed above to regulate conflicts of interest involving employees, including directors and executive officers. TVA has no other written or unwritten policy for the approval or ratification of any transactions in which TVA was or is to be a participant and in which any director or executive officer of TVA (or any child, stepchild, parent, stepparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law of any director or executive officer of TVA) had or will have a direct or indirect material interest.

Other Relationships

TVA is engaged in a number of transactions with other agencies of the U.S. government, although such agencies do not fall within the definition of "related parties" for purposes of Item 404(a) of Regulation S-K. These include, among other things, supplying electricity to other federal agencies, purchasing electricity from the Southeastern Power Administration, and engaging in various arrangements involving nuclear materials with the Department of Energy. See Item 1, Business and Note 22 — *Related Parties*.

TVA also has access to a financing arrangement with the United States Department of the Treasury ("U.S. Treasury"). TVA and the U.S. Treasury have a memorandum of understanding under which the U.S. Treasury provides TVA with a \$150 million credit facility. There were no outstanding borrowings under the facility at September 30, 2022. This credit facility has a maturity date of September 30, 2023, and is typically renewed annually. This arrangement is pursuant to the TVA Act. Access to this credit facility or other similar financing arrangements with the U.S. Treasury has been available to TVA since the 1960s. See Note 14 — *Debt and Other Obligations — Credit Facility Agreements*.

In addition, TVA is required by the 1959 amendment to the TVA Act to make annual payments to the U.S. Treasury from net power proceeds as a repayment of and as a return on the payments to the U.S. Treasury in repayment of and as a return on the government's appropriation investment in TVA's power facilities (the "Power Program Appropriation Investment") until \$1.0 billion of the Power Program Appropriation Investment has been repaid. With the 2014 payment, TVA fulfilled its requirement to repay \$1.0 billion of the Power Program Appropriation Investment. The TVA Act requires TVA to continue to make payments to the U.S. Treasury indefinitely as a return on the remaining \$258 million of the Power Program Appropriation Investment. See Note 22 — *Related Parties*.

The TVA Act requires the proceeds for each fiscal year derived from the sale of power or any other activities to be paid into the U.S. Treasury on March 31 of each year, except for the portion of such proceeds as in the opinion of the TVA Board shall be necessary for TVA in the operation of dams and reservoirs and in conducting its business in generating, transmitting, and distributing electric energy. For each fiscal year, the TVA Board adopts a resolution retaining for use in the operation of the TVA power system the entire margin of net power proceeds remaining at the conclusion of such fiscal year.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table shows the fees of Ernst & Young LLP for audit, audit-related, and other services for the years ended September 30, 2022 and 2021.

Principal Accountant Fees and Services (in actual dollars)						
Year	Principal Accountant	Audit Fees ⁽¹⁾	Audit-Related Fees	Tax Fees	All Other Fees ⁽²⁾	Total
2022	Ernst & Young LLP	\$ 3,277,337	\$ —	\$ —	\$ 3,545	\$ 3,280,882
2021	Ernst & Young LLP	3,115,531	—	—	3,060	3,118,591

Notes

(1) Audit fees consist of payments for professional services rendered in connection with the audit of TVA's annual financial statements, including the annual attestation on internal control over financial reporting; review of interim financial statements included in TVA's quarterly reports; audit of TVA's fuel cost adjustment; federal financial reporting responsibilities for the preparation and audit of the 2022 and 2021 federal consolidated financial statements of which TVA is a component; Bond offering and other financing comfort letters; and attestation on TVA's management report of eligible green expenditures.

(2) All other fees reflect accounting and financial reporting research software license costs.

The TVA Board has an Audit, Finance, Risk, and Cybersecurity Committee ("Audit Committee"). Under the TVA Act, the Audit Committee, in consultation with the Inspector General, recommends to the TVA Board the selection of an external auditor. TVA's Audit Committee, in consultation with the Inspector General, recommended that the TVA Board select Ernst & Young LLP as TVA's external auditor for the 2022 and 2021 audits and other related services, and the TVA Board approved these recommendations.

TVA has a policy (the "Policy") that requires all auditing services and permissible non-audit services provided by the external auditor to be pre-approved by the Audit Committee. The Policy also lists the following services as ones the external auditor is not permitted to perform:

- Bookkeeping or other services related to the accounting records or financial statements of TVA;
- Financial information system design and implementation;
- Appraisal or valuation services, fairness opinions, and contribution-in-kind reports;
- Actuarial services;
- Internal audit outsourcing services;
- Management functions or human resources;
- Broker or dealer, investment adviser, or investment banking services;
- Legal services and expert services unrelated to the audit; and
- Any other services that the Public Company Accounting Oversight Board determines, by regulation, are impermissible.

The Policy also delegates to the Chair of the Audit Committee the authority to pre-approve a permissible service so long as the amount of the service does not exceed \$100,000 and the total amount of services pre-approved during the year by the Chair does not exceed \$200,000. The Chair must report for informational purposes the services pre-approved under this provision at the Audit Committee's next meeting.

The Audit Committee pre-approved all audit services for 2022 and 2021.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents have been filed as part of this Annual Report on Form 10-K for the fiscal year ended September 30, 2022 ("Annual Report"):

(1) Consolidated Financial Statements. The following documents are provided in Item 8, Financial Statements and Supplementary Data herein:

Consolidated Statements of Operations
Consolidated Statements of Comprehensive Income (Loss)
Consolidated Balance Sheets
Consolidated Statements of Cash Flows
Consolidated Statements of Changes in Proprietary Capital
Notes to Consolidated Financial Statements
Report of Independent Registered Public Accounting Firm (Ernst & Young LLP)

(2) Consolidated Financial Statement Schedules.

Schedules not included are omitted because they are not required or because the required information is provided in the consolidated financial statements, including the notes thereto.

(3) List of 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)
4.1	Basic Tennessee Valley Authority Power Bond Resolution Adopted by the TVA Board of Directors on October 6, 1960, as Amended on September 28, 1976, October 17, 1989, and March 25, 1992 (Incorporated by reference to Exhibit 4.1 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)
10.1	Second Amended and Restated March Maturity Credit Agreement Dated as of March 25, 2022, Among Tennessee Valley Authority, as the Borrower, Toronto Dominion (Texas) LLC, as Administrative Agent, The Toronto-Dominion Bank, New York Branch, as Letter of Credit Issuer and a Lender, Bank of America, N.A., Canadian Imperial Bank of Commerce, New York Branch, First Horizon Bank, Morgan Stanley Bank, N.A., and The Bank of New York Mellon (Incorporated by reference to Exhibit 10.1 to TVA's Current Report on Form 8-K filed on March 30, 2022, File No. 000-52313)
10.2	Second Amended and Restated September Maturity Credit Agreement Dated as of September 21, 2021, Among Tennessee Valley Authority, as the Borrower, Royal Bank of Canada, 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 September 24, 2021, File No. 000-52313)
10.3	\$500,000,000 February Maturity Credit Agreement Dated as of August 7, 2015, 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 August 7, 2015, File No. 000-52313)
10.4	First Amendment Dated as of February 28, 2017, to the \$500,000,000 February Maturity Credit Agreement Dated as of August 7, 2015, 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 March 3, 2017, File No. 000-52313)
10.5	Second Amendment Dated as of February 21, 2018, to the \$500,000,000 February Maturity Credit Agreement Dated as of August 7, 2015, and Amended as of February 28, 2017, 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 February 26, 2018, File No. 000-52313)
10.6	Third Amendment Dated as of February 27, 2020, to the \$500,000,000 February Maturity Credit Agreement Dated as of August 7, 2015, and Amended as of February 28, 2017, and February 21, 2018, 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 March 3, 2020, File No. 000-52313)

Table of Contents

10.7	December 2019 Maturity Community Bank Credit Agreement Dated as of December 12, 2016, with SunTrust Bank as Administrative Agent and a Lender, Branch Banking and Trust Company as Letter of Credit Issuer and a Lender, First National Bank, First Tennessee Bank National Association, Home Trust Bank, Pinnacle Bank, Regions Bank, Trustmark National Bank, and United Community Bank (Incorporated by reference to Exhibit 10.1 to TVA's Current Report on Form 8-K filed on December 15, 2016, File No. 000-52313)
10.8	First Amendment Dated as of December 11, 2018, to December Maturity Community Bank Credit Agreement Dated as of December 12, 2016 (Incorporated by reference to Exhibit 10.1 to TVA's Current Report on Form 8-K filed on December 14, 2018, File No. 000-52313)
10.9	Second Amendment Dated as of February 9, 2021, to December Maturity Community Bank Credit Agreement Dated as of December 12, 2016, and Amended as of December 11, 2018 (Incorporated by reference to Exhibit 10.3 to TVA's Quarterly Report on Form 10-Q for the quarter ended December 31, 2020, File No. 000-52313)
10.10	TVA Discount Notes Selling Group Agreement (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended June 30, 2008, File No. 000-52313)
10.11	Electronotes® Selling Agent Agreement Dated as of June 1, 2006, Among TVA, LaSalle Financial Services, Inc., A.G. Edwards & Sons, Inc., Citigroup Global Markets Inc., Edward D. Jones & Co., L.P., First Tennessee Bank National Association, J.J.B. Hilliard, W.L. Lyons, Inc., Merrill Lynch, Pierce, Fenner & Smith Incorporated, Morgan Stanley & Co. Incorporated, and Wachovia Securities, LLC (Incorporated by reference to Exhibit 10.4 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)
10.12	Amendment Dated as of December 4, 2013, to Electronotes® Selling Agent Agreement Dated as of June 1, 2006, Among TVA, LaSalle Financial Services, Inc., A.G. Edwards & Sons, Inc., Citigroup Global Markets Inc., Edward D. Jones & Co., L.P., First Tennessee Bank National Association, J.J.B. Hilliard, W.L. Lyons, Inc., Merrill Lynch, Pierce, Fenner & Smith Incorporated, Morgan Stanley & Co. Incorporated, and Wachovia Securities, LLC (Incorporated by reference to Exhibit 10.3 to TVA's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, File No. 000-52313)
10.13	Second Amendment Dated as of August 28, 2015, to Electronotes® Selling Agent Agreement Dated as of June 1, 2006, and Amended as of December 4, 2013, Among TVA, LaSalle Financial Services, Inc., A.G. Edwards & Sons, Inc., Citigroup Global Markets Inc., Edward D. Jones & Co., L.P., First Tennessee Bank National Association, J.J.B. Hilliard, W.L. Lyons, Inc., Merrill Lynch, Pierce, Fenner & Smith Incorporated, Morgan Stanley & Co. Incorporated, and Wachovia Securities, LLC (Incorporated by reference to Exhibit 10.9 to TVA's Annual Report on Form 10-K for the year ended September 30, 2015, File No. 000-52313)
10.14	Assumption Agreement Between TVA and Incapital LLC Dated as of February 29, 2008, Relating to the Electronotes® Selling Agent Agreement Dated as of June 1, 2006, Among TVA, LaSalle Financial Services, Inc., A.G. Edwards & Sons, Inc., Citigroup Global Markets Inc., Edward D. Jones & Co., L.P., First Tennessee Bank National Association, J.J.B. Hilliard, W.L. Lyons, Inc., Merrill Lynch, Pierce, Fenner & Smith Incorporated, Morgan Stanley & Co. Incorporated, and Wachovia Securities, LLC (Incorporated by reference to Exhibit 10.1 to TVA's Quarterly Report on Form 10-Q for the quarter ended March 31, 2008, File No. 000-52313)
10.15	Facility Lease-Purchase Agreement Dated as of January 17, 2012, Between John Sevier Combined Cycle Generation LLC and TVA (Incorporated by reference to Exhibit 10.1 to TVA's Quarterly Report on Form 10-Q for the quarter ended December 31, 2011, File No. 000-52313)
10.16	Head Lease Agreement Dated as of January 17, 2012, Among the United States of America, TVA, and John Sevier Combined Cycle Generation LLC (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended December 31, 2011, File No. 000-52313)
10.17*	Asset Purchase Agreement Dated as of August 6, 2013, Between TVA and Seven States Southaven, LLC (Incorporated by reference to Exhibit 10.33 to TVA's Annual Report on Form 10-K for the year ended September 30, 2013, File No. 000-52313)
10.18	Facility Lease-Purchase Agreement Dated as of August 9, 2013, Between Southaven Combined Cycle Generation LLC and TVA (Incorporated by reference to Exhibit 10.34 to TVA's Annual Report on Form 10-K for the year ended September 30, 2013, File No. 000-52313)
10.19	Head Lease Agreement Dated as of August 9, 2013, Among the United States of America, TVA, and Southaven Combined Cycle Generation LLC (Incorporated by reference to Exhibit 10.35 to TVA's Annual Report on Form 10-K for the year ended September 30, 2013, File No. 000-52313)
10.20*	Federal Facilities Compliance Agreement Between the United States Environmental Protection Agency and TVA (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended June 30, 2011, File No. 000-52313)
10.21*	Consent Decree Among Alabama, Kentucky, North Carolina, Tennessee, the Alabama Department of Environmental Management, the National Parks Conservation Association, Inc., the Sierra Club, Our Children's Earth Foundation, and TVA (Incorporated by reference to Exhibit 10.3 to TVA's Quarterly Report on Form 10-Q for the quarter ended June 30, 2011, File No. 000-52313)

[Table of Contents](#)

10.22†	Amended and Restated TVA Compensation Plan Approved by the TVA Board on May 11, 2022 (Incorporated by reference to Exhibit 10.1 to TVA's Quarterly Report on Form 10-Q for the quarter ended March 31, 2022, File No. 000-52313)
10.23†	Amended and Restated Supplemental Executive Retirement Plan Effective as of May 1, 2015 (Incorporated by reference to Exhibit 10.1 to TVA's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015, File No. 000-52313)
10.24†	Amended and Restated Executive Annual Incentive Plan Adopted as of May 10, 2022 (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended March 31, 2022, File No. 000-52313)
10.25†	Amended and Restated Deferred Compensation Plan Adopted as of May 4, 2020 (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, File No. 000-52313)
10.26†	Amended and Restated Long-Term Incentive Plan Adopted as of May 10, 2022 (Incorporated by reference to Exhibit 10.3 to TVA's Quarterly Report on Form 10-Q for the quarter ended March 31, 2022, File No. 000-52313)
10.27†	Executive Severance Plan Adopted as of February 10, 2021, and Amended as of February 11, 2021 (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended December 31, 2020, File No. 000-52313)
10.28†	Retention Incentive Plan Effective as of October 1, 2015 (Incorporated by reference to Exhibit 10.2 to TVA's Current Report on Form 8-K filed on October 1, 2015, File No. 000-52313)
10.29†	Offer Letter to Jeffrey J. Lyash Approved as of February 14, 2019 (Incorporated by reference to Exhibit 10.1 TVA's Current Report on Form 8-K filed on February 14, 2019, File No. 000-52313)
10.30†	Acknowledgment by TVA and Jeffrey J. Lyash on March 25, 2019, Relating to the Offer Letter to Mr. Lyash Approved as of February 14, 2019 (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, File No. 000-52313)
10.31†	Offer Letter to Timothy S. Rausch Accepted as of September 18, 2018 (Incorporated by reference to Exhibit 10.39 to TVA's Annual Report on Form 10-K/A for the year ended September 30, 2019, File No. 000-52313)
10.32†	Offer Letter to David Fountain Accepted as of April 1, 2020 (Incorporated by reference to Exhibit 10.42 to TVA's Annual Report on Form 10-K for the year ended September 30, 2021, File No. 000-52313)
10.33†	Offer Letter to Donald A. Moul Approved as of May 24, 2021 (Incorporated by reference to Exhibit 10.2 to TVA's Quarterly Report on Form 10-Q for the quarter ended June 30, 2021, File No. 000-52313)
14.1	Disclosure and Financial Ethics Code (Incorporated by reference to Exhibit 14 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)
14.2	TVA Conflict of Interest Policy, as amended (Incorporated by reference to Exhibit 14.2 to TVA's Annual Report on Form 10-K for the year ended September 30, 2014, 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

[Table of Contents](#)

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

† Management contract or compensatory arrangement.

* Certain schedule(s) and/or exhibit(s) have been omitted. TVA hereby undertakes to furnish supplementally copies of any of the omitted schedules and/or exhibits upon request by the Securities and Exchange Commission.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13, 15(d), or 37 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: November 14, 2022

TENNESSEE VALLEY AUTHORITY

(Registrant)

By: /s/ Jeffrey J. Lyash

Jeffrey J. Lyash

President and Chief Executive Officer

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

[Table of Contents](#)

Signature	Title	Date
<u>/s/ Jeffrey J. Lyash</u> Jeffrey J. Lyash	President and Chief Executive Officer (Principal Executive Officer)	November 14, 2022
<u>/s/ John M. Thomas, III</u> John M. Thomas, III	Executive Vice President and Chief Financial and Strategy Officer (Principal Financial Officer)	November 14, 2022
<u>/s/ Diane Wear</u> Diane Wear	Vice President and Controller (Principal Accounting Officer)	November 14, 2022
<u>/s/ William B. Kilbride</u> William B. Kilbride	Chair	November 14, 2022
<u>/s/ A.D. Frazier</u> A.D. Frazier	Director	November 14, 2022
<u>/s/ Beth Harwell</u> Beth Harwell	Director	November 14, 2022
<u>/s/ Brian Noland</u> Brian Noland	Director	November 14, 2022
<u>/s/ Jeff W. Smith</u> Jeff W. Smith	Director	November 14, 2022