

**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, 2020

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 ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes ☐ No ☒

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

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes ☒ No ☐

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

Large accelerated filer ☐ Emerging growth company ☐ Smaller reporting company ☐
Non-accelerated filer ☒ Accelerated filer ☐

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

Indicate by check mark whether the registrant 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. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ No ☒

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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, 2020 (the "Annual Report"):

Term or Acronym	Definition
ACE	Affordable Clean Energy
ANI	American Nuclear Insurers
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
CME	Chicago Mercantile Exchange
CO ₂	Carbon dioxide
COVID-19	Coronavirus Disease 2019
COLA	Cost-of-living adjustment
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
DER	Distributed Energy Resources
DOE	Department of Energy
EIS	Environmental Impact Statement
ELGs	Effluent Limitation Guidelines
EMPs	Electromagnetic pulses
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ESPA	Early Site Permit Application
ERC	Enterprise Risk Council
FASB	Financial Accounting Standards Board
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
FTP	Financial Trading Program
GAAP	Accounting principles generally accepted in the United States of America
GHG	Greenhouse gas
GMDs	Geomagnetic disturbances
HAP	Hazardous Air Pollutants
IRP	Integrated Resource Plan
JSCCG	John Sevier Combined Cycle Generation LLC
KOC	Knoxville Office Complex
kW	Kilowatts
kWh	Kilowatt hours
LPCs	Local power company customers
LTA	Long-Term Agreement
LTDCP	Long-Term Deferred Compensation Plan

MATS	Mercury and Air Toxics Standards
MD&A	Management's Discussion and Analysis of Financial Condition and Results of Operations
MLGW	Memphis Light, Gas and Water Division
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
NSR	New Source Review
NWP	Nationwide Permit
NYSE	New York Stock Exchange
OCI	Other comprehensive income (loss)
OMB	Office of Management and Budget
PARRS	Putable Automatic Rate Reset Securities
PM	Particulate matter
QTE	Qualified technological equipment and software
RCRA	Resource Conservation and Recovery Act
RECs	Renewable Energy Certificates
REIT	Real Estate Investment Trust
RSO	Renewable Standard Offer
SCCG	Southaven Combined Cycle Generation LLC
SCRs	Selective catalytic reduction systems
SEC	Securities and Exchange Commission
SELC	Southern Environmental Law Center
SERP	Supplemental Executive Retirement Plan
SHLLC	Southaven Holdco LLC
SIPs	State implementation plans
SMR	Small modular reactor(s)
SO ₂	Sulfur dioxide
SPC	Summer Place Complex
SOA	Society of Actuaries
SSSL	Seven States Southaven, LLC
TCWN	Tennessee Clean Water Network
TDEC	Tennessee Department of Environment & Conservation
TIPS	Treasury Inflation-Protected Securities
TVA Act	The Tennessee Valley Authority Act of 1933, as amended
TVARs	Tennessee Valley Authority Retirement System
U.S. Treasury	United States Department of the Treasury
USACE	U.S. Army Corps of Engineers
VIE	Variable interest entity
XBRL	eXtensible Business Reporting Language

FORWARD-LOOKING INFORMATION

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

Although the Tennessee Valley Authority ("TVA") believes that the assumptions underlying 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:

- The impact of the Coronavirus Disease 2019 ("COVID-19") pandemic on TVA's operating results, financial condition, and cash flows, the demand for electricity, TVA's workforce and operations, the availability of fuel and critical parts, supplies, and services, the financial markets, and the business and financial condition of TVA's customers and counterparties;
- The duration and severity of the COVID-19 pandemic, actions taken to contain its spread and mitigate its effects, and broader impacts of the COVID-19 pandemic on economic and market conditions, including impacts on interest rates, commodity prices, investment performance, and foreign currency exchange rates;
- New, amended, or existing laws, regulations, executive orders, or administrative orders or interpretations, including those related to environmental matters, and the costs of complying with these laws, regulations, executive orders, or administrative orders or interpretations;
- The cost of complying with known, anticipated, or new emissions reduction requirements, some of which could render continued operation of many of TVA's aging coal-fired generation units not cost-effective or result in their removal from service, perhaps permanently;
- Significant reductions in demand for electricity produced through non-renewable or centrally located generation sources that may result from, among other things, economic downturns, increased energy efficiency and conservation, increased utilization of distributed generation and microgrids, and improvements in alternative generation and energy storage technologies;
- Changes in customer preferences for energy produced from cleaner generation sources;
- Changes in technology;
- Actions taken, or inaction, by the United States ("U.S.") government relating to the national or TVA debt ceiling or automatic spending cuts in government programs;
- 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;
- Addition or loss of customers by TVA or TVA's local power company customers ("LPCs");
- Significant delays, cost increases, or cost overruns associated with the construction and maintenance of generation, transmission, navigation, flood control, or related assets;
- Requirements or decisions changing the amount or timing of funding obligations 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 or retiring other assets;
- Risks associated with the operation of nuclear facilities or other generation and related facilities, including coal combustion residuals ("CCR") facilities;
- Physical attacks on TVA's assets;
- Cyber attacks on TVA's assets or the assets of third parties upon which TVA relies;
- The outcome of legal or administrative proceedings;
- 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;
- Differences between estimates of revenues and expenses and actual revenues earned and expenses incurred;
- Weather conditions;
- Catastrophic events such as fires, earthquakes, explosions, solar events, electromagnetic pulses ("EMPs"), geomagnetic disturbances ("GMDs"), droughts, floods, hurricanes, tornadoes, or other casualty events or pandemics, wars, national emergencies, terrorist activities, or other similar events, especially if these events occur in or near TVA's service area;
- Events at a TVA facility, which, among other things, could result in loss of life, damage to the environment, damage to or loss of the facility, and damage to the property of others;
- Events or changes involving transmission lines, dams, and other facilities not operated by TVA, including those that affect the reliability of the interstate transmission grid of which TVA's transmission system is a part and those that increase flows across TVA's transmission grid;
- Disruption of fuel supplies, which may result from, among other things, economic conditions, weather conditions, production or transportation difficulties, labor challenges, or environmental laws or regulations affecting TVA's fuel suppliers or transporters;
- Purchased power price volatility and disruption of purchased power supplies;

- Events which affect the supply of water for TVA's generation facilities;
- Changes in TVA's determinations of the appropriate mix of generation assets;
- Ineffectiveness of TVA's efforts at adapting its organization to an evolving marketplace and remaining cost competitive;
- Inability to use regulatory accounting or loss of regulatory accounting approval for certain costs;
- Inability to obtain, or loss of, regulatory approval for the construction or operation of assets;
- The requirement or decision to make additional contributions to TVA's Nuclear Decommissioning Trust ("NDT") or Asset Retirement Trust ("ART");
- Limitations on TVA's ability to borrow money which may result from, among other things, TVA's approaching or substantially reaching the limit on bonds, notes, and other evidences of indebtedness (collectively, "Bonds") specified in the Tennessee Valley Authority Act of 1933, as amended ("TVA Act");
- An increase in TVA's cost of capital that may result from, among other things, changes in the market for TVA's debt securities, changes in the credit rating of TVA or the U.S. government, or, potentially, an increased reliance by TVA on alternative financing should TVA approach its debt limit;
- Changes in the economy and volatility in financial markets;
- Reliability or creditworthiness of counterparties;
- Changes in the market price of commodities such as coal, uranium, natural gas, fuel oil, crude oil, construction materials, reagents, electricity, 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;
- Ineffectiveness of TVA's disclosure controls and procedures or its internal control over financial reporting;
- Inability to eliminate identified deficiencies in TVA's systems, standards, controls, or corporate culture;
- Inability to attract or retain a skilled workforce;
- Inability to respond quickly enough to current or potential customer demands or needs;
- Events at a nuclear facility, whether or not operated by or licensed to TVA, which, among other things, could lead to increased regulation or restriction on the construction, ownership, operation, 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;
- Loss of quorum of the TVA Board of Directors ("TVA Board");
- Changes in the priorities of the TVA Board or TVA senior management; or
- Other unforeseeable events.

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

GENERAL INFORMATION

Fiscal Year

References to years (2020, 2019, etc.) in this Annual Report are to TVA's fiscal years ending September 30 except for references to years in the biographical information about directors and executive officers in Item 10, Directors, Executive Officers and Corporate Governance, as well as to years that are preceded by "CY," which references are to calendar years.

Notes

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

Property

TVA does not own real property and real property interests (collectively, "real property"). TVA acquires real property in the name of the United States, and such legal title in real property is entrusted to TVA as the agent of the United States to accomplish the purposes of the TVA Act. TVA acquires personal property in the name of TVA. Accordingly, unless the context indicates the reference is to TVA's personal property, any statement in this Annual Report referring to TVA property shall be read as referring to the real property of the United States 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. TVA's SEC filings are available to the public on the SEC's website at www.sec.gov or 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.

PART I

ITEM 1. BUSINESS

The Corporation

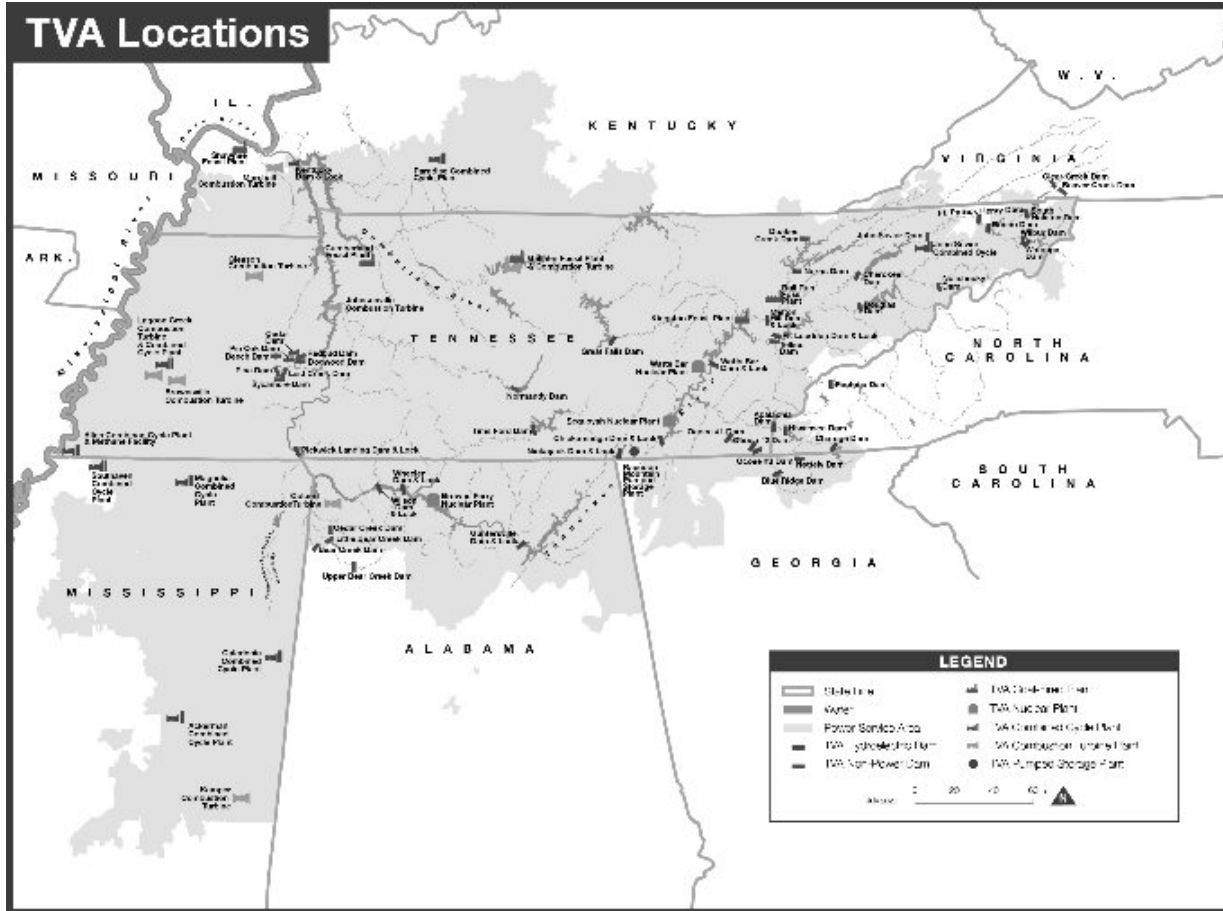
The Tennessee Valley Authority ("TVA") is a corporate agency and instrumentality of the United States ("U.S.") that was created in 1933 by federal legislation in response to a proposal by President Franklin D. Roosevelt. TVA was created to, among other things, improve navigation on the Tennessee River, 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 United States, and sell the electricity generated at the facilities TVA operates. Today, TVA operates the nation's largest public power system and supplies power to a population of approximately 10 million people.

TVA manages the Tennessee River, its tributaries, and certain shorelines to provide, among other things, year-round navigation, flood damage reduction, and affordable and reliable electricity. TVA also manages the river system to provide recreational opportunities, adequate water supply, improved water quality, natural resource protection, and economic development. TVA performs these management duties in cooperation with other federal and state agencies 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.

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.



Note
See *Power Supply and Load Management 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-cherry-picking" 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-cherry-picking provision reduces TVA's exposure to loss of its customers. However, there have been some efforts to circumvent the anti-cherry-picking provision, and the protection of the provision could be limited and perhaps eliminated by federal legislation at some time in the future. See *Competition* and Item 1A, Risk Factors — *Regulatory, Legislative, and Legal Risks* — *TVA may lose its protected service territory*.

In 2020, the revenues generated from TVA's electricity sales were \$10.1 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.

COVID-19 Pandemic

In March 2020, the World Health Organization declared the outbreak of the Coronavirus Disease 2019 ("COVID-19") to be a pandemic, which continues to be a serious challenge throughout the United States. TVA has implemented a company-wide

pandemic plan to address specific aspects of the COVID-19 pandemic. TVA's pandemic plan continues to evolve based on medical guidance and federal, regional, and local requirements and guidelines.

TVA has put in place measures to protect its workforce, stakeholders, and critical operations, such as extending the timeframe for workforce reintegration and continuing to implement strong physical and cybersecurity measures. Generation, transmission, and distribution functions are being actively monitored, and TVA's operations and delivery of energy to customers have not been materially impacted at this time. TVA has experienced a reduction in revenue through September 30, 2020 due to a decrease in energy demand, resulting from the COVID-19 pandemic, and therefore has implemented various cost savings initiatives such as deferring and prioritizing certain capital projects and decreasing discretionary spending. TVA continues to assess potential supplier risk and through September 30, 2020, has experienced minimal impacts in this regard.

The COVID-19 pandemic has also created economic uncertainty for TVA's LPCs and the communities they serve. To support LPCs and strengthen the public power response to the COVID-19 pandemic, TVA has created initiatives such as the Public Power Support and Stabilization Program, Back-to-Business Credit Program, Community Care Fund, and Pandemic Relief Credit. TVA has also provided regulatory flexibility for LPCs to halt disconnection of services. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives* — *Coronavirus Pandemic* for an expanded discussion of the impact to TVA and related initiatives.

The COVID-19 pandemic is an evolving situation, and TVA will continue to monitor and adjust its response as necessary to ensure reliable service while protecting the safety and health of its workforce.

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 Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Results of Operations* — *Financial Results* — *Operating Revenues*. See 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 92 percent of TVA's total operating revenues in 2020. Following the merger in July 2020 of two LPCs, TVA had wholesale power contracts with 153 LPCs at September 30, 2020. 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, flexibility agreements available to LPCs that have executed long-term contracts with TVA allow LPCs to locally generate up to approximately five percent of average total hourly energy sales over the prior five years 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 in 2020. In May 2020, MLGW published a draft Integrated Resource Plan ("IRP") to guide energy choices in the future, and in July 2020, TVA made a proposal to MLGW that highlights the benefits of remaining a TVA customer. In August 2020, MLGW published a final IRP and announced their plan to issue requests for proposal to validate the cost estimates included in the IRP. In addition, certain other LPCs 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. In 2019, the TVA Board approved a 20-year Partnership Agreement option that better aligns the length of LPC contracts with TVA's long-term commitments. These agreements are automatically extended each year after their initial effective date, contingent upon certain circumstances, including limited rate increases 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. In June 2020, TVA provided participating LPCs a flexibility option that allows them to locally generate up to approximately five percent of average total hourly energy sales over the prior five years in order to meet their individual customers' needs. As of November 16, 2020, 142 LPCs had signed the 20-year Partnership Agreement with TVA, and 64 LPCs had signed a 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 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 six percent of TVA's total operating revenues in 2020. 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 2020.

Other Revenue

Other revenue consists primarily of wheeling and network transmission charges, sales of excess steam that is a by-product of power production, delivery point charges for interconnection points between TVA and the customer, and certain other minor items. Other revenue accounted for approximately one percent of TVA's total operating revenues in 2020.

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 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 18 — *Proprietary Capital*.

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. Beginning on October 1, 2018, fuel costs are allocated to three groups of customers: Standard Service (residential and small commercial customers), large manufacturing customers with contract demands greater than 5 megawatts ("MW"), and large general service 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.

In recent years, TVA, LPCs, and directly served industries have worked collaboratively to develop changes to TVA's rate structures that focus on TVA's long-term pricing efforts. These changes are improving pricing by better aligning rates with underlying cost drivers and by sending improved pricing signals, while maintaining competitive industrial rates and keeping residential rates affordable. The rate structures are also designed to reduce wholesale energy rates for Standard Service and introduce a GAC at an offsetting rate to better recover fixed costs. This 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.

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. 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.

Power generating facilities operated by TVA at September 30, 2020, 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 14 solar energy sites, although a certain number of these facilities were out of service as of September 30, 2020. See Item 2, Properties — *Generating Properties* — *Net Capability* for a discussion of the units at these facilities. TVA also acquires power under power purchase agreements ("PPAs") of varying durations, including short-term contracts of less than 24-hours in duration. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Results of Operations* — *Financial Results* — *Operating Expenses*.

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		
	2020	2019	2018
Nuclear	42%	39%	39%
Natural gas and/or oil-fired	22%	20%	20%
Coal-fired	13%	17%	19%
Hydroelectric	10%	10%	9%
Purchased power (non-renewable)	8%	9%	9%
Purchased power (renewable)	5%	5%	4%

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 (renewable) contains the majority of non-hydro renewable energy supply.

Nuclear

At September 30, 2020, 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, 2020			
Nuclear Unit	Summer Net Capability (MW)	Net Capacity Factor for 2020 (%)	Date of Expiration of Operating License
Browns Ferry Unit 1 ⁽¹⁾	1,101	107.9	2033
Browns Ferry Unit 2 ⁽¹⁾	1,103	100.7	2034
Browns Ferry Unit 3 ⁽¹⁾	1,105	91.7	2036
Sequoyah Unit 1	1,152	82.3	2040
Sequoyah Unit 2	1,140	90.0	2041
Watts Bar Unit 1	1,157	81.6	2035
Watts Bar Unit 2	1,164	89.2	2055

Note

(1) The summer net capability for Browns Ferry excludes the impact of the extended power uprate project. The generating capability is expected to increase by an estimated 465 MW after sufficient run time to validate the new capacity.

Extended Power Uprate. On August 14, 2017, the Nuclear Regulatory Commission ("NRC") approved TVA's request for a 465 MW extended power uprate ("EPU") project at Browns Ferry. Physical work on all units was completed in 2019. The generating capacity is expected to increase 465 MW after sufficient run time to validate the new capacity, which is expected to occur in 2021. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Generation Resources* — *Extended Power Uprate*.

Other Nuclear Initiatives. The NRC issued an Early Site Permit to TVA in December 2019 to license small modular reactors ("SMRs") at TVA's Clinch River Site in Oak Ridge, Tennessee. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Generation Resources* — *Small Modular Reactors*.

Other Nuclear Matters. 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 22 — *Commitments and Contingencies* — *Contingencies* for a discussion of TVA's nuclear decommissioning liabilities and the related trust and nuclear insurance, and Note 22 — *Commitments and Contingencies* — *Legal Proceedings* and Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Apparent Violations of NRC Regulations* for a discussion of legal and administrative proceedings related to TVA's nuclear program, which discussions are incorporated herein by reference.

Natural Gas and/or Oil-Fired

At September 30, 2020, TVA's natural gas and oil-fired fleet consisted of 101 combustion turbine power blocks (86 simple-cycle units, one cogeneration unit, and 14 combined-cycle power units), accounting for 12,509 MW of summer net capability. Sixty of the simple-cycle units are currently capable of quick-start response allowing full generation capability in approximately 10 minutes. The economic dispatch of natural gas-fired plants depends on both the day-to-day price of natural gas and the price of other available intermediate resources such as coal-fired plants. TVA uses simple-cycle units to meet peaking or backup power needs. TVA's 2019 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.

See Item 2, Properties — *Generating Properties*, Note 7 — *Leases*, Note 10 — *Variable Interest Entities*, and Note 13 — *Debt and Other Obligations* for a discussion of lease arrangements into which TVA has entered in connection with certain combustion turbine units. Because of TVA's strategy of portfolio diversification and reduction of air emissions, TVA may decide to make further strategic investments in natural gas-fired facilities in the future by purchase, construction, or lease.

Coal-Fired

At September 30, 2020, TVA had five coal-fired plants consisting of 25 active units, accounting for 6,915 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 2018, the TVA Board approved a plan to perform assessments of Bull Run Fossil Plant ("Bull Run") and Paradise Fossil Plant.

("Paradise"). Results of these assessments were presented to the TVA Board at its February 2019 meeting, and the Board approved the retirement of Paradise Unit 3 by December 2020 and Bull Run by December 2023. Paradise Unit 3 was taken offline on February 1, 2020, effectively retiring the plant.

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. Increasing regulatory costs have caused TVA to consider whether to make the required capital investments to continue operating its coal-fired facilities. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Generation Resources* — *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. The 2019 IRP indicated evaluation of additional coal unit retirements. Most of the remaining coal-fired plants are among the oldest in the nation still in operation, and their fit within TVA's power supply portfolio will be further tested in the future with increasing amounts of solar generation utilized by TVA. TVA's long-range plans will continue to consider the costs and benefits of significant environmental and other major capital investments at its remaining coal-fired plants. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Generation Resources* — *Optimum Energy Portfolio*.

Hydroelectric

Conventional Hydroelectric Dams. TVA maintains 29 conventional hydroelectric dams with 109 generating units throughout the Tennessee River system for the production of electricity. As of September 30, 2020, these units accounted for 3,759 MW of summer net capability. The amount of electricity that TVA is able to generate from its hydroelectric plants depends on a number of factors, including the amount of precipitation and runoff, initial water levels, 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. See *Weather and Seasonality* below and Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Dam Safety and Remediation Initiatives*.

Raccoon Mountain Pumped-Storage Plant. At September 30, 2020, TVA had four units at Raccoon Mountain Pumped-Storage Plant ("Raccoon Mountain") with a total net summer capability of 1,635 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.

Hiwassee Hydro Unit 2. 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. Hiwassee Hydro Unit 2 has a summer net capability of 86 MW.

Hydro Modernization Program. TVA's Hydro Modernization Program began in 1992 and focused on units with potential to increase peaking capacity and improve reliability. With the completion of Pickwick Landing Dam ("Pickwick") Unit 2 in 2020, the initial Hydro Modernization Program has concluded with modernization completed on 62 conventional hydroelectric units under the program. The modernization projects resulted in 453 MW of increased capacity from the conventional hydroelectric units, with an average efficiency gain of approximately five percent. In 2019, TVA began its transition to a new program, the Hydro Major Maintenance Program, intended to focus on addressing reliability risks that will support the preservation of TVA's hydroelectric fleet capacity. Hydroelectric generation will continue to be an important part of TVA's energy mix since it plays a vital role in carbon reduction initiatives, the ability to integrate other renewables into the power portfolio, and, ultimately, TVA's ability to meet changing customer preferences for cleaner energy sources. As such, TVA is currently evaluating the need to revitalize the Hydro Modernization Program to increase the capability, flexibility, and availability of the hydroelectric fleet to help meet these changing customer preferences.

Other Renewable Energy Resources

TVA's renewable energy portfolio includes both TVA-owned assets and renewable energy purchases. TVA owns 14 solar sites with a total net summer capability of approximately 1 MW. TVA currently plans to meet renewable goals through power purchases and arrangements with LPCs. See *Distributed Energy Resources* and *Power Purchase and Other Agreements* below.

TVA tracks its renewable energy commitments and claims through the management of Renewable Energy Certificates ("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. These RECs can be sold to customers to meet their needs.

Diesel Generators

At September 30, 2020, 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.

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 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. TVA is working to develop pricing and regulatory structures with a deliberate and thoughtful analysis of each current and future program offering. This requires strong partnerships with LPCs to give customers choices and provide end-use consumers the flexibility they desire.

In 2019, the TVA Board approved new renewable power solutions, including a utility-scale option and a mid-scale option, that better equip TVA and LPCs with the flexibility to meet changing end-use customer needs. The utility-scale option, which aggregates demand through a competitive procurement process, is implemented by a renewable investment agreement through TVA's Green Invest Program. TVA may also construct its own renewable facilities to meet these needs. The mid-scale option, also known as the Flexibility Research Project, is a joint project with LPCs to enable solutions for situations where the end-use consumer needs onsite renewable or distributed generation and to enable TVA to gain market knowledge and operational insights from these research projects. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Renewable Power Solutions*.

Through the Home Uplift Program, TVA is partnering with LPCs, state and local governments, non-profit agencies, energy efficiency advocates, and the Tennessee Valley Public Power Association 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.

TVA has encouraged the development of solar, wind, biomass, and low-impact hydroelectric generation systems through various current and former program offerings, with total operating capacity of 1,705 MW and nearly 1,178 MW of additional approved capacity as of September 30, 2020. Inside the Tennessee Valley, the combined participation for all such renewable solutions is 490 MW of installed operating capacity through both TVA-owned sites and PPAs. Outside the Tennessee Valley, TVA contracts for approximately 1,215 MW of operating wind capacity through PPAs.

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 these resources enter the market.

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's electric vehicle ("EV") strategy is a staged approach that will evolve as the local EV market matures. TVA continues to focus on utilizing more EVs and installing charging stations inside the Tennessee Valley. This approach has enabled TVA to gain insights on the value and impact to utilities of large-scale electrification. TVA has also partnered with over 30 organizations across the State of Tennessee (known as the "Drive Electric Tennessee" collaborative) to create a roadmap to outline local market needs for widespread adoption. This foundational information is crucial as more affordable, longer range EVs come to the market in the next few years. In November 2020, the TVA Board approved changes that remove market barriers facing EV adoptions, including setting supportive utility level policies such as rate options and regulatory policies.

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.

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 2020, TVA acquired approximately 93 percent of the power that it purchased through the long-term PPAs described below, including agreements for long-term renewable generation resources, and approximately seven percent on the spot market.

Renewable Power Purchase Agreements. In order to meet customer preferences and requirements for cleaner and greener energy, TVA has entered into certain PPAs with renewable resource providers. As of September 30, 2020, TVA is contracted for 2,958 MW of summer net capability under renewable PPAs. These agreements are part of progressive partnerships that align the core values of TVA and the public power model with the desire of TVA's customers for renewable energy. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Changing Customer Preferences* — *Renewable Power Purchase Agreements*.

A portion of TVA's capability provided by power purchase agreements is provided under contracts that expire between 2023 and 2043, and the most significant of these contracts are described in the table below.

Power Purchase Contracts
At September 30, 2020

Type of Facility	Location	Summer Net Capability (MW)	Contract Termination Date
Lignite	Mississippi	440	2032
Natural gas	Alabama	790	2033
Natural gas	Alabama	735	2026
Solar	Alabama	75	2037
Solar ⁽¹⁾	Alabama	227	2041
Solar ⁽²⁾	Alabama	150	2042
Solar	Tennessee	53	2039
Solar	Tennessee	5	2032
Solar ⁽²⁾	Tennessee	147	2042
Solar ⁽³⁾	Tennessee	69	2038
Solar ⁽³⁾	Tennessee	100	2038
Solar ⁽³⁾	Tennessee	70	2038
Solar ⁽³⁾	Tennessee	35	2038
Solar ⁽³⁾	Tennessee	177	2043
Solar ⁽³⁾	Mississippi	200	2043
Landfill gas	Tennessee	6	2031
Hydroelectric	Tennessee and Kentucky	402	Upon three years' notice
Wind	Iowa	198	2031
Wind	Iowa	101	2030
Wind	Kansas	201	2032
Wind	Kansas	165	2033
Wind	Illinois	150	2032
Wind	Illinois	200	2032
Wind	Illinois	200	2033
Wind	Tennessee	27	2025
Diesel	Tennessee	23	2029
Diesel	Tennessee	20	2032
Diesel	Tennessee	8	2023
Diesel	Tennessee	8	2028
Diesel	Mississippi	20	2023
Diesel	Mississippi	26	2028
Diesel	Alabama	10	2028
Battery storage ⁽³⁾	Mississippi	50	2043

Notes

(1) Power delivery is expected to commence in 2021. Of the four solar PPAs TVA signed in 2019, one of the counterparties failed to comply with the terms of its PPA. TVA terminated this 150 MW PPA in 2020, and it is excluded from the table above. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives — Changing Customer Preferences — Renewable Power Purchase Agreements*.

(2) Power delivery is expected to commence in 2022.

(3) Power delivery is expected to commence in 2023.

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. As of September 30, 2020, there were 111 generation sources, with a combined qualifying capacity of 268 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 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. For its forward four-year (2021-2024) requirements, TVA currently has 100 percent of its uranium mining and milling, conversion services, enrichment services, and fabrication services requirements either in inventory or under contract with various suppliers. TVA anticipates being able to fill its needs beyond this period by normal contracting processes as market forecasts indicate that the fuel cycle components will be readily available. The net book value of TVA's nuclear fuel was \$1.5 billion at both September 30, 2020 and 2019. 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. Beginning October 2025, contract activity 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 2028. Watts Bar will need additional capacity by 2041. Browns Ferry completed a project in early 2020 to build another independent spent fuel storage installation pad. 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 \$340 million through 2020.

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 only Watts Bar Unit 1 since 2003. Although the interagency agreement provides for irradiation services to be performed at Watts Bar and Sequoyah, TVA expects the Watts Bar site to provide sufficient capacity to fulfill this agreement in 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 NRC for a license amendment to authorize the irradiation of TPBARs in Watts Bar Unit 2. TVA is projecting to begin tritium production in Watts Bar Unit 2 in the fall of 2021.

Natural Gas and Fuel Oil

During 2020, TVA purchased a significant amount of its natural gas requirements from a variety of suppliers under contracts with terms of up to four 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 \$19 million and \$15 million at September 30, 2020 and 2019, respectively. The net book value of TVA's fuel oil inventory was \$82 million at both September 30, 2020 and 2019. At September 30, 2020, 80 of the combustion turbines that TVA operates were dual-fuel capable, and TVA has fuel oil stored on each of these sites as a backup to natural gas.

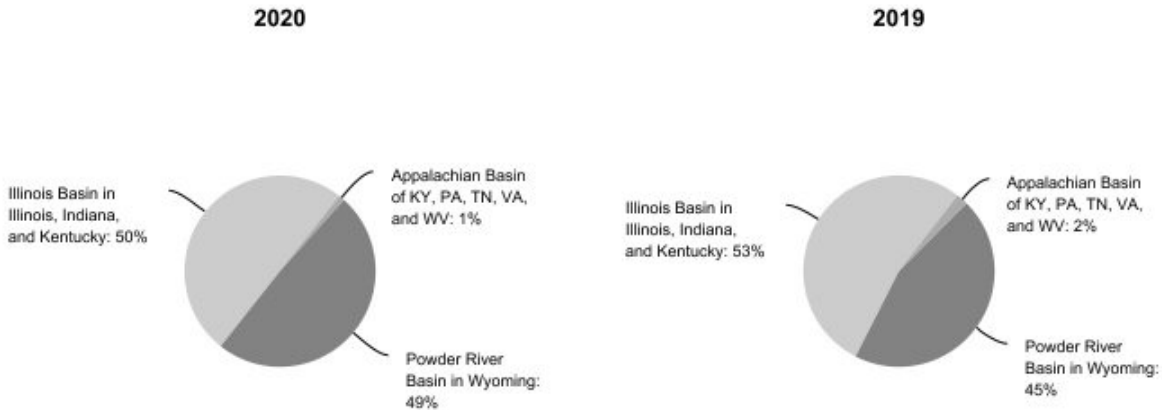
TVA purchases natural gas from multiple suppliers on a daily, monthly, seasonal, and term basis. During 2020, daily, monthly, seasonal, and term contracts accounted for 26 percent, nine percent, 16 percent, and 49 percent of purchases, respectively. TVA plans to continue using contracts of various lengths and terms to meet the projected natural gas needs of its natural gas fleet. During 2020, TVA arranged for the transportation of natural gas on eight separate pipelines, with approximately 63 percent being transported on two pipelines. During 2020, TVA maintained a total of approximately 1,485,000 million British thermal unit(s) ("mmBtu") per day of firm transportation capacity on six major pipelines, with approximately 59 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 4.40 Bcf of interruptible service to manage the daily balancing requirements of the eight pipelines used by TVA, with approximately 62 percent of the total storage capacity being maintained at two facilities. During 2020, 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 2021, TVA does not expect to add a significant amount of firm capacity to its storage portfolio.

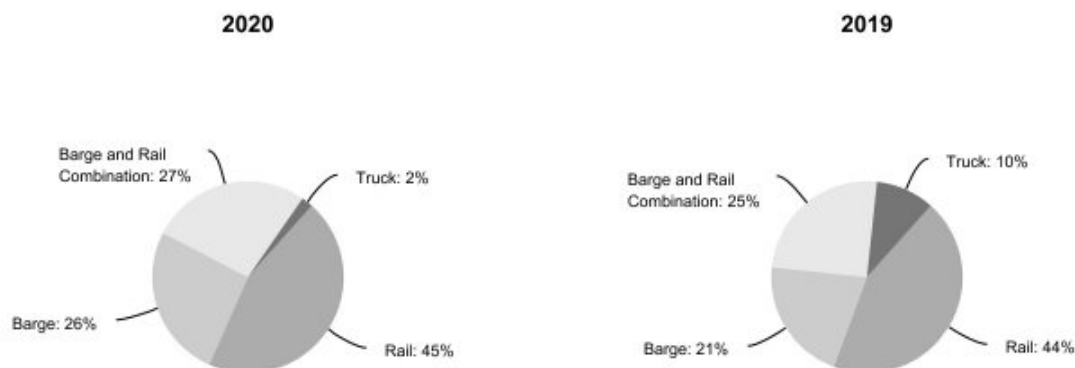
Coal

Coal consumption at TVA's coal-fired generating facilities during 2020 and 2019 was approximately 11 million tons and 15 million tons, respectively. At September 30, 2020 and 2019, TVA had 30 days and 33 days of system-wide coal supply at full burn rate, respectively, with net book values of \$152 million and \$197 million, respectively.

TVA utilizes both short-term and long-term coal contracts. During 2020, long-term contracts made up 71 percent of coal purchases, and short-term contracts accounted for the remaining 29 percent. TVA plans to continue using contracts of various lengths, terms, and coal quality to meet its expected consumption and inventory requirements. During 2020 and 2019, 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:



Total system coal inventories fluctuated significantly throughout the year. TVA began 2020 with average coal inventory levels and increased to high levels due to the mild winter, demand reduction resulting from the COVID-19 pandemic, and low natural gas prices. Inventory balances were significantly reduced during the summer peak months due to higher than forecasted load, nuclear outages, and natural gas outages.

Transmission

The TVA transmission system is one of the largest in North America. TVA's transmission system has 69 interconnections with 13 neighboring electric systems and delivered approximately 151 billion kWh of electricity to TVA customers in 2020. 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. TVA also is subject to federal reliability standards that are set forth by the North American Electric Reliability Corporation ("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 2017, the TVA Board authorized a strategic fiber optic initiative of up to \$300 million to be spent over the next 10 years, subject to annual budget availability and necessary environmental reviews, that will expand TVA's fiber capacity and improve the reliability and resiliency of the generation and transmission system. The network expansion is designed to help meet the power system's growing need for bandwidth as well as accommodate the integration of new DER. As of September 30, 2020, TVA had spent \$121 million on installation of the fiber optic lines and expects to spend an additional \$179 million.

A new system operations center has been approved for \$255 million. The new secured facility is being built to accommodate a new energy management system and to adapt to new regulatory requirements. The facility is expected to be constructed by 2022 and fully operational by 2024. As of September 30, 2020, TVA had spent approximately \$37 million on the project and expects to spend an additional \$218 million.

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 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 Federal Power Act ("FPA"), the anti-cherry-picking provision limits the ability of others to use the TVA transmission system for the purpose of serving customers within TVA's service area. State service territory laws limit unregulated third parties' ability to sell electricity to consumers. All TVA wholesale power contracts are all requirements contracts; however, Flexibility Agreements available to LPCs that have executed long-term contracts with TVA allow LPCs to locally generate up to approximately five percent of average total hourly energy sales over the prior five years 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 anti-cherry-picking provision, and the protection of the provision could be limited and perhaps eliminated by federal legislation at some time in the future.

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 Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Distributed Energy Resources*.

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

Research and Development

Investments in TVA's research portfolio are supported through partnership and collaboration with LPCs, EPRI, the DOE, federal agencies, national labs, 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.

TVA's research program is also focused on enabling transformational innovation. At the forefront 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. 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. Additionally, TVA has joined 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 optimize the utilization of clean DER as part of the overall low-carbon resource mix.

TVA evaluates emerging energy efficiency and load management technologies for market and program readiness. Efforts are directed towards demonstrating and validating the performance, reliability, and consumer acceptance of new efficiency technologies, as well as the value of energy efficiency and load management technologies for the consumer, LPCs, and TVA.

TVA is assessing potential electrification programs that improve resource use and reduce environmental impacts (especially in the transportation sector). Assessments include 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 industry stakeholders related to operational fleet requirements. Additional areas of focus include LPC engagement on plug-in electric vehicle grid integration and readiness for various transportation electrification technologies. In addition, research continues in electrification applications on charging stations, impacts from charging stations to the power grid, refinement of power-system control processes, and development of smart charging strategies to maximize the potential of electricity to replace petroleum as the transportation fuel of choice.

Finally, TVA and LPCs engage 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. See *Power Supply and Load Management Resources — Distributed Energy Resources*.

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 2020, approximately 76 inches of rain fell in the Tennessee Valley. TVA manages the Tennessee River system in an integrated manner, balancing hydroelectric generation with navigation, flood damage reduction, water quality and supply, and recreation. TVA spills or releases excess water through 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 2020, setting a new record for the wettest October through September period in TVA's history. Despite significant rainfall, runoff, and flooding during the period, TVA continued to generate low-cost hydroelectric power while meeting its river system commitments, including flood mitigation, which prevented approximately \$1.0 billion in damages across the Tennessee Valley.

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. In May 2020, the TVA Board approved a new Environmental Policy. TVA's updated 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 Valley's natural resources, including reducing carbon intensity and air emissions; minimizing waste; and protecting water resources, biodiversity, and cultural resources.

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 issuing 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 ("NRP"). In May 2020, the TVA Board of Directors accepted changes to TVA's NRP to support a more strategic, flexible, and comprehensive management approach to TVA's natural resource stewardship work. TVA published its Record of Decision to complete its environmental review process in July 2020. The updated plan enhances alignment with TVA's mission through economic development, energy, and environmental stewardship and guides business planning. In the newly published NRP, TVA expanded from six resource areas to ten focus areas, ensuring the NRP provides a more comprehensive view of resource stewardship efforts. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Natural Resource Plan*.

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. 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 2020, TVA's economic development efforts helped recruit or expand 188 companies into the TVA service area. These companies announced capital investments of over \$8.6 billion and expect to create and/or retain approximately 67,000 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 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 anti-cherry-picking provision; (4) is 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 Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Generation Resources*.

Environmental Protection Agency

TVA is subject to regulation by the EPA in a variety of areas, including air quality control, water quality control, and management and disposal of solid and hazardous wastes. See *Environmental Matters* below and 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. Emissions from all TVA-owned and operated units (including small combustion turbine units of less than 25 MW) have been reduced from historic peaks. Emissions of nitrogen oxide ("NO_x") have been reduced by 96 percent below peak 1995 levels and emissions of sulfur dioxide ("SO₂") have been reduced by 99 percent below 1977 levels through CY 2019. For CY 2019, TVA's emission of carbon dioxide ("CO₂") from its sources was 47 million tons, a 55 percent reduction from 2005 levels. This amount includes 2,383 tons from units rated at less than 25 MW. To remain consistent and to align with the EPA's reporting requirements, TVA intends to continue reporting CO₂ emissions on a calendar year basis.

Clean Air Act

The Clean Air Act ("CAA") establishes a comprehensive program to protect and improve the nation's air quality and control sources of air pollution. The major CAA programs that affect TVA's power generation activities are described below.

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

Cross-State Air Pollution Rule. The EPA issued the Cross-State Air Pollution Rule ("CSAPR") in July 2011 requiring several states in the eastern U.S. to improve air quality by reducing power plant emissions that contribute to pollution in other states. In 2016, the EPA issued an update to CSAPR to address cross-state air pollution (the "CSAPR Update Rule"). The EPA subsequently issued an additional rule to resolve any remaining cross-state air pollutant issues ("CSAPR Close-Out Rule"). The U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") has remanded a portion of the CSAPR Update Rule back to the EPA to address its failure to require upwind states to eliminate substantial contributions to downwind non-attainment areas by the statutory deadline. The D.C. Circuit also vacated the CSAPR Close-Out Rule. On October 15, 2020, the EPA proposed revisions to the CSAPR Update Rule to address the court's remand, which must be finalized by March 2021. On October 30, 2020, the EPA published the proposed rule in the Federal Register. TVA is currently analyzing the proposed rule to determine whether its provisions could affect operations.

Mercury and Air Toxics Standards for Electric Utility Units. On April 16, 2020, the EPA issued a final rule which revokes the agency's earlier finding that regulation of hazardous air pollutants ("HAP") emitted from steam electric utilities is appropriate and necessary. The rule does not remove electric generating units from the source categories listed under Section 112 of the CAA nor does it rescind the Mercury and Air Toxics Standards ("MATS") requirements. Additionally, the EPA determined that further restrictions on HAP emissions are not warranted based on a residual risk and technology review for this source category. TVA does not anticipate that the final rule will change TVA's MATS compliance requirements or strategy. Certain states and environmental groups have filed petitions in the D.C. Circuit challenging the EPA's finding that regulating HAPs from electric generating units is not appropriate and necessary. TVA cannot predict the outcome of these judicial petitions at this time.

Environmental Agreements. See Note 22 — *Commitments and Contingencies — Legal Proceedings — Environmental Agreements* for a discussion of the Environmental Agreements, which discussion is incorporated herein by reference.

Acid Rain Program. The 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 January 2017, the EPA published the final rule that changed some of the requirements for Regional Haze State Implementation Plans ("SIPs"). Specific impacts cannot be determined until future Regional Haze SIPs are developed for the next decennial review under the visibility haze provisions of the CAA. States must submit their Regional Haze SIPs to the EPA by July 31, 2021.

Opacity. Opacity, or visible emissions, measures the denseness (or color) of power plant plumes and has traditionally been used by states as a means of monitoring good maintenance and operation of particulate control equipment. Under some conditions, retrofitting a unit with additional equipment to better control SO₂ and NO_x emissions can adversely affect opacity performance, 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. The EPA rule required states to modify their implementation plans by November 2016. Kentucky, Tennessee, and Mississippi submitted implementation plans, but Alabama has not. Environmental petitioners and several states filed petitions for judicial review of the EPA final rule before the D.C. Circuit. In April 2017, the D.C. Circuit, at the request of the new EPA Administrator, ordered this litigation to be suspended pending the EPA's review to determine whether to reconsider all or part of the rule. TVA does not expect significant impacts from these rule changes.

New York Petition to Address Impacts from Upwind High Emitting Sources. In March 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 by the CSAPR Update Rule and are declining, and current EPA modeling projects no additional

requirements to reduce Kentucky NO_x emissions are necessary. In September 2019, the EPA finalized its denial of New York's petition because the state did not demonstrate, and the EPA could not independently establish, that sources in the states listed in the petition contribute to exceedances of the 2008 and 2015 ozone NAAQS in New York. The State of New York filed a petition in the D.C. Circuit for judicial review of the EPA's denial of the petition. On July 14, 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 June 2019, the EPA finalized the final Affordable Clean Energy ("ACE") rule and repealed the EPA's previous regulation addressing greenhouse gas ("GHG") emissions from existing fossil fuel-fired units. The ACE rule establishes guidelines for GHG emissions from existing coal-fired units based on efficiency improvements that can be achieved at those units at reasonable cost. States are required to apply the emission guidelines to coal-fired units within their respective jurisdictions and take into account the remaining useful lives of those units. The impact of the ACE rule on TVA's coal-fired units cannot be determined until Tennessee and Kentucky submit to the EPA their SIPs implementing guidelines in the ACE rule and the EPA approves these SIPs. The ACE rule allows states three years to submit their SIPs and allows the EPA 18 months for approval. In addition, lawsuits challenging the ACE rule are pending in the D.C. Circuit, and the outcome of the litigation could change requirements under the ACE rule and modify the timeline for compliance.

New Source Performance Standards. In December 2018, the EPA proposed revisions to the GHG emission standards for new, modified, and reconstructed electric utility generating units that were finalized by the EPA in October 2015. For coal-fired units, the EPA proposes to revise the current new source standards such that carbon capture and sequestration technology is no longer 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 current rule and can be met by modern coal-fired units (e.g., supercritical steam generators) in combination with best operating practices, but without carbon capture and sequestration. The EPA is not proposing to revise the new source performance standard for GHG emission from gas-fired units. If finalized as proposed, the revisions are not expected to significantly impact TVA since TVA does not currently plan to construct, modify, or reconstruct any coal-fired units.

Maryland Petition to Address Impacts from Upwind Electric Generating Units. In September 2017, the State of Maryland filed a lawsuit against the EPA for failing to act within 60 days on Maryland's petition under Section 126 of the CAA to address ozone impacts on Maryland from the NO_x emissions of 36 electric generating units, including TVA's Paradise coal-fired Unit 3. The EPA denied the petition for electric generating units with SCR units because existing regulations already address emissions from such units. In addition, the EPA denied the petition with respect to electric generating units with non-catalytic controls because of cost. In October 2018, the State of Maryland filed a petition for judicial review with the D.C. Circuit, and on May 19, 2020, the D.C. Circuit remanded the EPA's denial of the petition back to the EPA with respect to the operation of four units with non-catalytic controls. With the retirement of Paradise Unit 3 on February 1, 2020, the partial remand of the petition to the EPA will not affect TVA.

Climate Change

Executive Actions. In March 2017, President Trump issued Executive Order ("EO") 13783, "Promoting Energy Independence and Economic Growth." The EO reversed or altered many actions taken by the federal government in the last four years of the Obama Administration to address climate change and mandates that federal agencies review existing regulations and actions that potentially burden energy development and use. Several EOs, policy statements, and reports that established climate change objectives were rescinded or revoked. EO 13783 did not mandate that the EPA reconsider its finding under the CAA that GHG emissions cause climate change and therefore endanger public health and the environment.

Implementation of EO 13783 has resulted in the replacement of the Clean Power Plan rule for existing fossil generation units by the ACE rule and revisions to the GHG emission standards for new, modified, and reconstructed electric utility generating units. The impact of the ACE rule and the GHG emission standards are discussed above.

In May 2018, EO 13834, "Efficient Federal Operations," was signed. EO 13834 emphasizes meeting statutory requirements and gives agencies greater flexibility and discretion to decide how best to improve operations in order to "optimize energy and environmental performance, reduce waste, and cut costs." It also calls on the White House Council of Environmental Quality to streamline pre-existing environmental orders by "refocusing agencies on cost-effectively meeting mandates and goals" established by law. The order seeks to consolidate requirements related to energy and water efficiency, high performance buildings, renewable energy consumption, and federal vehicle fleet management. TVA consistently seeks to improve its operations in order to optimize energy and environmental performance and does not anticipate significant changes in its planning or operations as a result of the EO.

International Accords. In September 2016, the U.S. formally accepted the Paris Agreement. The agreement met the threshold of at least 55 countries that account for at least 55 percent of global GHG emissions and formally entered into force in November 2016. On November 4, 2019, the U.S. formally notified the United Nations that it would withdraw from the agreement. Under the terms of the agreement, the effective date for the withdrawal was November 4, 2020. Specific impacts to TVA cannot be determined at this time.

In response to President Trump's Paris withdrawal announcement, 25 states have formed the U.S. Climate Alliance, a bipartisan coalition of governors committed to reducing GHG emissions consistent with the goals of the Paris Agreement. North Carolina and Virginia are the only states in the TVA region that are U.S. Climate Alliance members. Among other commitments, each state commits to implement policies that advance the goals of the Paris Agreement, aiming to reduce GHG emissions by at least 26-28 percent below CY 2005 levels by CY 2025 and to accelerate new and existing policies to reduce carbon pollution and promote clean energy deployment at the state and federal level. In June 2017, U.S. states, cities, and businesses representing more than half of the U.S. economy made a pledge to meet the GHG reduction targets of the Paris Agreement, called "America's Pledge." In September 2020, America's Pledge released its second economy-wide policy analysis with recommendations of how states, cities, businesses, and other stakeholders can influence U.S. decarbonization. It is premature to determine potential impacts to TVA.

Litigation. In addition to legislative activity, climate change issues have been the subject of a number of lawsuits, including lawsuits against TVA. See Note 22 — *Commitments and Contingencies* 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 generation from alternative energy sources, and subsequent impacts to business reputation and public opinion. See *Power Supply and Load Management Resources* above.

Physical Impacts of Climate Change. TVA's Climate Change Adaptation Plan was last updated in July 2020. The goal of the adaptation 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 potential effects of climate change on its mission, programs, and operations within its environmental management processes.

Actions Taken by TVA to Reduce GHG Emissions. TVA has reduced GHG emissions from both its generation stations and its operations. Recent TVA Board actions have focused on TVA's plan to balance its coal-fired generation by increasing its nuclear capacity, modernizing its hydroelectric generation system, increasing natural gas-fired generation, installing emission control equipment on certain of its coal-fired units, increasing its purchases of renewable energy, 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. The combination of more stringent environmental regulations, lower natural gas prices, and lower demand for energy across the Tennessee Valley has reduced the utilization of coal-fired generation. These factors have resulted in lower CO₂ emissions from the TVA system, as previously discussed in this section.

Renewable/Clean Energy Standards

Twenty-nine states and the District of Columbia have established enforceable or mandatory requirements for electric utilities to generate a certain amount of electricity from renewable sources. One state within the TVA service area, North Carolina, has a mandatory renewable standard that, while not applying directly to TVA, does apply to TVA's LPCs serving retail customers in that state. TVA's policy is to provide compliance assistance to any distributor of TVA power, and TVA is providing assistance to the covered LPCs that sell TVA power in North Carolina. In 2020, Virginia signed into law the Clean Economy Act. The 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

Cooling Water Intake Structures. In May 2014, the EPA released a final rule under Section 316(b) of the Clean Water Act relating to cooling water intake structures ("CWIS") for existing power generating facilities. The rule requires changes in 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 for minimizing adverse environmental impacts, primarily by reducing the amount of fish and shellfish that are impinged or entrained at a cooling water intake structure. These new requirements will potentially affect a number of TVA's fossil- and nuclear-fueled facilities and will likely require capital upgrades to ensure compliance. Most TVA facilities are projected to require retrofit of CWIS with "fish-friendly" screens and fish return systems to achieve compliance with the new rule. The rule is being implemented through permits issued under the National Pollutant Discharge Elimination System ("NPDES") in Section 402 of the Clean Water Act. State agencies administer the NPDES permit program in most states including those in which TVA's facilities are located. In addition, the responsible state agencies must provide all permit applications to the U.S. Fish 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 is expected to be required in the CYs 2022-2024 timeframe.

The EPA has never applied the requirements under Section 316(b) to hydroelectric facilities. However, two EPA regions that do not cover TVA's activities are proposing to include Section 316(b) requirements in NPDES permits for hydroelectric facilities in those regions that withdraw water used for cooling purposes. It is not clear whether the requirements will be adopted nationwide or, given the unique features of hydroelectric facilities and the manner in which they withdraw water for cooling purposes, how the best technology available standard would be applied to TVA's hydroelectric facilities. The specific impacts to TVA from this potential policy change 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 Clean Water Act that are subject to review as NPDES permits are renewed. Specific data requirements in the future will be determined based on negotiations between TVA and 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 August 2017, the EPA Administrator announced his decision to conduct a rulemaking to potentially revise the new, more stringent effluent limitations that apply to bottom ash transport water and FGD wastewater in the 2015 ELG rule. In April 2019, the U.S. Court of Appeals for the Fifth Circuit ("Fifth Circuit") remanded portions of the 2015 ELG rule because it determined that some of the standards did not comply with statutory requirements. The EPA proposed revised ELGs for bottom ash transport water and FGD wastewater on November 4, 2019, but did not address the portions of the ELG that were remanded by the Fifth Circuit.

The final ELGs were published on October 13, 2020. The primary impact for TVA is on the operation of existing coal-fired generation facilities. The revised ELGs will impact long-term investment decisions 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. The revision also includes a subcategory for which the Cumberland Fossil Plant ("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 2028. TVA will evaluate the applicability of those subcategories to its plants as appropriate. Litigation on the final rule is anticipated which introduces additional uncertainty in what will be required at each facility.

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.

Recent Clean Water Act Decisions

On April 23, 2020, in *County of Maui v. Hawaii Wildlife Fund*, the Supreme Court held that the Clean Water Act requires a permit when there is a direct discharge of pollutants from a point source to waters of the U.S. and when there is "the functional equivalent" of a direct discharge to such waters. The Court suggested seven factors for determining when such a discharge is the functional equivalent of a direct discharge and acknowledged that the new test would be somewhat difficult to apply, potentially requiring evaluation of multiple factors. The Court noted that "time and distance" of pollutant migration often will be the most important factor but that other relevant factors may include, for example, the nature of the material through which the pollutant travels and the extent to which the pollutant is diluted or chemically changed as it travels. TVA is evaluating what potential impact the decision and application of the test could have on its operations.

On April 15, 2020, in *Northern Plains Resource Council v. U.S. Army Corps of Engineers*, the U.S. District Court for the District of Montana ("District Court of Montana") vacated the Nationwide Permit ("NWP") 12, which authorizes discharges of dredged or fill material into waters of the U.S., and enjoined the U.S. Army Corps of Engineers from authorizing projects nationwide under the permit. The District Court of Montana subsequently amended its order on May 11, 2020, to allow NWP 12 to remain in place pending appeal for non-pipeline construction projects. The Supreme Court further granted a stay of the decision on July 6, 2020, allowing NWP 12 to remain in place for all pipeline construction projects except the Keystone XL pipeline. Consequently, the District Court of Montana's decision vacating NWP 12 does not have an immediate effect on TVA; however, unless the District Court of Montana's decision is reversed on appeal, there remains a risk that NWP 12 will not be available for TVA projects in the future. On September 15, 2020, the U.S. Army Corps of Engineers published a notice of proposed rulemaking in the Federal Register for the reissuance and modification of NWPs, including NWP 12. The notice also

included a proposal to limit the applicability of NWP 12 to oil and natural gas pipelines, modify certain pre-construction notification requirements, and create new NWPs for certain utility line activities. The proposed rule is unlikely to have a material impact on TVA, but the impact cannot be evaluated until the proposed rule is finalized and any related litigation is resolved.

Cleanup of Solid and Hazardous Wastes

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

TVA Sites. TVA operations at some of its facilities have resulted in releases of contaminants that TVA is addressing including at TVA's Environmental Research Center at Muscle Shoals, Alabama. At September 30, 2020, TVA's estimated liability for cleanup and similar environmental work for those sites for which sufficient information was available to develop a cost estimate is approximately \$14 million and was included in Accounts payable and accrued liabilities and Other long-term liabilities on the Consolidated Balance Sheets. 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 22 — *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 the RCRA. 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 allows enforcement through citizen suits in federal court. The Water Infrastructure Improvements for the Nation Act ("WIIN Act") subsequently allowed state or federal-based permitting to implement the CCR rule as an alternative to self-implementation and citizen suits. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Generation Resources — Coal Combustion Residuals Facilities* for a discussion of the impact on TVA's operations, including the cost and timing estimates of related projects.

In July 2018, the EPA issued a final CCR rule which provided additional flexibility and an extension of certain deadlines. In March 2019, the D.C. Circuit granted the EPA's request to remand the final rule to allow the EPA to reconsider the amendments. The remand also allowed the EPA time to complete a new rulemaking to establish revised timelines for unlined impoundments to initiate closure and to reexamine the October 2020 deadline for closing some unlined impoundments. In August 2019, the EPA issued a proposed rule to amend portions of the CCR Rule regarding beneficial use, temporary piles, and public access to information. On November 4, 2019, the EPA announced a proposed rule that will revise portions of the CCR Rule requiring closure of unlined surface impoundments. The final Part A rule was published in the Federal Register on August 28, 2020, and became effective September 28, 2020. Among other things, the final Part A rule requires all 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. Additionally, the final rule provides a process for a utility to seek site-specific approval from the EPA to continue to use the unlined CCR surface impoundment until October 15, 2023, and possibly longer under certain circumstances. The final rule also includes requirements that enhance the public's access to groundwater monitoring and corrective action reports. TVA does not currently anticipate the final rule will have a significant impact because TVA is already planning to close its unlined CCR surface impoundments by the regulatory deadline and already makes groundwater monitoring and corrective action reports publicly available. A prepublication copy of a separate final Part B rule was released on October 16, 2020. This rule provides an alternative liner demonstration procedure for utilities with clay lined units which are being forced to close under the Part A rule. However, TVA does not have any units which qualify for this demonstration.

In August 2015, the Tennessee Department of Environment and Conservation ("TDEC") issued an order that (1) established a process for TDEC to oversee TVA's implementation of the EPA's CCR rule 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. Currently, TVA is conducting environmental investigations of the seven sites in accordance with the TDEC-approved Environmental Investigation Plans for each site. Upon the completion of the investigations, TVA will submit an environmental assessment report for each site.

Groundwater Contamination. 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 Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Generation Resources — Coal Combustion Residuals Facilities* and — *Regulatory Compliance — Allen Groundwater Investigation* and Note 12 — *Asset Retirement Obligations*.

Environmental Investments

From 1970 to 2020, 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 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 19 of its coal-fired units and switched to lower-sulfur coal at 13 coal-fired units. To reduce NO_x emissions, TVA operates SCRs on 19 coal-fired units, operates low-NO_x burners or low-NO_x combustion systems on 19 units, operates over-fire air on one cyclone unit, optimized combustion on six units, and operates NO_x control equipment year round when units are operating (except during start-up, shutdown, and maintenance periods). TVA has also retired 34 of 59 coal-fired units. Except for seven units at Shawnee, the remaining coal-fired units 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. There could be additional material costs if further reductions of GHGs, including CO₂, are mandated by legislative, regulatory, or judicial actions and if more stringent emission reduction requirements for conventional pollutants are established. These costs cannot reasonably be predicted at this time because of the uncertainty of these actions. The EPA may issue regulations establishing more stringent air, water, and waste 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.

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⁾
At September 30, 2020
(in millions)

	2021	2022	Thereafter ⁽³⁾⁽⁴⁾	Total
Coal Combustion Residual Conversion Program ⁽⁵⁾	\$ 313	\$ 224	\$ 412	\$ 949
Clean Air Act control projects ⁽⁶⁾	28	45	83	156
Clean Water Act requirements ⁽⁷⁾	41	78	71	190

Notes

(1) These estimates are subject to change as additional information becomes available and as regulations change.

(2) These estimates include \$145 million, \$134 million, and \$121 million for 2021, 2022, and thereafter, respectively, in capital expenditures.

(3) See Note 22 — *Commitments and Contingencies*.

(4) These estimates include expenditures expected to be incurred during 2023, 2024, and 2025.

(5) Includes costs associated with pond closures, conversion of wet to dry handling, 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 Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges — Generation Resources — Coal Combustion Residuals Facilities* and Note 12 — *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 CWA regarding CWIS and ELGs for steam electric power plants.

Human Capital Resources

On September 30, 2020, TVA had 9,989 employees, of whom 3,287 were trades and labor employees. Neither the federal labor relations laws covering most private sector employers nor those covering most federal agencies apply to TVA. However, the TVA Board has a long-standing policy of acknowledging and 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. Federal law prohibits TVA employees from engaging in strikes against TVA. TVA also had approximately 13,800 contractors providing both intermittent or full-time services. The majority of these contractors are managed by TVA suppliers who are providing services to TVA.

Over the past year, TVA has worked to evolve its strategic direction to place an intentional focus on its people through a strategic priority identified as People Advantage. As part of this strategic priority, there are three key transformational elements: to accelerate the impact of inclusion with diversity within TVA and the communities it serves, to create a talent-focused

organization to amplify the energy, power, and creativity within each TVA employee, and to create a culture that lives up to its values. TVA employees share common core values and strategic objectives, and it is these values that are the fundamental beliefs that guide actions, behaviors, and decisions as a company. The TVA values include:

- **Safety** — Committing to the safety and well-being of each TVA employee and the communities TVA serves;
- **Integrity** — Conducting business in an honest and straightforward way;
- **Inclusion** — Treating everyone with dignity and respect, emphasizing inclusion by welcoming each person's individuality so that full potential is reached; and
- **Service** — Serving in the communities in which TVA employees live, work, and play.

Each and every day, TVA is responsible for making life better in the Tennessee Valley. TVA is dedicated to keeping its employees inspired and empowered toward achieving this primary mission of service and invests in people areas including employee health and safety, employee benefits and development, and diversity and inclusion efforts.

TVA continues to focus on safety, and as a result, TVA has seen a consistent decline in injuries for the last seven years and has achieved industry top decile performance in safety. 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. 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 to improve safety behaviors. Audits and assessments are a key component of continuous improvement and in overseeing TVA's safety and health program and are performed regularly. As a federal agency, TVA is also required to complete regulatory compliance inspections of its facilities on an annual basis.

To care for the well-being of employees and their families, TVA offers quality healthcare, insurance, and retirement benefits. Other benefits also include flexible work schedules, wellness incentives, scholarships for dependents of employees, tuition reimbursement, training and education opportunities, and employee development. TVA offers career opportunities and training for military veterans, college students, and recent graduates. Employee development involves individual learning-ability, team learning, mentoring, and career pathing including rotational development. As TVA continues to adapt to the evolving demands of the industry, it is imperative that it cultivate a work environment that fosters the attributes and capabilities of an interconnected workforce.

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 100 percent of their talents, 100 percent of the time while bringing their authentic selves to work each day. Recruiting efforts also support the strategic element of inclusion with diversity and a culture that lives up to TVA's values, and TVA actively recruits employees of all races, colors, sexual orientations, ethnicities, gender identities, abilities, religions, and ages. TVA continues to work to improve the minority share and women share of the workforce and maintain its status as best in industry for the military veteran share of the workforce. In addition, TVA has Employee Resource Groups that support and empower employees based on their personal association to the diverse groups present at TVA.

Through the People Advantage strategic priority, TVA strives to become the destination for difference makers, where TVA and employees believe the best in each other, give the best to each other, and expect the best from each other. Key measures of success are engagement and inclusion scores, regrettable losses, recordable injuries, and people of color and female representation, both in leadership. The 2019 and 2020 results for these key measures are reflected in the chart below, in addition to the performance goals for 2021.

Performance Measure	2019	2020	2021
	Actual	Actual	Plan
People of Color Representation in Leadership (%)	9 %	9 %	10 %
Female Representation in Leadership (%)	17 %	18 %	19 %
Regrettable Losses (%)	1.1 %	1.0 %	0 %
Engagement (100 point scale) ⁽¹⁾	75	80	81
Inclusion (100 point scale) ⁽¹⁾	72	72	74
Recordable Injuries (#)	54	38	0

Note

(1) A new vendor was used to facilitate the Engagement and Inclusion Survey in 2020; therefore, weightings and results may vary when comparing 2020 to 2019.

See also Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations – *Business and Mission – TVA's Mission of Service* for a discussion of TVA's mission, strategic priorities, and linking the mission to performance through corporate measures.

ITEM 1A. RISK FACTORS

The risk factors described below, as well as the other information included in this Annual Report, should be carefully considered. Risks and uncertainties described in these risk factors could cause future results to differ materially from historical results as well as from the results anticipated in forward-looking statements. Although the risk factors described below are the ones that TVA considers 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, and financial condition.

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

COVID-19 RELATED RISKS

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

The COVID-19 pandemic has and may continue to adversely affect TVA's business, financial condition, and results of operations. To date, the COVID-19 pandemic has resulted in and may continue to result in reduced revenues due to customers curtailing operations to reduce the spread of the outbreak, including quarantines, closures, or reduced operations of businesses or other institutions and the deferral of revenues under programs offered by TVA to its local power company customers to offset the impact of customers' inability to pay during the outbreak. TVA estimates base revenues were reduced by approximately \$185 million for the year ended September 30, 2020. TVA expects the COVID-19 pandemic to continue impacting revenue for 2021 and has planned for reduced operating revenues. It is uncertain at this time the extent to which TVA's revenues may be impacted beyond 2021. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations — Financial Results — Operating Revenues.

TVA could be further adversely affected by the impact of the COVID-19 pandemic on the economy and financial markets, including a prolonged recession and continued volatility in interest rates, commodity prices, investment performance, and foreign currency exchange rates. TVA has experienced fluctuations related to its pension plan assets and other investment portfolios during the year ended September 30, 2020. The ultimate impact of the COVID-19 pandemic on the pension plan and other investments depends on factors beyond TVA's knowledge or control. A long-term recession could impact access to capital and have other long-term negative effects on operations.

In addition, TVA's operations could be impacted by, among other things, social distancing to prevent illness from spreading within the workforce; travel restrictions; the availability of the workforce to perform essential functions; and the unavailability of fuel or critical parts, supplies, or services due to transportation restrictions and the shutdown, slowdown, or inability to meet contractual requirements of suppliers or other vendors in TVA's supply chain. In addition, the continued spread 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; and could lead to impairments of TVA's long-lived assets and accounts and loans receivable.

To address specific aspects of the COVID-19 pandemic, TVA has implemented a company-wide pandemic plan, including limiting non-essential travel and mandatory telework for those who do not have to be physically present at a TVA facility or office building; implementing strong physical and cybersecurity measures; keeping certain developed recreation areas closed; actively monitoring generation, transmission, and distribution functions; and maintaining an increased cash reserve; however, it is possible that these measures will not be successful in mitigating the impact of the outbreak. At this time, operations and delivery of energy to customers have not been materially impacted.

The extent to which the COVID-19 pandemic will impact TVA's business, financial condition, and results of operations is uncertain and will depend on numerous evolving factors beyond TVA's knowledge or control including, among other things, the duration and severity of the outbreak, actions taken to contain its spread and mitigate its effects, and the broader impact of the COVID-19 pandemic on the country and region's economy. However, TVA reasonably anticipates that a prolonged outbreak 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.

See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* — *Coronavirus Pandemic* for an expanded discussion of the impact to TVA and related initiatives.

REGULATORY, LEGISLATIVE, AND LEGAL RISKS

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.

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 affect 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 U.S.'s ownership of TVA, or even liquidate TVA. Additionally, Congress could act, or fail to take action, on various issues that may result in impacts to TVA, including but not limited to action or inaction related to the national debt ceiling or automatic spending cuts in government programs. Furthermore, administrative or executive orders could cause TVA to change the way it conducts its business.

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

TVA may become subject to additional environmental regulation.

New environmental laws, regulations, 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 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 and 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. Litigation may affect the timing and requirements of new regulatory proposals, and may indirectly affect TVA, even if TVA is not involved.

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

Other federal entities may attempt to restrict TVA's ability to access or control its funds that are on deposit in 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 wording of the legislation making the automatic spending cuts). Such attempts to restrict TVA's ability to control or allocate funds in those specific types of situations could adversely affect its cash flows, results of operations, and financial condition, its relationships with creditors, vendors, and counterparties, the way it conducts its business, and its reputation.

TVA may lose its protected service territory.

TVA's service area is defined primarily by provisions of law and long-term contracts. The fence limits the region in which TVA or LPCs which distribute TVA power may provide power. The anti-cherry-picking 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. All current wholesale power contracts between TVA and LPCs are all requirements contracts; however, Flexibility Agreements available to LPCs that have executed long-term contracts with TVA allow LPCs to locally generate up to approximately five percent of average total hourly energy sales over the prior five years 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.

From time to time, there have been efforts to circumvent the protection of the anti-cherry-picking provision. In addition, the protections afforded by the anti-cherry-picking provision could be limited or perhaps eliminated by federal legislation at some time in the future. If FERC were to limit the application of the anti-cherry-picking provision or if federal legislation were to eliminate or limit the application of the anti-cherry-picking provision, TVA could more easily lose customers that it could not replace within its specified service area due to the fence. The loss of these customers could adversely affect TVA's cash flows, results of operations, and financial condition.

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

Under the TVA Act, the TVA Board has the sole authority to set the rates that TVA charges for electricity, and these rates are not subject to further review. If the TVA Board loses this authority or if the rates or the ratemaking process become subject to external review, there could be material adverse effects on TVA including, but not limited to, being unable 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 and becoming subject to additional regulatory oversight that could impede its ability to adapt its business to changing circumstances.

TVA may lose responsibility for managing the Tennessee River system.

TVA's management of the Tennessee River system is important to 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, change the way it conducts such operations, or increase costs.

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

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

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

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

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

TVA is involved in various legal and administrative proceedings and is likely to become involved in additional proceedings in the future in the ordinary course of business or as a result of, among other things, catastrophic events or environmental conditions at 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, nuisance suits involving TVA's coal-fired plants, 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 amounts that could have a material adverse effect on TVA's cash flows, results of operations, and financial condition. Similarly, resolution of any such proceedings may require TVA to change its business practices or procedures, change how it operates its coal-fired units, 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 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 Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives and Challenges* and Note 22 — *Contingencies and Legal Proceedings* — *Legal Proceedings*.

TVA is largely restricted to a defined service area.

TVA's ability to expand its customer base is constrained by its inability to pursue new customers outside its service area. Accordingly, 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 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. Currently there are approximately 90 mandatory standards subject to enforcement containing approximately 1,300 requirements and sub-requirements that must be met. 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 be divested by the federal government or be required to sell some or all of its assets.

From time to time, presidential administrations 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, among other things, be required to pay off debt more quickly than anticipated and be unable to access credit facilities. Additionally, the loss of the transmission system could interfere with TVA's operations and require TVA to contract for the transmission of electricity to TVA customers. These factors could negatively affect TVA's operations, change the way it conducts such operations, and increase costs.

TVA's governmental status may interfere in 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.

In addition, TVA's nature as a quasi-governmental entity imposes additional pressures that most companies do not face, such as the requirement to support economic development, manage a river system, and promote recreational opportunities. 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.

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

Among other projects, TVA is improving the reliability and resiliency of its transmission system, undertaking repairs at certain hydroelectric facilities and dams, 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 risks of schedule delays, which may result from, among other things, changes in laws or regulations, lack of productivity, human error, and the failure to schedule activities properly. In addition, if TVA does not or cannot obtain the necessary regulatory approvals or licenses, is otherwise unable to complete the development or construction of a facility, decides to cancel construction of a facility, incurs delays or cost overruns in connection with constructing a facility, or is required to change how it will conduct construction, repair, or closure activities, TVA's cash flows, financial condition, and results of operations could be negatively affected. 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 may not be able to operate one or more of its nuclear power units.

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

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

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

Nuclear Risks. A nuclear incident at one of TVA's facilities could have significant consequences including loss of life, damage to the environment, damage to or loss of the facility, and damage to non-TVA property. Although TVA carries certain types of nuclear insurance, the amount that TVA is required to pay in connection with a nuclear incident could significantly exceed the amount of coverage provided by insurance. 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. Any such nuclear incident could also negatively affect TVA by, among other things, obligating TVA to pay retrospective insurance premiums, reducing the availability and affordability of insurance, increasing the costs of operating nuclear units, or leading to increased regulation or restriction on the construction, operation, and decommissioning of nuclear facilities. Moreover, 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 NDT balance at September 30, 2020. 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 is overly optimistic;
- The actual costs of decommissioning are more than planned;
- Changes in technology and experience related to decommissioning cause decommissioning cost estimates to increase significantly;
- TVA is required to decommission a nuclear plant sooner than it anticipates; or
- The NRC guidelines for calculating the minimum amount of funds necessary for decommissioning activities are significantly changed.

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

Increased Regulation. The NRC has broad authority to adopt 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. 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 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.

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 is 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 and access to intellectual property is reduced, the availability of the components and access to the intellectual property will also likely decrease. If TVA is 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.

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

TVA operates coal-fired units which produce CCR as byproducts of the power production process. The CCR is contained within dedicated facilities operated by TVA. TVA has closed some of these facilities in compliance with state and federal laws and is in the process of closing others. Many of these facilities were constructed prior to the requirement that such facilities be built with liners and thus do not contain such 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 or relocate CCR material to lined facilities. Further, TVA has decided to move all CCR material at Allen Combined Cycle Plant ("Allen CC") rather than closing the CCR facilities in place as originally planned, which subjects TVA to additional costs and risks. TVA may change its closure plans at other facilities depending on the particular facts of each situation and the completion of any required environmental investigations or studies.

TVA's facilities and operations may be damaged or interfered with by physical attacks, threats, or other interference.

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 which are necessary for commerce along the Tennessee River system. TVA also operates flood control dams and supporting infrastructure. Because of TVA's status as a governmental corporation and TVA's role as predominantly the sole power provider for its service territory, TVA may be targeted by individuals, groups, or nation states for physical attacks or threats of such attacks. Although TVA's operations are protected by automated monitoring systems, TVA Police and Emergency Management, TVA employees, local law enforcement, or a combination thereof, it may not be possible to effectively deter or prevent attacks. Such attacks could pose health and safety risks, significantly disable or destroy TVA assets, interfere with TVA's operations, result in additional regulatory or security requirements, and negatively affect TVA's cash flows, results of operations, and financial condition.

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. Additionally, certain of TVA's newer assets utilize advanced technology which 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 fail to operate as planned, if necessary repairs or upgrades are delayed or cannot be completed as quickly as anticipated, or if necessary spare parts are unavailable, TVA, among other things:

- May have to invest a significant amount of resources to repair or replace the assets or the supporting infrastructure;
- May have to remediate collateral damage caused by a failure of the assets or the supporting infrastructure;
- May not be able to maintain the integrity or reliability of the transmission system at normal levels;
- May have to operate less economical sources of power;
- May have to purchase replacement power on the open market at prices greater than its generation costs;
- May be required to invest substantially to meet more stringent reliability standards;
- May be unable to maintain insurance on affected facilities, or be required to pay higher premiums for coverage, unless necessary repairs or upgrades are made;
- May be unable to operate the assets for a significant period of time; 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 safety programs may not prevent accidents that could, among other things, impact TVA's operations or financial condition.

TVA's safety program, no matter how well designed and operated, may not completely prevent accidents. In addition to the potential human cost of accidents, which could include injury to employees or members of the public, significant accidents could impact TVA's ability to carry out operations, cause it to shut down facilities, subject it to additional regulatory scrutiny, 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 TVA's customers, increase congestion on the transmission grid, or reduce service reliability. In addition, the increasing contribution of intermittent sources of power, such as wind and solar, may place additional strain on TVA's system as well as on surrounding systems. If TVA suffers a service interruption, increased congestion, or reduced service reliability, TVA's cash flows, results of operations, financial condition, and reputation may be negatively affected.

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

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

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

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, 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 manner. Resolving such a situation may require capital expenditures or additional power purchases, and TVA's cash flows, results of operations, financial condition, and reputation may be negatively affected.

RISKS RELATED TO THE ENVIRONMENT AND CATASTROPHIC EVENTS

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

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

use water from the Tennessee or Cumberland River systems for cooling at certain of TVA's generating facilities, thereby limiting its ability to operate these generating facilities. This situation would be aggravated during periods of reduced rainfall or drought. If changes in the climate make such shifts in weather more common or extreme, TVA may be required to, among other things, change its generation mix or change how it conducts its operations, which could have a material adverse effect on TVA's cash flows, results of operations, and financial condition.

Events that affect the supply or quality of water in 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 by reducing generation not only at TVA's hydroelectric plants but also at its coal-fired and nuclear plants, which depend on water from the river systems near which they are located for cooling and for use in boilers where water is converted into steam to drive turbines. Certain of TVA's gas-fired facilities not located near a river require alternative sources of water, such as from wells or local utility companies. Further, the water must be of a particular quality for use in TVA's equipment. If the available water is not of sufficient quality for TVA's use, then 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 which 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 its plants. If TVA has insufficient water supply of the quality necessary to meet the needs of its plants, TVA may be required to treat the water, reduce generation at its affected facilities to levels compatible with the available supply of water, or take additional steps that change how TVA conducts its operations or 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, 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, lead to legislative or regulatory changes that affect the construction, operation, and decommissioning of nuclear units and the storage of spent fuel; limit or disrupt TVA's ability to generate and transmit power; limit or disrupt TVA's ability to provide flood control and river management; reduce the demand for power; disrupt fuel or other supplies; require TVA to produce additional tritium; lead to an economic downturn; require TVA to make substantial capital investments for repairs, improvements, or modifications; and create instability in the financial markets. If public opposition to nuclear power makes operating nuclear plants less feasible as a result of any of these events, TVA may be forced to shut down its nuclear plants. This would make it substantially more difficult for TVA to obtain greater amounts of its power supply from low or zero carbon emitting resources and to replace its generation capacity when faced with retiring or idling certain coal-fired units. Additionally, some studies have predicted that climate change may cause catastrophic events, such as droughts and floods, to occur more frequently in the Tennessee Valley region, which could adversely impact TVA.

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

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

TVA relies on third parties for various services, including transferring funds to non-TVA entities in the ordinary course of business. As with TVA, these third parties are heavily computerized and use assets such as information technology and networking systems. If these third parties undergo cyber attacks, the services they provide TVA could be disrupted. This disruption could interfere with TVA's ability to perform its obligations to others, transfer funds, or make payments, which in turn could negatively affect TVA's 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.

FINANCIAL, ECONOMIC, AND MARKET RISKS

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

At September 30, 2020, TVA's qualified pension plan had assets of approximately \$8.0 billion compared to liabilities of approximately \$13.7 billion. The plan is mature with approximately 24,000 retirees and beneficiaries receiving benefits of over \$700 million per year. The costs of providing benefits depend upon a number of factors, including, but not limited to, provisions of the plan; changing experience and assumptions related to terminations, retirements, and mortality; rates of increase in compensation levels; rates of return on plan assets; discount rates used in determining future benefit obligations and required funding levels; optional forms of benefit payments selected; future government regulation; and levels of contributions made to the plan.

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

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

The TVA Act provides that TVA can issue Bonds in an amount not to exceed \$30.0 billion outstanding at any time. At September 30, 2020, TVA had \$20.1 billion of Bonds outstanding (not including non-cash items of foreign currency exchange gain of \$153 million, unamortized debt issue costs of \$45 million, and net discount on sale of Bonds of \$77 million).

Approaching or reaching the debt ceiling may negatively affect TVA's business by limiting TVA's ability to access capital markets and increasing the amount of debt TVA must service. Also, federal legislation may lower TVA's debt ceiling or broaden the types of financial instruments that are covered by the ceiling. Either of these scenarios may also restrict TVA's ability to raise capital to 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 may be unable to meet its current cash requirements if TVA's access to the debt markets is limited.

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

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

TVA's current credit ratings are not based solely on its underlying business or financial condition but are based to a large extent on the legislation that defines TVA's business structure. Key characteristics of TVA's business defined by legislation include (1) the TVA Board's ratemaking authority; (2) the current competitive environment, which is defined by the fence and the anti-cherry-picking provision; and (3) TVA's status as a corporate agency and instrumentality of the U.S. 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 U.S., TVA, as a corporate agency and instrumentality of the U.S., may be impacted if the sovereign credit ratings of the U.S. are downgraded. Such a downgrade of the U.S.'s sovereign credit ratings could, among other things, result in a downgrade of TVA's credit rating. Additionally, the economy could be negatively impacted resulting in reduced demand for electricity, an increase in borrowing costs, and an increase in the cost of fuels, supplies, and other materials required for TVA's operations. Additionally, 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.

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

Downgrades of TVA's credit ratings may have material adverse effects on TVA's cash flows, results of operations, and financial condition as well as on investors in TVA securities. Among other things, a downgrade could increase TVA's interest expense by increasing the interest rates that TVA pays on new securities that it issues. Such an increase may reduce the amount of cash available for other purposes, which may result in the need to increase borrowings, to reduce other expenses or capital investments, or to increase power rates. A downgrade may 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 prevent TVA from borrowing under four credit facilities totaling \$2.7 billion or posting letters of credit as collateral under these facilities. At September 30, 2020, there were \$1.5 billion 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. The criteria used by credit rating agencies to assign ratings could also be changed at any time, which could result in changes to TVA's ratings.

TVA's assumptions about the future may be inaccurate.

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

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

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

Economic Downturns or Recessions. Renewed economic downturns or a recession in TVA's service area or other parts of the U.S. could reduce overall demand for power and thus reduce TVA's power sales and cash flows, especially if TVA's industrial customers, which constitute a material portion of TVA's demand, reduce their operations and thus their consumption of power.

Loss of Customers. TVA could lose customers, particularly LPCs, if customers 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. At September 30, 2020, TVA had wholesale power contracts with 153 LPCs, and 64 LPCs had entered into Flexibility Agreements with TVA that allow the LPCs to locally generate up to approximately five percent of average total hourly energy sales over the prior five years in order to meet their individual customers' needs. A significant portion of TVA's total operating revenues are concentrated in a small number of these LPCs. In May 2020, TVA's largest LPC which accounts for nine percent of total operating revenues, MLGW, 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. If demand by customers for power that is largely or exclusively generated from renewable sources exceeds TVA's ability to produce such power, TVA might have to change how it operates and may incur additional expense in meeting this demand.

Increased 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 is 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, 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 have reduced the demand for power. Further reductions, if TVA is unable to compensate for them, could negatively affect TVA's cash flows, results of operations, and financial condition and could result in higher rates and changes to TVA's operations, especially if the reductions occur during an economic downturn or a period of slow economic growth.

Changes in technology could require TVA to change how it conducts its operations, affect relationships with customers, or impact its 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. It is possible that 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 TVA's. These technologies could be more appealing to customers and could lead them to bring pressure on TVA to modify the 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 devices and equipment become more connected to the internet and it becomes possible to adjust real-time 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, commodity price risk, investment price risk, interest rate risk, counterparty credit and performance risk, and currency exchange rate risk.

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, increase.

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 either decreases or fails to increase in accordance with assumed rates of return, TVA may be required to make substantial contributions to these funds. In addition, although TVA is not required to make contributions to the ART, it may choose to do so, particularly if TVA's estimates of its non-nuclear asset retirement obligation liabilities increase. TVA may also choose to make contributions to the SERP and DCP from time to time.

Interest Rate Risk. Changes in interest rates may increase the amount of interest that TVA pays on new Bonds that it issues, decrease the return that TVA receives on short-term investments, decrease the value of the investments in the NDT, 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, and increase the losses on the mark-to-market valuation of certain derivative transactions into which TVA has entered.

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

Currency Exchange Rate Risk. Over the next several years, TVA 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. Additionally, TVA's three issues of Bonds denominated in British pounds sterling are hedged by currency swap agreements. The value of the U.S. dollar compared with other currencies has fluctuated widely in recent years, including 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.

Changes in an interest rate benchmark may impact certain TVA swaps and other financial arrangements.

TVA has four "fixed for floating" interest rate swaps related to outstanding Bonds and receives periodic payments under these swaps based on the floating London Interbank Offered Rate ("LIBOR") benchmark rate. TVA may also have additional contracts that could be impacted. LIBOR is expected to be discontinued after 2021. Various alternatives for LIBOR are being evaluated by market participants, with the Secured Overnight Financing Rate being the most widely-adopted alternative thus far. TVA may face risks related to the viability of an alternative benchmark over the remaining terms of its current contracts, or over the terms of any future contracts that rely on the benchmark rate.

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

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

The market for TVA 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.

If a particular series of Bonds is offered through underwriters, those underwriters may attempt to make a market in the Bonds. Dealers other than underwriters may also make a market in TVA 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 use the environmental impact or sustainability of an industry as a criteria for deciding whether to invest in that industry. TVA's use of fossil fuels or nuclear power could lead such investors to not purchase 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.

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

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 U.S. 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 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 workforce may negatively affect TVA's results of operations.

TVA's business depends on its ability to recruit and retain key executive officers as well as skilled professional and

technical employees. The inability to attract and retain an appropriately qualified, 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 reduces the salary of TVA's CEO or otherwise amends TVA's compensation philosophy, TVA's ability to attract and retain 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. Further, the President may remove TVA Board members, and the TVA Board members may not continue in office indefinitely until a successor is appointed. 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, 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.

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 are not successful or TVA is not able to adapt properly to such changes, TVA's financial condition, results of operations, reputation, and relationship with customers could be negatively affected.

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

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

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

GENERAL BUSINESS RISKS

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 new strategic priorities: 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. If TVA is unable to successfully implement its business strategy, TVA's financial condition and results of operations could be negatively affected.

TVA's cost management efforts may not be successful.

TVA is continuing to improve operating efficiencies to offset any potential future reductions in power demand and maintain its rates, reputation, cash flows, results of operations, and financial condition. The failure to achieve or

maintain cost reductions could adversely affect TVA's rates, reputation, cash flows, results of operations, and financial condition.

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 in 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 the 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, real or perceived issues with TVA's safety culture or work environment, significant delays in construction projects, acts or omissions of TVA management, acts or omissions of a contractor or other third-party working with or for TVA, the perception of such acts or omissions, measures taken to offset reductions in demand, or a significant dispute with one of TVA's customers. Any deterioration in TVA's reputation may harm TVA's relationships with its customers and stakeholders, may increase its cost of doing business, may interfere with its ability to attract and retain a skilled workforce, 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, 2020, TVA-operated generating assets consisted of seven nuclear units, 25 active coal-fired units, 86 simple-cycle units, one cogeneration unit, 14 combined-cycle power blocks, 109 conventional hydroelectric units, four pumped-storage units, five diesel generator units, and 14 solar sites. As of September 30, 2020, eight of the simple-cycle combustion turbine units 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 10 — *Variable Interest Entities* and Note 13 — *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

The following table summarizes TVA's summer net capability in MW at September 30, 2020:

SUMMER NET CAPABILITY ⁽¹⁾ At September 30, 2020					
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 ⁽²⁾	Alabama	3	3,309	1974	1977
Sequoyah	Tennessee	2	2,292	1981	1982
Watts Bar	Tennessee	2	2,321	1996	2016
Total Nuclear		7	7,922		
Coal-Fired					
Bull Run	Tennessee	1	865	1967	1967
Cumberland	Tennessee	2	2,470	1973	1973
Gallatin	Tennessee	4	976	1956	1959
Kingston	Tennessee	9	1,398	1954	1955
Shawnee	Kentucky	9	1,206	1953	1955
Total Coal-Fired		25	6,915		
Natural Gas and/or Oil-Fired⁽³⁾⁽⁴⁾					
Simple-Cycle Combustion Turbine					
Allen	Tennessee	20	456	1971	1972
Brownsville	Tennessee	4	468	1999	1999
Colbert	Alabama	8	392	1972	1972
Gallatin	Tennessee	8	642	1975	2000
Gleason	Tennessee	3	500	2000	2000
Johnsonville	Tennessee	19	1,189	1975	2000
Kemper	Mississippi	4	348	2002	2002
Lagoon Creek	Tennessee	12	1,048	2001	2002
Marshall County	Kentucky	8	608	2002	2002
Subtotal Simple-Cycle Combustion Turbine		86	5,651		
Combined-Cycle Combustion Turbine					
Ackerman ⁽⁵⁾	Mississippi	1	713	2007	2007
Allen ⁽⁶⁾	Tennessee	1	1,106	2018	2018
Caledonia ⁽⁷⁾	Mississippi	3	765	2003	2003
John Sevier ⁽⁸⁾	Tennessee	1	871	2012	2012
Lagoon Creek ⁽⁹⁾	Tennessee	1	525	2010	2010
Magnolia	Mississippi	3	918	2003	2003
Paradise ⁽¹⁰⁾	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	80	1975	2000
Total Natural Gas and/or Oil-Fired		101	12,509		
Hydroelectric					
Conventional Plants					
	Alabama	36	1,176	1925	1962
	Georgia	2	35	1931	1956
	Kentucky	5	223	1944	1948
	North Carolina	6	492	1940	1956
	Tennessee	60	1,833	1912	1972
Pumped-Storage ⁽¹¹⁾	Tennessee	4	1,635	1978	1979
Total Hydroelectric		113	5,394		
Diesel Generator					
Meridian	Mississippi	5	9	1998	1998
TVA Non-hydro Renewable Resources⁽¹²⁾					
			1		
Total TVA-Operated Generating Facilities			32,750		
Contract Renewable Resources⁽¹³⁾					
			324		
Power Purchase and Other Agreements⁽¹⁴⁾					
			3,863		
Total Summer Net Capability			36,937		

Notes

(1) Net capability is defined as the ability of an electric system, generating unit, or other system component to carry or generate power for a specified time period

and does not include operational limitations such as derates.

(2) The summer net capability for Browns Ferry excludes the impact of the EPU project. The generating capability is expected to increase by an estimated 465 MW after sufficient run time to validate the new capacity upon issuance of the engineering memos.

(3) 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.

(4) Peak firing of simple-cycle combustion turbine units accounts for 326 MW of short-term capability.

(5) Ackerman Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).

(6) Allen Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).

(7) Caledonia Combined Cycle Plant is currently a leased facility operated by TVA.

(8) John Sevier Combined Cycle Facility is a single steam cycle unit driven by three gas turbines (3x1 configuration).

(9) Lagoon Creek Combined Cycle Facility is a single steam cycle unit driven by two gas turbines (2x1 configuration).

(10) Paradise Combined Cycle Facility is a single steam cycle unit driven by three gas turbines (3x1 configuration).

(11) See Item 1, Business — *Power Supply and Load Management Resources — Hiwassee Hydro Unit 2* for a discussion of Hiwassee Hydro Unit 2.

(12) TVA owns approximately 1 MW of solar installations at 14 solar sites.

(13) Contract Renewable Resources include capability from various renewable energy programs established by TVA to encourage the development of solar, wind, biomass, and low-impact hydroelectric generation systems across the Tennessee Valley.

(14) Power Purchase and Other Agreements includes renewable resources. See Item 1, Business — *Power Supply and Load Management Resources — Power Purchase and Other Agreements* for information on renewable energy power purchase contracts.

Transmission Properties

TVA's transmission system interconnects with systems of surrounding utilities and consisted primarily of the following assets at September 30, 2020:

- Approximately 2,500 circuit miles of 500 kilovolt, 11,800 circuit miles of 161 kilovolt, 2,000 circuit miles of other voltage transmission lines, and 3,900 miles of fiber optic lines;
- 517 transmission substations, power switchyards, and switching stations; and
- 1,322 customer connection points (customer, generation, and interconnection).

At September 30, 2020, certain qualified technological equipment and other software related to TVA's transmission system were leased to private entities and leased back to TVA under long-term leases. See Note 13 — *Debt and Other Obligations — Lease/Leasebacks* and Note 22 — *Commitments and Contingencies — Commitments — Leasebacks*.

Natural Resource Stewardship Properties

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

- Approximately 11,000 miles of reservoir shoreline;
- Approximately 293,000 acres of reservoir land;
- Approximately 650,000 surface acres of reservoir water; and
- Approximately 100 public recreation areas throughout the Tennessee Valley, including campgrounds, day-use areas, and boat launching ramps.

Additionally, TVA manages over 170 agreements for commercial recreation (such as campgrounds and marinas). As part of its stewardship responsibilities, TVA approval is required to be obtained before any obstruction affecting navigation, flood control, or public lands can be constructed in or along the Tennessee River and its tributaries. These public lands and waters managed by TVA provide both conservation and responsible recreation, and serve as a driver for nearly \$12.0 billion dollars of annual economic activity across the Tennessee Valley each year.

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 ("KOC") and the Chattanooga Office Complex in Tennessee. In 2013, TVA initiated a study of its real estate portfolio for the purpose of reducing cost, right-sizing the portfolio, and aligning its real estate with TVA's strategic direction over the next 10 to 20 years. As part of this effort, TVA completed a comprehensive assessment of its real estate holdings in the Knoxville region in 2016. For a discussion of these real estate holdings, see *Disposal of Property — Knoxville Property* below.

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 briefly described below:

- 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 from mortgaging any part of its power properties and from disposing of all or any substantial portion of these properties unless TVA provides for a continuance of the interest, principal, and sinking fund payments due and to become due on all outstanding Bonds, or for the retirement of such Bonds.

Knoxville Property. In 2016, TVA completed a comprehensive assessment of its real estate holdings in the Knoxville, Tennessee region including the KOC and adjacent Summer Place Complex ("SPC"). As a result of this study and a subsequent Environmental Assessment in 2017, TVA has consolidated its Knoxville area employees into the West Tower of the KOC and the Greenway Drive Transmission Service Center, and is completing the centralized field offices in Norris, Tennessee. As part of this consolidation effort, TVA approved the conveyance of the SPC and the East Tower of the KOC and the transaction closed in August 2020.

ITEM 3. LEGAL PROCEEDINGS

From time to time, TVA is party to or otherwise involved in lawsuits, claims, proceedings, investigations, and other legal matters ("Legal Proceedings") that have arisen in the ordinary course of conducting TVA's activities, as a result of catastrophic events or otherwise. While the outcome of the Legal Proceedings to which TVA is a party cannot be predicted with certainty, any adverse outcome to a Legal Proceeding involving TVA may have a material adverse effect on TVA's cash flows, results of operations, and financial condition. For a discussion of Legal Proceedings involving TVA, see Note 22 — *Commitments and Contingencies* — *Legal Proceedings*, which discussions are 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. SELECTED FINANCIAL DATA

The following selected financial data for the years 2016 through 2020 should be read in conjunction with the audited financial statements and notes thereto (collectively, the "Consolidated Financial Statements") presented in Item 8, Financial Statements and Supplementary Data. Certain reclassifications have been made to the 2016, 2017, and 2018 financial statement presentations to conform to the 2019 and 2020 presentations.

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

	2020	2019	2018	2017	2016
Sales (millions of kWh)	151,251	158,443	160,338	152,362	155,855
Peak load (MW)⁽³⁾	28,931	29,569	32,509	29,899	29,824
Operating revenues	\$ 10,249	\$ 11,318	\$ 11,233	\$ 10,739	\$ 10,616
Net income	\$ 1,352	\$ 1,417	\$ 1,119	\$ 685	\$ 1,233
Total assets	\$ 52,825	\$ 50,467	\$ 48,667	\$ 50,017	\$ 50,494
Financial obligations					
Long-term debt, net⁽⁴⁾					
Long-term power bonds, net	\$ 17,956	\$ 19,094	\$ 20,157	\$ 20,205	\$ 20,901
Long-term debt of variable interest entities, net	1,048	1,089	1,127	1,164	1,199
Long-term notes payable	—	—	23	69	48
Total long-term debt, net	\$ 19,004	\$ 20,183	\$ 21,307	\$ 21,438	\$ 22,148
Current debt, net⁽⁴⁾					
Short-term debt, net	\$ 57	\$ 922	\$ 1,216	\$ 1,998	\$ 1,407
Current maturities of power bonds	1,787	1,030	1,032	1,728	1,555
Current maturities of long-term debt of variable interest entities	41	39	38	36	35
Current maturities of notes payable	—	23	46	53	27
Total current debt, net	\$ 1,885	\$ 2,014	\$ 2,332	\$ 3,815	\$ 3,024
Total debt⁽⁴⁾	<u>\$ 20,889</u>	<u>\$ 22,197</u>	<u>\$ 23,639</u>	<u>\$ 25,253</u>	<u>\$ 25,172</u>
Finance leases⁽⁵⁾	\$ 566	\$ 187	\$ 182	\$ 187	\$ 181
Leaseback obligations	\$ 223	\$ 263	\$ 301	\$ 339	\$ 467

Notes

(1) See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations for a description of certain items in 2020, 2019, and 2018 affecting results in those years.

(2) See Item 1A, Risk Factors and Note 22 — *Commitments and Contingencies* for a discussion of risks and contingencies that could affect TVA's future financial results.

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

(4) See Note 10 — *Variable Interest Entities* and Note 13 — *Debt and Other Obligations — Debt Outstanding*.

(5) Included in Accounts payable and accrued liabilities and Finance lease liabilities on the Consolidated Balance Sheets.

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

(Dollars in millions except where noted)

The following Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is intended to help the reader understand the Tennessee Valley Authority ("TVA"), its operations, and its present business environment. The MD&A is provided as a supplement to, and should be read in conjunction with, TVA's consolidated financial statements and the accompanying notes thereto contained in Item 8, Financial Statements and Supplementary Data of this Annual Report on Form 10-K for the fiscal year ended September 30, 2020 (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/A for the year ended September 30, 2019, filed with the Securities and Exchange Commission on November 15, 2019, for a discussion of variance drivers for the year ended September 30, 2019, as compared to the year ended September 30, 2018. 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 2020;
- Results of Operations — an analysis of TVA's consolidated results of operations for 2019 and 2020;
- Liquidity and Capital Resources — an analysis of cash flows, a description of aggregate contractual obligations, and an overview of financial position;
- Key Initiatives and Challenges — an overview of current and future initiatives and challenges facing TVA;
- Critical Accounting Policies and Estimates — a summary of accounting policies that require critical judgments and estimates;
- Fair Value Measurements — a description of TVA's investments and derivative instruments and valuation considerations;
- Legislative and Regulatory Matters — a summary of laws and regulations that may impact TVA; and
- Risk Management Activities — a description of TVA's risk governance and exposure to various market risks.

Business and Mission*Business*

TVA operates the nation's largest public power system. At September 30, 2020, TVA provided electricity to approximately 49 large industrial customers, 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 2020 revenues from the sale of electricity totaled \$10.1 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-cherry-picking" provision generally protects TVA from being forced to provide access to its transmission lines to others for the purpose of delivering power to customers within substantially all of TVA's defined service area.
- The rates TVA charges for power are set solely by the TVA Board of Directors ("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 affordable, reliable power;
- Environment — Caring for the region's natural resources; and
- Economic Development — Creating sustainable economic growth.

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:



**Powerful
Partnerships**



**People
Advantage**



**Operational
Excellence**



**Igniting
Innovation**



**Financial
Strength**

- 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 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 2020 corporate results compared with targets for these key measures are reflected in the chart below, in addition to the 2021 corporate measures approved effective November 2020. See Item 11, Executive Compensation — *Compensation Discussion and Analysis* for information regarding how the measures are calculated.

2020 Corporate Measure	Weight	Actual	Threshold	Target	Stretch
TVA total spending (\$ millions)	40%	\$ 4,441	\$ 4,987	\$ 4,847	\$ 4,707
Load not served (system minutes)	30%	2.7	4.8	3.9	3.5
Nuclear unit capability factor (UCF) (%)	15%	90.0 %	89.5 %	90.9 %	92.2 %
Combined cycle equivalent availability factor (%)	10%	84.0 %	72.6 %	77.6 %	85.4 %
Coal equivalent availability factor (%)	5%	79.4 %	56.8 %	61.8 %	80.8 %

2021 Corporate Measure	Weight	Threshold	Target	Stretch
TVA total spending (\$ millions)	40%		Budget	
Load not served (system minutes)	30%	4.6	3.9	3.4
Nuclear unit capability factor (UCF) (%)	15%	91.3 %	92.0 %	93.7 %
Combined cycle equivalent availability factor (%)	10%	75.9 %	80.9 %	85.8 %
Coal equivalent availability factor (%)	5%	59.0 %	64.0 %	82.1 %

Executive Overview

TVA's operating revenues were \$10.2 billion and \$11.3 billion for the years ended September 30, 2020 and 2019, respectively. The decrease in operating revenue was primarily due to lower sales volume as a result of milder weather for the TVA service area and impacts from the COVID-19 pandemic, as well as lower fuel cost recovery revenue from lower fuel rates. Despite record-setting heat experienced during October 2019 and record-setting cold during November 2019, TVA's service territory experienced overall milder weather during the year ended September 30, 2020, which decreased energy sales. TVA also experienced lower energy sales as a result of the COVID-19 pandemic, driven by certain commercial and industrial customers curtailing operations in response to COVID-19 pandemic social distancing standards and economic conditions. TVA estimates base revenues were reduced by approximately \$185 million for the year ended September 30, 2020, due to the impacts of COVID-19. Despite the reduction in revenue due to the COVID-19 pandemic, TVA was able to meet its financial targets, which would not have been possible without the financial discipline of TVA employees. TVA expects the COVID-19 pandemic to continue impacting revenue for 2021 and has planned for \$10.0 billion in operating revenue. It is uncertain at this time the extent to which TVA's revenues may be impacted beyond 2021.

Fuel and purchased power expense decreased \$439 million for the year ended September 30, 2020, as compared to the prior year. This decrease was primarily due to lower effective fuel rates and lower purchased power and fuel volume driven by decreased demand, resulting from overall milder weather and the COVID-19 pandemic. Operating and maintenance expense decreased \$370 million for the year ended September 30, 2020, as compared to the prior year. This was primarily driven by prior year recovery of the regulatory asset for environmental cleanup costs related to the Kingston ash spill. Depreciation and amortization expense decreased \$147 million for the year ended September 30, 2020, as compared to the same period of the prior year. This decrease was primarily due to a decrease in depreciation expense as a result of the decision in 2019 to accelerate the retirements of Bull Run Fossil Plant ("Bull Run") and Paradise Fossil Plant ("Paradise").

In March 2020, the World Health Organization declared the outbreak of COVID-19 to be a pandemic, which continues to be a serious challenge throughout the U.S. In addition to impacts to TVA, the COVID-19 pandemic has also created economic uncertainty for TVA's LPCs and the communities they serve. To support LPCs and strengthen the public power response to the COVID-19 pandemic, in March 2020, the TVA Board approved the Public Power Support and Stabilization Program, offering up to \$1.0 billion of credit support to provide temporary financial relief for its LPCs in the form of deferred payments of power bills under certain circumstances. In addition, in August 2020, the TVA Board approved a \$200 million Pandemic Relief Credit that will apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA's directly served customers as a 2.5 percent monthly base rate credit during 2021. TVA continues to coordinate with LPCs and partners to understand the impact of the COVID-19 pandemic to its service territory.

TVA's operations and delivery of energy to customers have not been materially impacted by the COVID-19 pandemic at this time. TVA experienced fluctuations related to its pension plan assets and other investment portfolios during the year ended September 30, 2020, which had substantially recovered as of September 30, 2020. In response to the reductions in revenue, TVA has implemented various cost savings initiatives, such as deferring and prioritizing certain capital projects and decreasing discretionary spending. Due to higher volatility in the financial markets associated with the COVID-19 pandemic, TVA increased its target balance of Cash and cash equivalents beginning in March 2020 and continued to hold higher target cash balances at September 30, 2020. TVA continues to monitor the situation and will adjust its response as necessary to ensure reliable service while protecting the safety and health of its workforce and sustaining business operations. See *Key Initiatives and Challenges — Coronavirus Pandemic* for an expanded discussion of the impact to TVA and related initiatives.

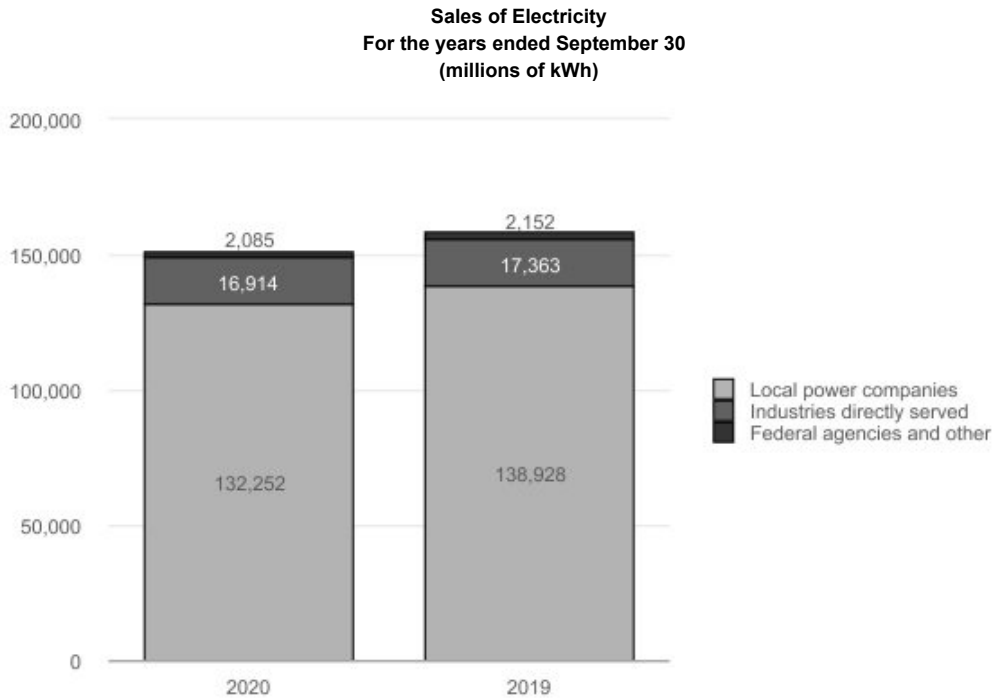
During 2020, TVA continued to achieve 99.999 percent reliability in delivering energy to its customers. TVA's reliability and economic development efforts continued to attract and encourage the expansion of business and industries in the Tennessee Valley, with over \$8.6 billion in investments and approximately 67,000 jobs created or retained during the year.

Results of Operations

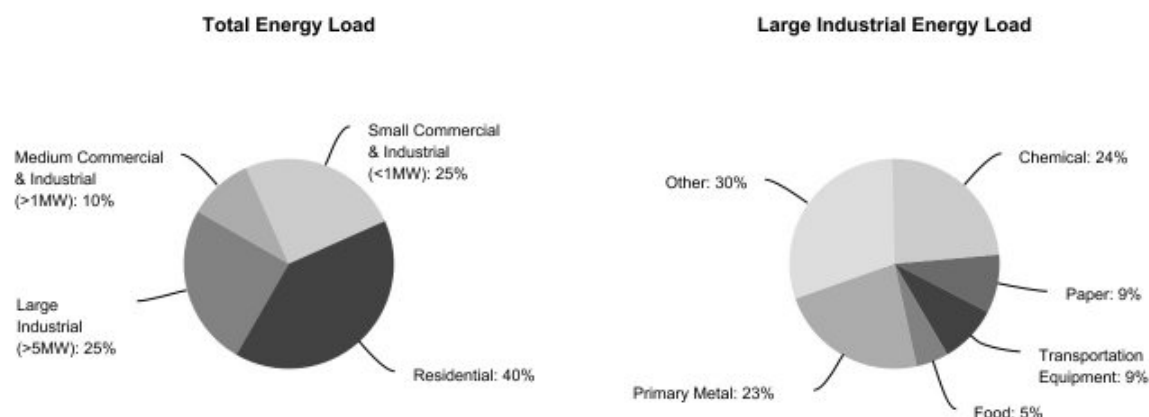
Sales of Electricity

Sales of electricity, which accounted for nearly all of TVA's operating revenues, were 151,251 and 158,443 million kilowatt hours ("kWh") in 2020 and 2019, respectively. TVA sells power at wholesale rates to LPCs who 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 the TVA system's 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, 2020 and 2019:



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 2019, and these graphs will continue to be updated on a calendar year basis.

Weather affects both the demand for TVA power and the price for that power. TVA uses degree days to measure the impact of weather on its power operations. Degree days measure the extent to which the TVA system 23-station average temperatures vary from 65 degrees Fahrenheit. Although weather is generally a primary driver of changes in demand for TVA power, the COVID-19 pandemic has also had a significant impact on sales of electricity for the year ended September 30, 2020.

Degree Days								
	2020	Normal	Percent Variation	2019	Normal	Percent Variation	2020	2019
Heating Degree Days	3,056	3,369	(9.3)%	3,219	3,360	(4.2)%	3,056	3,219
Cooling Degree Days	1,688	1,691	(0.2)%	2,020	1,686	19.8 %	1,688	2,020
								Percent Change
								(5.1)%
								(16.4)%

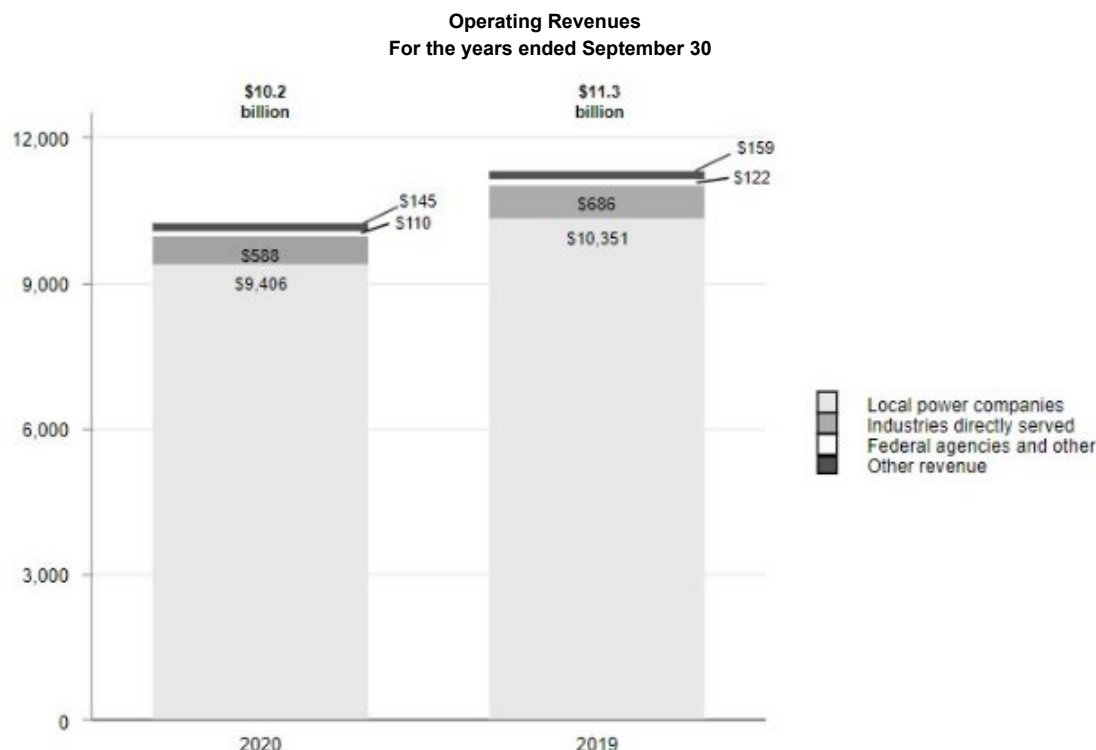
Sales of electricity decreased approximately five percent for the year ended September 30, 2020, as compared to the prior year, primarily due to overall milder weather and the COVID-19 pandemic. Despite record-setting heat experienced during October 2019 and record-setting cold during November 2019, overall milder weather across TVA's service territory accounted for approximately 60 percent of the change in sales of electricity from the prior year. The remaining decrease in sales of electricity was predominantly due to COVID-19, driven by certain commercial and industrial customers curtailing operations in response to social distancing standards and economic conditions.

Financial Results

The following table compares operating results for 2020 and 2019:

Summary Consolidated Statements of Operations			2020	2019
Operating revenues	\$	10,249	\$	11,318
Operating expenses		7,538		8,507
Operating income		2,711		2,811
Other income, net		36		62
Other net periodic benefit cost		253		258
Interest expense, net		1,142		1,198
Net income	\$	1,352	\$	1,417

Operating Revenues. Operating revenues for the years ended September 30, 2020 and 2019, consisted of the following:



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, 2020 and 2019. In May 2020, MLGW published a draft Integrated Resource Plan ("IRP") to guide energy choices in the future, and in July 2020, TVA made a proposal to MLGW that highlights the benefits of remaining a TVA customer. In August 2020, MLGW published a final IRP and announced their plan to issue requests for proposal ("RFPs") to validate the cost estimates included in the IRP. In addition, certain other LPCs 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.

Additionally, in 2019, the TVA Board approved a 20-year Partnership Agreement option that better aligns the length of LPC contracts with TVA's long-term commitments. 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 16, 2020, 142 LPCs had signed the 20-year Partnership Agreement with TVA.

In addition to base revenues, the rate structure also includes a separate fuel rate that recovers 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*.

The changes in revenue components are summarized below:

	2020	2019 ⁽²⁾	Change
Base revenue			
Energy revenue	\$ 4,546	\$ 5,128	\$ (582)
Demand revenue ⁽¹⁾	3,426	3,609	(183)
Grid access charge ⁽⁴⁾	597	257	340
Long-term partnership credits for LPCs	(163)	(14)	(149)
Other charges and credits ⁽³⁾	(616)	(624)	8
Total base revenue	7,790	8,356	(566)
Fuel cost recovery	2,310	2,799	(489)
Off-system sales	4	4	—
Revenue from sales of electricity	10,104	11,159	(1,055)
Other revenue	145	159	(14)
Total operating revenues	\$ 10,249	\$ 11,318	\$ (1,069)

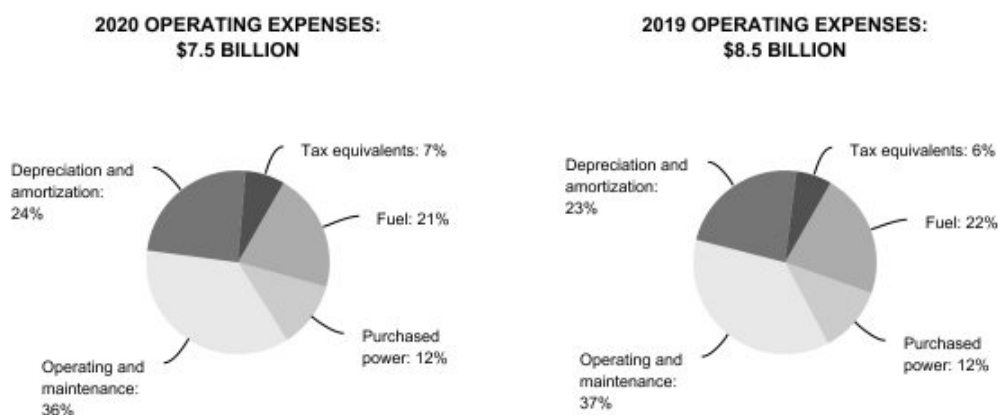
Notes

- (1) Includes approximately \$10 million in Back-to-Business credits in 2020 to provide relief to certain large customers affected by the COVID-19 pandemic.
- (2) For the year ended September 30, 2019, \$14 million previously classified as Other charges and credits (a component of Base revenue), has been reclassified to Long-term partnership credits for LPCs (a component of Base revenue) to conform with current year presentation.
- (3) 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*.
- (4) All LPCs were presented with the option to implement the GAC in October 2018 or defer the implementation until October 2019. Seventy-nine LPCs elected to implement in October 2018, while the remaining LPCs implemented the wholesale changes in October 2019.

Operating revenues decreased \$1.1 billion for the year ended September 30, 2020, as compared to the prior year, primarily due to a \$566 million decrease in base revenue and a \$489 million decrease in fuel cost recovery revenue. The \$566 million decrease in base revenue was driven by a decrease of \$379 million attributable to lower sales volume and a decrease of \$187 million attributable to lower effective rates. Lower sales volume resulted primarily from overall milder weather for the TVA service territory during year ended September 30, 2020 and from the COVID-19 pandemic. TVA estimates that the COVID-19 impact accounted for approximately \$185 million of decreased base revenue. TVA expects the COVID-19 pandemic to continue impacting revenue for 2021 and has planned for \$10.0 billion in operating revenue. It is uncertain at this time the extent to which TVA's revenues may be impacted beyond 2021. The \$489 million decrease in fuel cost recovery revenue was driven by a \$362 million decrease attributable to lower fuel rates and a \$127 million decrease attributable to lower energy sales. The lower fuel rates experienced were primarily driven by lower market prices for natural gas.

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 2020 and 2019 consisted of the following:



Operating Expenses (in millions)				
	2020	2019	Change	
Operating expenses				
Fuel	\$ 1,584	\$ 1,896	\$	(312)
Purchased power	880	1,007		(127)
Operating and maintenance	2,720	3,090		(370)
Depreciation and amortization	1,826	1,973		(147)
Tax equivalents	528	541		(13)
Total operating expenses	\$ 7,538	\$ 8,507	\$	(969)

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

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

	Fuel Expense By Source		Cost per kWh ⁽⁴⁾	
	2020	2019	2020	2019
Coal ⁽²⁾	\$ 533	\$ 744	2.69	2.66
Natural gas and/or oil-fired ⁽³⁾	660	783	1.96	2.47
Nuclear fuel	378	369	0.58	0.58
Total fuel	<u>\$ 1,571</u>	<u>\$ 1,896</u>	1.33	1.54

Notes

(1) Excludes effects of the fuel cost adjustment deferrals and amortization on fuel expense in the amount of \$13 million for the year ended September 30, 2020. The effect on fuel expense from the fuel cost adjustment deferrals and amortization was less than \$1 million for the year ended September 30, 2019, and therefore is not represented in the table above.

(2) Fuel expense related to oil consumed for startup at coal-fired facilities was \$17 million and \$25 million for the years ended September 30, 2020 and 2019, respectively.

(3) Fuel expense related to oil consumed for generation at natural gas and/or oil-fired facilities was \$2 million for both the years ended September 30, 2020 and 2019.

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

Fuel expense decreased \$312 million for the year ended September 30, 2020, as compared to the prior year. This decrease was primarily due to lower effective fuel rates of \$260 million resulting from lower natural gas prices. Also, the milder weather and COVID-19 pandemic reduced demand, resulting in a decrease in volume of \$66 million. Partially offsetting these decreases was an increase of \$14 million driven by variances in fuel rate recovery.

Purchased power expense decreased \$127 million for the year ended September 30, 2020, as compared to the prior year. This was primarily due to a reduction in volume of \$110 million driven by decreased demand, resulting from the milder weather and COVID-19 pandemic. Lower effective rates contributed an additional \$18 million to the decrease resulting from lower market prices for natural gas.

Operating and maintenance expense decreased \$370 million for the year ended September 30, 2020, as compared to the prior year. This was primarily driven by a decrease of \$266 million of prior year recovery of the regulatory asset for environmental cleanup costs related to the Kingston ash spill. Additionally, project write-offs and materials and supplies inventory reserves and write-offs related to the retirement of Bull Run and Paradise decreased \$157 million as compared to the prior year. Partially offsetting these decreases was \$85 million of increased payroll and benefit costs due to labor escalation for cost of living increases and \$28 million of increased contract labor related to the timing of nuclear outages, emergent work, and contract model transition.

Depreciation and amortization expense decreased \$147 million for the year ended September 30, 2020, as compared to the prior year. This decrease was primarily driven by a net decrease in depreciation expense of \$199 million related to the decision in 2019 to accelerate the retirements of Bull Run and Paradise. Paradise was fully depreciated in the second quarter of 2020. Partially offsetting this decrease was a \$25 million increase in amortization expense of non-nuclear decommissioning costs recovered in rates. The remaining variance was due to depreciation of additions to Completed plant.

Tax equivalents expense decreased \$13 million for the year ended September 30, 2020, as compared to the prior year. This change is primarily driven by a decrease in the tax equivalents collected in the fuel rate recovery.

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)

	2020		2019	
Coal-fired	19,825	13 %	27,934	17 %
Nuclear	64,832	42 %	63,433	39 %
Hydroelectric	16,003	10 %	16,058	10 %
Natural gas and/or oil-fired	33,635	22 %	31,704	20 %
Total TVA-operated generation facilities ⁽¹⁾	134,295	87 %	139,129	86 %
Purchased power (non-renewable) ⁽²⁾	11,592	8 %	14,105	9 %
Purchased power (renewable) ⁽³⁾	7,934	5 %	7,840	5 %
Total purchased power	19,526	13 %	21,945	14 %
Total power supply	153,821	100 %	161,074	100 %

Notes

(1) Generation from TVA-owned non-hydroelectric renewable resources is less than one percent for all periods shown and therefore is not represented in the table above.

(2) Purchased power (non-renewable) includes generation from Caledonia Combined Cycle Plant ("Caledonia CC"), which is currently a leased facility operated by TVA. Generation from Caledonia CC was 4,229 million kWh and 4,181 million kWh for the years ended September 30, 2020 and 2019, respectively.

(3) Purchased power (renewable) includes power purchased from the following renewable sources: hydroelectric, solar, wind, and cogeneration.

Interest Expense. Interest expense and interest rates for 2020 and 2019, were as follows:

Interest Expense and Rates
For the years ended September 30

	2020	2019	Percent Change
Interest expense ⁽¹⁾	\$ 1,142	\$ 1,198	(4.7)%
Average blended debt balance ⁽²⁾	\$ 21,978	\$ 23,266	(5.5)%
Average blended interest rate ⁽³⁾	5.05 %	4.92 %	2.6 %

Notes

(1) Includes amortization of debt discounts, issuance, and reacquisition costs, net.

(2) Includes average balances of long-term power bonds, debt of variable interest entities ("VIE"), and discount notes.

(3) Includes interest on long-term power bonds, debt of VIE, and discount notes.

Total interest expense decreased \$56 million for the year ended September 30, 2020, as compared to the prior year. This was primarily driven by a decrease of \$42 million due to lower average debt balances and \$14 million due primarily to lower average short-term rates.

Other Income (Expense), Net

During 2020, Other income (expense), net decreased \$26 million, primarily driven by \$21 million of other income in 2019 related to a deposit liability received by TVA as a down payment on the sale of Bellefonte. The purchaser, Nuclear Development, LLC, failed to fulfill the requirements of the sales contract with respect to obtaining Nuclear Regulatory Commission ("NRC") approval of the transfer of required nuclear licenses and payment of the remainder of the selling price before the November 30, 2018 closing date. Additionally, Interest income decreased \$7 million primarily as a result of lower interest rates. See Note 22 — *Commitments and Contingencies* — *Legal proceedings* for a discussion of the lawsuit filed by Nuclear Development, LLC.

Other Net Periodic Benefit Cost

Other net periodic benefit cost decreased \$5 million for the year ended September 30, 2020, 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 U.S. generally accepted accounting principles ("GAAP") as pension expense differs from the amount TVA contributes to the pension plan as pension plan contributions. See Note 21 — *Benefit Plans*. In 2020, U.S. GAAP pension expense exceeded contributions resulting in additional amounts deferred as a regulatory asset as compared to the prior year.

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. 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 a \$150 million credit facility with the United States Department of the Treasury ("U.S. Treasury"), four long-term revolving credit facilities totaling \$2.7 billion, and proceeds from other financings. See Note 13 — *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, 2020 and 2019, were \$20.1 billion (including current maturities) and \$21.4 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 10 — *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 10 — *Variable Interest Entities*, and Note 13 — *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.

Due to higher volatility in the financial markets associated with the COVID-19 pandemic, TVA increased its target balance of Cash and cash equivalents beginning in March 2020. TVA continued to hold higher target cash balances at September 30, 2020, and may hold higher balances in future periods due to potential market volatility. TVA has maintained continued debt market access since the outbreak of the pandemic. TVA successfully funded the maturity of \$1.0 billion of power bonds in March 2020 with cash from operations and proceeds from the issuance of discount notes. In May 2020, TVA issued \$1.0 billion of power bonds to take advantage of the historically low interest rate environment and to meet its ongoing funding needs. TVA's next significant power bond maturity of \$1.5 billion is in February 2021.

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, 2020, the average maturity of long-term power bonds was 15.3 years, and the weighted average interest rate was 4.56 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, 2020. See *Lease Financing* below, Note 10 — *Variable Interest Entities*, and Note 13 — *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 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 18 — *Proprietary Capital — Appropriation Investment*.

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, 2020, was calculated after the end of 2020, and TVA met the test's requirements.

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

The bondholder protection test for the five-year period ended September 30, 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 Borrowing Table				
	At September 30, 2020	For the year ended September 30, 2020	At September 30, 2019	For the year ended September 30, 2019
Gross Amount Outstanding (at End of Period) or Average Gross Amount Outstanding (During Period)				
Discount notes	\$ 57	\$ 812	\$ 922	\$ 1,610
Maximum Month-End Gross Amount Outstanding (During Period)				
Discount notes	N/A	\$ 1,875	N/A	\$ 2,390
Weighted Average Interest Rate				
Discount notes	0.06 %	0.77 %	2.15 %	2.32 %

TVA ended the year at September 30, 2020, with a lower balance for both short-term debt and average short-term debt as compared to 2019. The decrease was primarily due to the decision to issue \$1.0 billion of power bonds in 2020 and the timing of cash flows.

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.

TVA issued \$1.0 billion of power bonds during 2020, and no power bonds were issued in 2019. TVA redeemed \$1.5 billion and \$1.1 billion of Bonds during 2020 and 2019, respectively. For additional information about TVA debt issuance activity and debt instruments issued and outstanding at September 30, 2020 and 2019, including rates, maturities, outstanding principal amounts, and redemption features, see Note 13 — *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 Puttable Automatic Rate Reset Securities 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 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

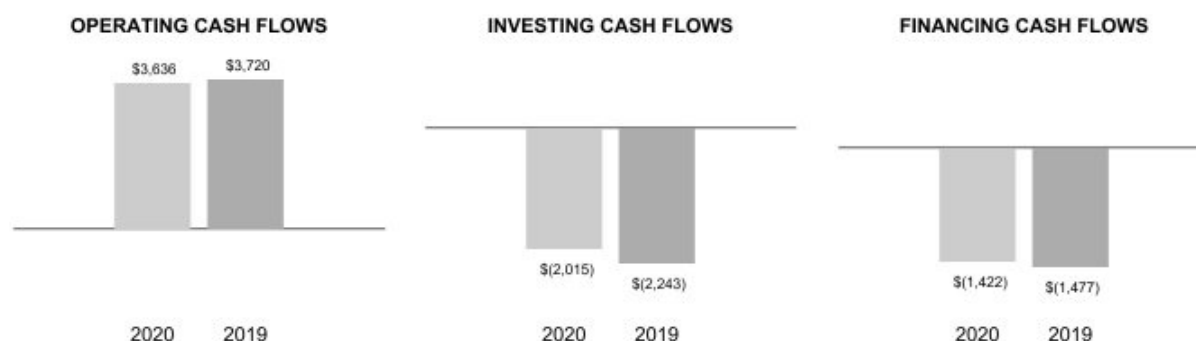
nationally recognized credit rating agencies, downward pressure on the ratings of the U.S. could eventually develop if there are no changes in current policies and budget deficits and the trajectory of debt continues to increase; additionally, current ratings factor in the prospect that debates over 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 is currently stable with two of the three agencies that provide ratings on TVA Bonds. In July 2020, Fitch Ratings downgraded the U.S.'s credit rating outlook to negative from stable reflecting the ongoing deterioration in U.S. public finances and the absence of a credible fiscal consolidation plan, worsened by the economic challenges from the COVID-19 pandemic. In August 2020, the outlook on the credit rating of TVA was subsequently changed by Fitch to negative from stable, reflecting the actions on the U.S. The outlook on the ratings of TVA is currently stable with two of three credit rating agencies. 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. See Note 10 — *Variable Interest Entities* and Note 13 — *Debt and Other Obligations* for information about TVA's lease financing activities. During 2017 and 2016, TVA acquired 100 percent of the equity interests in certain SPEs created for the purpose of facilitating lease financing. TVA may seek to enter into similar arrangements in the future. In March 2019, TVA made final rent payments under lease/leaseback transactions involving eight combustion turbine units ("CTs"), and in July 2019, these transactions were terminated. In May 2020, TVA made final rent payments under lease/leaseback transactions involving eight additional CTs and anticipate these transactions will be terminated in 2021. TVA will continue making rent payments under the remaining lease/leaseback transactions through 2022.

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 were \$521 million and \$322 million at September 30, 2020 and 2019, respectively. A summary of cash flow components for 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 \$84 million for 2020 compared to 2019, due to lower revenue collections from decreased sales of electricity driven predominantly by overall milder weather and the COVID-19 pandemic, in addition to lower effective rates as a result of the long-term partnership credits for LPCs. Increases in post-employment claims, asset retirement obligation ("ARO") settlements, and other payments due to timing also contributed to the decrease in cash flows from operations. These decreases were partially offset by lower fuel and purchased power payments as a result of lower natural gas prices and decreased electricity demand, lower interest payments, and decreased discretionary spend to mitigate COVID-19 financial impacts.

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. Nuclear fuel expenditures vary depending on the number of outages and the prices and timing of purchases of uranium and enrichment services.

Net cash flows used in investing activities decreased \$228 million for 2020 compared to 2019, primarily driven by decreases in the number of nuclear fuel outages as compared to the prior year, deferral of certain capital project spend to mitigate COVID-19 financial impacts, and a reduction in capital expenditures for capacity expansion due primarily to the completion of the Browns Ferry Nuclear Plant ("Browns Ferry") extended power uprate in the prior year and the Pickwick South Embankment remediation project nearing completion. These decreases were partially offset by an increase in expenditures for the Boone Dam Embankment Remediation capacity expansion project.

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 \$55 million for 2020 compared to 2019. TVA's financing activities continue to reflect an overall reduction in debt driven by strong financial performance and execution of long-range financial plans to reduce debt and keep TVA's electric rates competitive.

Impact of COVID-19 to Liquidity

As a result of certain commercial and industrial customers curtailing operations in response to the COVID-19 pandemic, TVA experienced decreases in base revenue. TVA estimates base revenues were reduced by approximately \$185 million for the year ended September 30, 2020 due to the impacts of COVID-19. TVA expects the COVID-19 pandemic to continue impacting revenue for 2021. It is uncertain at this time the extent to which TVA's revenues may be impacted beyond 2021. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Results of Operations — Financial Results — Operating Revenues*. Due to reductions in TVA's revenue for the year ended September 30, 2020 and expected reductions in revenue in 2021 associated with the COVID-19 pandemic, TVA has and will continue to implement various cost savings initiatives such as deferring and prioritizing certain capital projects and decreasing discretionary spending. TVA may also experience an increase in interest cost, fuel cost, and other additional operating costs. The ultimate impact of the COVID-19 pandemic on TVA's financial condition 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 COVID-19 pandemic has also created economic uncertainty for TVA's LPCs and the communities they serve. To support LPCs and strengthen the public power response to the COVID-19 pandemic, TVA has created initiatives such as the Public Power Support and Stabilization Program, Back-to-Business Credit Program, Community Care Fund, and Pandemic Relief Credit. TVA has also provided regulatory flexibility for LPCs to halt disconnection of services. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Key Initiatives — Coronavirus Pandemic* for an expanded discussion of these initiatives.

Cash Requirements and Contractual Obligations

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

Capital Expenditures				
For the year ended September 30				
	Actual	Estimated Capital Expenditures⁽¹⁾		
	2020	2021	2022	2023
Capacity expansion expenditures	\$ 224	\$ 553	\$ 922	\$ 866
Environmental expenditures	310	145	134	74
Nuclear fuel	359	422	312	254
Transmission expenditures	404	525	510	400
Other capital expenditures ⁽²⁾	761	949	903	916
Total capital expenditures	<u>\$ 2,058 ⁽³⁾</u>	<u>\$ 2,594</u>	<u>\$ 2,781</u>	<u>\$ 2,510</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 construction in progress and nuclear fuel expenditures included in Accounts payable and accrued liabilities of \$73 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 Item 1A, Risk Factors.

TVA has certain obligations and commitments to make future payments under contracts, including contracts executed in connection with certain of the planned construction expenditures. The following table sets forth TVA's estimates of future payments at September 30, 2020. See Note 7 — *Leases*, Note 10 — *Variable Interest Entities*, Note 11 — *Other Long-Term Liabilities*, Note 13 — *Debt and Other Obligations*, Note 21 — *Benefit Plans*, and Note 22 — *Commitments and Contingencies* for a further description of these obligations and commitments.

Commitments and Contingencies Payments due in the year ending September 30							
	2021	2022	2023	2024	2025	Thereafter	Total
Debt ⁽¹⁾	\$ 1,917	\$ 1,028	\$ 29	\$ 1,022	\$ 1,022	\$ 15,057	\$ 20,075
Interest payments relating to debt ⁽²⁾	1,001	950	929	928	898	13,057	17,763
Debt of VIEs ⁽³⁾	41	43	40	36	37	900	1,097
Interest payments relating to debt of VIEs	50	49	47	45	47	403	641
Lease obligations							
Finance ⁽⁴⁾	92	93	92	87	86	592	1,042
Operating ⁽⁵⁾	66	51	39	37	34	16	243
Purchase obligations							
Power ⁽⁶⁾	252	229	216	196	172	1,068	2,133
Fuel ⁽⁷⁾	1,375	682	453	429	377	1,234	4,550
Other ⁽⁸⁾	236	114	65	38	28	237	718
Environmental Agreements	2	2	2	1	1	3	11
Membership interests of VIEs subject to mandatory redemption	3	3	2	1	1	15	25
Interest payments related to membership interests of VIEs subject to mandatory redemption	2	2	1	1	1	6	13
Flood response commitment to NRC	1	26	—	—	—	—	27
Unfunded loan commitments	1	—	—	—	—	—	1
Long-term monitoring costs - Kingston ash spill	1	1	—	1	—	9	12
Leaseback obligations ⁽⁹⁾	207	25	—	—	—	—	232
Retirement Plan ⁽¹⁰⁾	300	300	300	300	300	3,300	4,800
Other contractual obligations	2	—	—	—	—	—	2
Total	\$ 5,549	\$ 3,598	\$ 2,215	\$ 3,122	\$ 3,004	\$ 35,897	\$ 53,385

Notes

- (1) Does not include non-cash items of foreign currency exchange gain of \$153 million, unamortized debt issue costs of \$45 million, and net discount on sale of Bonds of \$77 million.
(2) Includes the effects of interest rate derivatives employed to manage interest rate risk.
(3) Debt of VIEs does not include the non-cash item of unamortized debt issue costs of \$8 million.
(4) Includes the interest component of finance leases based on the interest rates stated in the lease agreements and excludes certain related non-lease costs.
(5) Excludes commitments related to non-lease costs, which are included in purchase obligations.
(6) Includes commitments for energy and/or capacity under power purchase agreements 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 power purchase agreements ("PPAs") are accounted for as leases and have lease and non-lease components. For these contracts, the lease component is included in lease obligations and the non-lease component is included in power.
(7) Includes commitments to purchase nuclear fuel, coal, and natural gas, as well as related transportation and storage services.
(8) Primarily includes long-term service contracts, contracts that contain minimum purchase levels for the purchase of limestone along with related storage and transportation, and contractual obligations related to load control programs.
(9) In 2020, Paradise Pipeline Financing Obligation was derecognized due to a modification of a contract. See Note 11 — *Other Long-Term Liabilities* — *Paradise Pipeline Financing Obligation*.
(10) Pursuant to amendments to the TVA Retirement System ("TVARS") Rules and Regulations that became effective October 1, 2016, TVA will contribute to TVARS for a period of 20 years (2017-2036) or, if earlier, through the fiscal year in which it is determined by actuarial valuation that TVARS has reached and remained at a 100 percent funded status, which is an amount not less than the greater of (a) the minimum required TVARS actuarial valuation contribution or (b) \$300 million.

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. As of September 30, 2020, the total carrying amount of the loans receivable, net of discount, was approximately \$87 million. Such amounts are not reflected in the Commitments and Contingencies table above. The total carrying amount of the financing obligation was approximately \$97 million at September 30, 2020. See Note 8 — *Other Long-Term Assets* and Note 11 — *Other Long-Term Liabilities* for additional information.

Off-Balance Sheet Arrangements

At September 30, 2020, TVA had no off-balance sheet arrangements.

Key Initiatives and Challenges

COVID-19 Pandemic

In December 2019, a novel strain of coronavirus was reported in China. As this strain continued to spread across the globe, the World Health Organization declared the outbreak of the 2019 novel coronavirus a pandemic on March 11, 2020. TVA has performed risk analyses across the company to determine potential impacts and monitor performance throughout the situation and has implemented a company-wide pandemic plan to address specific aspects of the COVID-19 pandemic. TVA's pandemic plan continues to evolve based on medical guidance and federal, regional, and local requirements and guidelines.

Based on ongoing monitoring, COVID-19 continues to pose a significant risk in the U.S. and in the Tennessee Valley region, and as a result TVA has extended the timeframe for workforce reintegration and continues to limit non-essential travel. Mandatory telework has been implemented for those employees who do not have to be physically present at a TVA facility or office building to provide mission-essential activities or produce safe, reliable power. TVA continues to implement strong physical and cybersecurity measures to ensure that systems remain functional to keep employees, customers, and communities safe and enable TVA to continue achieving its mission to serve the people of the Valley. In addition to measures to protect its workforce, stakeholders, and critical operations, TVA is actively monitoring generation, transmission, and distribution functions. Operations and delivery of energy to customers have not been materially impacted by the COVID-19 pandemic at this time. Certain TVA recreation areas including TVA campgrounds, day use areas, trails, and undeveloped lands have reopened since TVA had initially closed them to slow the spread of the virus. However, for public and staff safety, restrooms and pavilions remain closed. These changes will continue until it is safe to resume full operations.

For the year ended September 30, 2020, TVA estimates base revenues were reduced by approximately \$185 million due to the impacts of COVID-19. Certain commercial and industrial customers curtailed operations in response to COVID-19 pandemic social distancing standards and economic conditions. As a result, TVA experienced decreased energy demand from those customers in 2020. TVA expects the COVID-19 pandemic to continue impacting revenue for 2021. It is uncertain at this time the extent to which TVA's revenues may be impacted beyond 2021. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Results of Operations* — *Financial Results* — *Operating Revenues*.

Due to reductions in TVA's revenue for the year ended September 30, 2020 and expected reductions in revenue in 2021 associated with the COVID-19 pandemic, TVA has and will continue to implement various cost savings initiatives, such as deferring and prioritizing certain capital projects and decreasing discretionary spending. In addition, TVA may also experience increases in interest cost, fuel cost, and other additional operating costs. The ultimate impact of the COVID-19 pandemic on TVA's financial condition 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.

TVA also continues to assess 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 from other vendors, TVA could experience delays, disruptions, additional costs, or other operational outcomes that may impact generation, maintenance, and capital programs. At this time, TVA has experienced minimal impacts due to force majeure events, with the exception of a manufacturing delay for a major turbine component. A mitigation strategy was developed by TVA and the vendor to reduce projected delays and impacts to TVA's outage schedule. TVA will continue to monitor the supply base and remain in contact with suppliers to identify potential risks.

Customer Pandemic Initiatives. The COVID-19 pandemic has created economic uncertainty for TVA's customers and the communities they serve. To support and strengthen the public power response to the COVID-19 pandemic, TVA announced the following initiatives in 2020:

Regulatory Flexibility. TVA provided regulatory flexibility for LPCs to halt disconnection of services and respond to the local needs of their customers and communities.

Program Flexibility. In April 2020, TVA established flexibility provisions for certain economic development programs for participating customers impacted by the COVID-19 pandemic, as well as deferral options for EnergyRight® program loan payments, through October 31, 2020, for customers experiencing financial hardship. See Note 8 — *Other Long-Term Assets*, Note 12 — *Other Long-Term Liabilities*, and Note 18 — *Revenue*.

Financial Support. In March 2020, the TVA Board approved the Public Power Support and Stabilization Program. Through this program, TVA is offering up to \$1.0 billion of credit support to LPCs that demonstrate the need for temporary financial relief, through the deferral of a portion of LPCs' wholesale power payments owed to TVA. The program requires LPCs to apply for the deferral, which is subject to approval by TVA. If approved, TVA will establish and approve a repayment schedule with the LPC by December 31, 2020, with a repayment term not to exceed two years. The program is available through CY 2020, and as of November 16, 2020, \$1 million of credit support has been approved under the program.

Back-to-Business Credit Program. TVA created the Back-to-Business Credit Program to enable TVA and LPCs the ability to provide relief to certain large customers affected by the COVID-19 pandemic by providing certain credits when returning to operations. As of September 30, 2020, TVA had provided approximately \$10 million in Back-to-Business credits under this program.

Community Care Fund. TVA is also partnering with LPCs through the Community Care Fund by making available over \$4 million in matching funds to support local initiatives that address hardships created by the COVID-19 pandemic. Over \$2 million in matching funds had been provided as of September 30, 2020.

Pandemic Relief Credit. In August 2020, the TVA Board approved a \$200 million Pandemic Relief Credit. The 2.5 percent base rate credit will be applied beginning in October 2020 and will remain in effect through the end of 2021. The credit will apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers.

These actions continue to show TVA's commitment to support the financial integrity of LPCs along with communities and customers across the Tennessee Valley during these challenging economic conditions caused by the COVID-19 pandemic. The COVID-19 pandemic is an evolving situation that may lead to extended disruption of economic activity and an adverse impact on TVA's results of operations. TVA is closely monitoring developments and will continue adjusting its response as necessary to ensure reliable service while protecting the safety and health of its workforce.

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 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. TVA is working to develop pricing and regulatory structures with a deliberate and thoughtful analysis of each current and future program offering. This requires strong partnerships with LPCs to give customers choices and provide end-use consumers the flexibility they desire.

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, 2020, TVA had spent \$121 million on installation of the fiber optic lines and expects to spend an additional \$179 million.

Changing Customer Preferences

As more consumers and businesses are demanding 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 and its economic development efforts. End-use customers are becoming more technologically sophisticated and want greater control over their energy usage. Many companies are focusing on sustainability and requiring more energy efficiency and renewable energy options. The continuing challenge for TVA and others is finding ways to meet the needs and preferences of customers while successfully developing flexible pricing models to accommodate the evolving markets.

Low-Income Energy Efficiency Program. Through the Home Uplift Program, TVA is partnering with LPCs, state and local governments, non-profit agencies, energy efficiency advocates, and the Tennessee Valley Public Power Association 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.

Renewable Power Purchase Agreements. In order to meet customer preferences and requirements for cleaner energy, TVA has entered into certain power purchase agreements ("PPAs") with renewable resource providers. In 2019, as a result of TVA's 2017 request for proposals for renewable energy, TVA signed four solar PPAs for 674 megawatts ("MW") of solar generation at sites in Tennessee and Alabama. One of these four solar projects is expected to come online in 2021 and two of the projects are expected to come online in 2022. In 2020, one of the counterparties failed to comply with the terms of its PPA. TVA terminated the 150 MW agreement due to the counterparty's default and is evaluating its rights under the PPA and next steps. During 2020, as a result of TVA's 2019 request for proposals for renewable energy, TVA signed six additional PPAs for a total of 661 MW of solar generation with 50 MW of battery storage expected to come online in 2023. Due to transmission issues for one of the projects, the 661 MW will be decreased to 651 MW. 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 Tennessee Valley 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.

Further, TVA issued another request for proposal during the second quarter of 2020 for up to 200 MW of new renewable energy. The ultimate volume contracted will align to TVA customers' demand for renewable energy, allowing TVA to increase its renewable energy portfolio without additional costs to other Tennessee Valley customers. TVA anticipates making selections in CY 2020.

Renewable Power Solutions. TVA encourages renewable power through various current offerings. Offerings include the Green Switch Program that allows customers to support wind, solar, and biomass renewable resources through purchasing renewable energy generated in the Tennessee Valley, sold in 200 kWh blocks. TVA also offers the Green Flex Program, which 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. In 2019, the TVA Board approved new renewable power solutions, including a utility-scale program and a mid-scale flexibility option, that better equip TVA and LPCs with the flexibility to meet changing end-use customer needs. The utility-scale program, Green Invest, aggregates demand through a competitive procurement process and is implemented through a renewable investment agreement. The goal of the Green Invest program is to meet the long-term sustainability needs of customers at scale. TVA may also construct its own renewable facilities to meet these needs. The mid-scale option, also known as the Flexibility Research Project, is a joint project with LPCs to enable solutions for situations where the end-use consumer needs onsite renewable or distributed generation. This project will allow TVA to gain market knowledge and operational insights.

Energy Exchange Market

TVA and other utilities across the southeastern United States are exploring the creation of a new automated energy exchange across the region, to facilitate more immediate and short-term power exchanges. The energy exchange would be an enhancement to TVA's existing trading program, and the creation of this energy exchange platform would require approval of the Federal Energy Regulatory Commission, which regulates transmission service and power transfers by jurisdictional public utilities. These discussions demonstrate TVA's commitment to maintaining and improving reliability in the Tennessee Valley in the least-cost manner.

Natural Resource Plan

In May 2020, the TVA Board of Directors accepted changes to TVA's Natural Resource Plan ("NRP") to support a more strategic, flexible, and comprehensive management approach to TVA's natural resource stewardship work. TVA published its Record of Decision to complete its environmental review process in July 2020. The updated plan enhances alignment with TVA's mission through economic development, energy, and environmental stewardship, and guides business planning. In the newly published NRP, TVA expanded from six resource areas to ten focus areas, ensuring the NRP provides a more comprehensive view of resource stewardship efforts.

Strategic Financial Plan

In 2019, the TVA Board approved an annual budget that reflects the first year of a new Strategic Financial Plan. The 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 rates as low as feasible, establishing better alignment between the length of LPC contracts and TVA's long-term commitments, stabilizing debt, assuming 100 percent long-term partner participation, maintaining a cash balance of \$300 million, and pursuing operational efficiencies. As TVA executes the plan, key assumptions and performance may change estimated debt and cash balances. For example, TVA is continuing to evaluate its long-term asset needs. In addition, due to higher volatility in the financial markets associated with the COVID-19 pandemic, TVA increased its target balance of Cash and cash equivalents beginning in March 2020. TVA continued to hold higher target cash balances at September 30, 2020, and may hold higher balances in future periods due to potential market volatility.

Generation Resources

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 by the end of the first quarter of CY 2021. In addition, TVA submitted models for Sequoyah Nuclear Plant ("Sequoyah") Units 1 and 2 on January 14, 2020. TVA will subsequently address conditions at Browns Ferry as needed.

As of September 30, 2020, TVA had spent \$154 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.

NRC Seismic Assessments. In 2014, the NRC notified licensees of nuclear power reactors in the central and eastern U.S. of the results of seismic hazard screening and prioritization evaluations performed by unit owners and reviewed by the NRC staff. Because the seismic hazards for Browns Ferry, Sequoyah, and Watts Bar had increases in seismic parameters beyond the technical information available when the plants were designed and licensed, TVA must conduct seismic risk evaluations for these plants. TVA completed the risk evaluation for Watts Bar and submitted it to the NRC in 2017; the evaluation concluded that no additional actions were required. The NRC completed its review of the Watts Bar evaluation in 2018 and concluded that no further response or regulatory actions were required. The evaluation for Sequoyah was submitted on October 18, 2019, and the evaluation for Browns Ferry was submitted on December 17, 2019. The NRC completed its review of the Sequoyah and Browns Ferry evaluations in the fourth quarter of 2020 and concluded that no further response or regulatory actions were required.

Mitigation of Beyond-Design-Basis Events. NRC rulemaking has been developed to codify the requirements promulgated by orders related to beyond-design-basis flooding and seismic events discussed above. The NRC Commissioners approved the final rule in 2019. TVA plans to implement requirements for Sequoyah and Watts Bar by 2022 and for Browns Ferry by 2023. A gap review of the revised rule has been performed, and no new gaps to compliance were identified. Actions to complete flood and seismic assessments are still ongoing. See *Extreme Flooding Preparedness* and *NRC Seismic Assessments* above.

Work Environment at Nuclear Plants. In March 2016, the NRC issued a Chilling Effect Letter ("CEL") to TVA regarding work environment concerns identified at Watts Bar. In the mid-cycle assessment letter issued in June 2018, the NRC issued a Cross Cutting Issue in safety conscious work environment ("CCI") and outlined the closure criteria for both the CEL and CCI. In October 2019, TVA informed the NRC of its CEL and CCI closure criteria readiness, and the NRC completed its inspection, resulting in no additional findings with progress noted as documented in its December 2019 inspection report. In March 2020, the NRC issued its Annual Assessment Letter for Watts Bar noting TVA's progress in addressing the CEL and CCI while stating that the NRC continues to monitor TVA's activities as they deliberate on the appropriate time to close the CEL and CCI.

Apparent Violations of NRC Regulations. On March 2, 2020, the NRC issued a letter to TVA identifying four apparent violations of NRC regulations that prohibit licensees from retaliating against employees for their having raised protected nuclear safety concerns. In June 2020, TVA participated in a pre-decisional enforcement conference before the NRC, and on August 24, 2020, the NRC issued violations to TVA and a notice of proposed imposition of civil penalties in an amount less than \$1 million. TVA submitted a written response to the NRC that denies the violations and opposes the imposition of civil penalties. On October 29, 2020, the NRC issued an order imposing civil penalties in an amount less than \$1 million. TVA has until November 28, 2020, to request an evidentiary hearing before the NRC's Atomic Safety and Licensing Board.

On March 9, 2020, the NRC issued a letter to TVA identifying twelve apparent violations of NRC regulations: six relating to operational activities and six relating to NRC regulations governing the completeness and accuracy of information. TVA participated in a pre-decisional enforcement conference before the NRC in July 2020, and on November 6, 2020, the NRC issued five violations to TVA and a notice of proposed imposition of civil penalties in an amount less than \$1 million. TVA is evaluating its options and must respond to the NRC by December 5, 2020.

Tritium-Producing Burnable Absorber Rods. TVA was a cooperating agency in the 2016 Department of Energy ("DOE") Final Supplemental Environmental Impact Statement for the Production of Tritium in a Commercial Light Water Reactor. In 2017, due to an anticipated need for more tritium-producing burnable absorber rods ("TPBARs"), the DOE announced its preferred alternative for irradiation services, which included use of an additional reactor. As a result of TVA's assessment and concurrence with the DOE's alternative, TVA submitted a license amendment request to the NRC to authorize the irradiation of TPBARs in Watts Bar Unit 2. The NRC approved the request in 2019. TVA is projecting to begin tritium production in Watts Bar Unit 2 in the fall of 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.

Extended Power Uprate. TVA has undertaken an extended power uprate ("EPU") project at Browns Ferry to increase the amount of electrical generation capacity of its reactors. The license for each reactor was amended to allow reactor operation at the higher power level. The Browns Ferry EPU license amendments were approved by the NRC in 2017, following a nearly two-year review.

The project involved extensive engineering analyses and modification and replacement of certain existing plant components to enable the units to produce the additional power requested by the license amendments. The project's total cost will be approximately \$475 million. Physical work on all units was completed in 2019. The generating capacity is expected to increase by an estimated 465 MW that must be validated through operation of all units for four seasons and completion of additional testing. TVA is currently operating and testing the units through the required period to complete the validation of the increased generating capacity and will update the official capacity upon issuance of the engineering memos.

Plant Closures. Results of assessments performed at Paradise and Bull Run were presented to the TVA Board at its February 2019 meeting. The TVA Board approved the retirement of Paradise Unit 3 by December 2020 and Bull Run by December 2023. Subsequent to the TVA Board approval, TVA determined that Paradise would not be restarted after January 2020 due to the plant's material condition. Paradise Fossil Plant Unit 3 was taken offline on February 1, 2020, effectively retiring the plant. See Note 6 — *Plant Closures*.

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. During 2019, the TVA Board approved the Integrated Resource Plan, which recommended an action to evaluate the engineering end-of-life of aging fossil units. These assessments consider material condition, plant performance, system flexibility needs, environmental impacts, grid support, and other factors. TVA is also 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. In addition, TVA will prepare Environmental Assessments ("EAs") pursuant to the National Environmental Policy Act ("NEPA") prior to retiring or building a plant.

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 Conversion Program"), TVA is converting all operational coal-fired plants to dry CCR storage and closing all wet storage facilities.

Dry generation and dewatering projects. Conversion of coal plant CCR wet processes to dry generation or dewatering is complete at Bull Run, Shawnee, and Kingston Fossil Plant ("Kingston"). Construction at Gallatin Fossil Plant ("Gallatin") was completed during 2020. Construction of dewatering and dry generation facilities is underway at Cumberland Fossil Plant ("Cumberland") and is scheduled for completion in the first quarter of 2021.

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 completed and operational at Bull Run, Kingston, and Gallatin; a lined and permitted landfill at Shawnee is currently under construction with completion scheduled for January 2021; construction of a lined and permitted landfill at Cumberland is expected to start in 2021; and TVA is designing and permitting a lateral expansion of the existing landfill at Gallatin. TVA has withdrawn its permit applications for a new lined landfill at Bull Run and has stopped construction of a permitted lined landfill expansion at Kingston until TVA can determine its need for these landfills with certainty. Construction of additional lined and dry storage facilities may occur to support future business requirements.

Wet CCR impoundment closures. TVA is working to close wet CCR impoundments 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 environmental impact statement ("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. Additional site-specific NEPA studies will be conducted as other facilities are designated for closure. See Note 12 — *Asset Retirement Obligations*.

Groundwater monitoring. Compliance with the Environmental Protection Agency's ("EPA's") CCR rule ("CCR Rule") as well as other requirements will require additional engineering and analysis as well as implementation of a comprehensive groundwater monitoring program. As further analyses are performed, including evaluation of monitoring results, there is the potential for additional costs for investigation and/or remediation. TVA expects to continue to evaluate and update these cost estimates.

In compliance with the CCR Rule, TVA published the results of additional groundwater testing at TVA's CCR facilities on March 1, 2019. The results included values above groundwater protection standards for some constituents at several CCR units. Accordingly, TVA will have to cease sending CCR and non-CCR wastestreams to any impacted unlined CCR surface impoundments as soon as possible but no later than the applicable CCR Rule date. The EPA has published a final rule that

changes the deadline to cease sending CCR and non-CCR wastestreams to unlined CCR impoundments and to initiate closure or retrofit the units from October 31, 2020 to April 11, 2021. The final rule establishes a process for a utility to seek site-specific approval from the EPA to continue to use the unlined CCR impoundment based on meeting certain criteria. TVA evaluated and published Assessment of Corrective Measures reports to its CCR website in August 2019. TVA is continuing to publish periodic reports on additional groundwater testing at its CCR facilities; the latest reports were published on February 28, 2020 and August 28, 2020. Under the CCR Rule, based on the results of the assessment of corrective measures, 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.

As of September 30, 2020, TVA had spent approximately \$2.1 billion on its CCR Conversion Program. TVA expects to spend an additional \$949 million on the CCR Conversion Program through 2025. These estimates may change depending on the final closure method selected for each facility. Once the CCR Conversion Program is completed, TVA will continue to undertake certain CCR 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 U.S. Court of Appeals for the Sixth Circuit, and the other case was resolved by the entry of a consent order that became effective July 24, 2019. Under the consent order, TVA agreed to close the existing wet ash impoundments 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 to the Tennessee Department of Environment and Conservation ("TDEC") and other applicable parties pursuant to the consent order. See Note 12 — *Asset Retirement Obligations* for additional information.

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.

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 certain 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 had 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 alleged that exposure to the fly ash caused a variety of significant health issues and illnesses, including in some cases death. The case was split into two phases, with the first phase considering, among other issues, general causation and the second determining specific causation and damages. On November 7, 2018, a jury hearing the first phase returned a verdict in favor of the plaintiffs, including determinations 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 list of medical conditions, ranging from hypertension to cancer. On January 11, 2019, the Eastern District referred the parties to mediation. Mediation has concluded, but the parties did not resolve the matter. The litigation will now proceed to the second phase on the question of whether Jacobs's breaches were the specific medical cause of the plaintiffs' alleged injuries and damages.

Further in 2019, an additional group of contractor employees and family members filed suit against Jacobs in the Circuit Court for Roane County, Tennessee. These plaintiffs have raised similar claims to those being litigated in the case referenced above.

While TVA is not a party to either of these lawsuits, TVA may potentially have an indemnity obligation to reimburse Jacobs for some amounts that Jacobs is required to pay. TVA will continue monitoring the litigation to determine whether these or similar cases could have broader implications for the utility industry. TVA does not expect any potential liability to have a material adverse impact on its results of operations or financial condition. See Note 22 — *Commitments and Contingencies* — *Legal Proceedings*.

River Management. Rainfall and runoff in the Tennessee Valley in 2020 were 150 percent and 156 percent of normal, respectively. Above normal rainfall and runoff have continued to help TVA meet its river system commitments, including managing minimum river flows for navigation, generating low-cost hydroelectric power, maintaining water quality and 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.

Small Modular Reactors. In 2015, DOE entered into an Interagency Agreement with TVA to support site characterization activities and the development of an Early Site Permit Application ("ESPA") for a generic small modular reactor ("SMR"). The ESPA is based on the potential construction and operation of two or more SMR units at TVA's Clinch River Site in

Oak Ridge, Tennessee. TVA submitted the ESPA for review by the NRC in 2016. NRC staff concluded their environmental review and issued a final EIS in April 2019, followed by the conclusion of the safety review and issuance of a final safety evaluation report in June 2019. The Commission held the statutorily required mandatory hearing for the ESPA in August 2019, and the permit was issued by the NRC in December 2019. 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.

TVA is in the process of evaluating new nuclear technology options and potential deployment scenarios. To assist in the evaluation of SMRs, TVA has entered into memorandums of understanding with Oak Ridge National Laboratory and the University of Tennessee. These partnerships allow for collaboration, exploring advanced reactor designs as a next-generation nuclear technology while leveraging advanced modeling and simulation tools to assist in determining the feasibility of SMRs. Any decision to construct an SMR would require approval by the TVA Board and the NRC. As of September 30, 2020, TVA had spent \$81 million on work regarding SMRs, including work to complete the ESPA for the Clinch River Site, of which the DOE reimbursed TVA \$28 million. Additional expenditures will be determined based on future project development.

System Operations Center. A new system operations center has been approved for \$255 million. The new secured facility is being built to accommodate a new energy management system and to adapt to new regulatory requirements. The facility is expected to be constructed by 2022 and fully operational by 2024. As of September 30, 2020, TVA had spent approximately \$37 million on the project and expects to spend an additional \$218 million.

Dam Safety and Remediation Initiatives

Assurance Initiatives. TVA has an established dam safety program, which includes procedures based on the Federal Guidelines for Dam Safety, with the objective of reducing the risk of a dam safety event. The program is comprised of various engineering activities for all of TVA's dams including safety reassessments using modern industry criteria and the new probable maximum flood and site-specific seismic load cases. One aspect of the guidelines is that dam structures will be periodically assessed to assure that TVA's dams meet current design criteria. These assessments include material sampling of the dam and foundational structures and detailed engineering analysis. TVA will continue preventative and ongoing maintenance as a part of this safety program.

Boone 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. TVA has completed grouting and construction of an upstream and downstream buttress. Installation of the concrete cut-off wall elements is in process.

As construction of the embankment repair project continues, the estimated cost and duration continue to be refined. As of September 30, 2020, TVA had spent \$251 million related to this project and expects to spend an additional \$184 million through 2023. TVA expects the reservoir to return to normal operations in 2022 and is continuing to work with the community to help mitigate local impacts of the extended drawdown.

Pickwick South Embankment Remediation. 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.

TVA is upgrading the south embankment by constructing berms on the upstream and downstream slopes. The design phase of the project began in 2017 and is now completed. Construction began in the spring of 2019, and the project is currently estimated to be completed in two years, but could take longer depending on successful construction sequencing. As of September 30, 2020, TVA had spent \$118 million related to this project and expects to spend an additional \$14 million through 2022.

Real Estate Portfolio

TVA continues to study its real estate portfolio and align its real estate holdings with TVA's strategic direction. A comprehensive assessment of its real estate portfolio has been completed. TVA will continue to develop and implement a strategy aimed at reducing cost and right-sizing its portfolio as part of the effort.

Knoxville Property. In 2016, TVA completed a comprehensive assessment of its real estate holdings in the Knoxville, Tennessee region including the Knoxville Office Complex ("KOC") and adjacent Summer Place Complex ("SPC"). As a result of this study and a subsequent Environmental Assessment in 2017, TVA has consolidated its Knoxville area employees into the West Tower of the KOC and the Greenway Drive Transmission Service Center, and is completing the centralized field offices in Norris, Tennessee. As part of this consolidation effort, TVA approved the conveyance of the SPC and the East Tower of the KOC and the transaction closed in August 2020.

Regulatory Compliance

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

The EPA published a rule in 2017, postponing certain compliance/applicability dates to provide the EPA time to review and revise, as necessary, the 2015 ELGs for FGD wastewater and bottom ash transport water. The EPA delayed the compliance dates for these two waste streams from the 2018-2023 timeframe to 2020-2023. However, the 2018-2023 applicability dates and the accompanying requirements for fly ash transport water, flue gas mercury control wastewater, and gasification wastewater remain unchanged. While the EPA reconsiders the limits for FGD wastewater and bottom ash transport water, states have issued National Pollutant Discharge Elimination System ("NPDES") permits for all of TVA's active coal facilities based on the 2015 ELGs, recognizing that the permits may need to be reopened to incorporate modifications to those ELGs. The EPA proposed revised ELGs for bottom ash transport water and FGD wastewater on November 4, 2019. The final ELGs were published on October 13, 2020.

The primary impact of these regulations 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. TVA currently has three plants with wet scrubbers that may be subject to new scrubber-related limits, the largest being Cumberland. Bull Run is exempt from the imposition of new scrubber-related limits due to the pending retirement of the plant prior to the regulatory deadline. The revision also includes a subcategory for which Cumberland would qualify that provides TVA greater flexibility in meeting the ELGs. Litigation of the final rule is anticipated which introduces additional uncertainty in what will be required at each facility.

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. In 2018, TVA submitted a draft Remedial Investigation Report to TDEC which was revised after discussions with TDEC and additional investigation. TVA submitted the Final Updated Remedial Investigation Report to TDEC in 2019.

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 below 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 is committed to not operating these production wells until additional data supports safe use. TVA constructed water tanks on site and is purchasing cooling water from Memphis Light, Gas and Water. The use of water tanks rather than the wells may impose some operational restrictions on the Allen CC due to the lower availability of cooling water.

TVA's Remedial Investigation/Interim Response Action Groundwater Monitoring Plan is reviewed and modified annually. The 2020 Remedial Investigation/Interim Response Action Groundwater Monitoring Plan was approved by TDEC on May 5, 2020. TVA has sampled the monitoring wells at the site as described by the plan quarterly. TVA prepares a memorandum after each quarterly event and prepares an annual report to evaluate the sampling results. The 2019 Remedial Investigation/Interim Response Action Groundwater Monitoring report was submitted to TDEC on July 2, 2020.

The Interim Response Action Plan to remediate the groundwater will include a groundwater extraction system and a groundwater treatment system. TVA will also continue to dewater the East Ash Disposal Area and treat the water before it is discharged to the NPDES outfall. A feasibility study to evaluate remedial actions for the site was submitted to TDEC on September 4, 2020.

TVA has evaluated closure options for the Allen East Ash Disposal Area, as well as the nearby West Ash Impoundment, through an EIS pursuant to NEPA. In March 2019, TVA released its public scoping report, which eliminated closure-in-place as an alternative. TVA published the final EIS on March 13, 2020 and its Record of Decision on April 14, 2020, which documents the final decision regarding the closure method for the CCR units at the Allen Fossil Plant. TVA has decided to remove CCR from the above identified areas to an existing permitted offsite landfill.

Federal Contracting and Hiring Practices. On August 3, 2020, President Trump issued an "Executive Order ("EO") on Aligning Federal Contracting and Hiring Practices With the Interests of American Workers". Among other things, the EO directs

federal agencies to review contracts awarded in 2018 and 2019 to assess (i) whether temporary foreign labor was used and impacts from such use, and (ii) whether any offshoring occurred and its impacts. The EO also directs agencies to review employment policies for compliance with specific laws. TVA is conducting a review and will report a summary of its findings to the Office of Management and Budget ("OMB") by December 1, 2020.

Ratemaking

TVA, LPCs, and directly served industries have worked collaboratively in recent years to develop changes to rates that focus on TVA's long-term pricing efforts and the changing needs of customers in the Tennessee Valley. These changes have improved pricing by better aligning rates with underlying cost drivers and by sending improved pricing signals, while maintaining competitive industrial rates and keeping residential rates affordable.

In 2019, the TVA Board approved a 20-year Partnership Agreement option that better aligns the length of LPC contracts with TVA's long-term commitments. These agreements are automatically extended each year after their initial effective date, contingent upon certain circumstances, including limited rate increases going forward. Participating LPCs will 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. In June 2020, TVA provided participating LPCs a flexibility option that allows them to locally generate up to approximately five percent of average total hourly energy sales over the prior five years in order to meet their individual customers' needs. As of November 16, 2020, 142 LPCs had signed the 20-year Partnership Agreement with TVA, and 64 LPCs had signed a Flexibility Agreement.

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.

Physical attacks on transmission facilities across the country have heightened awareness of the need to physically protect facilities. TVA continues to work 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 and the U.S. Computer Emergency Readiness Team ("US-CERT"). 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 from the internet.

The risk of cybersecurity events such as malicious code attacks, unauthorized access attempts, and social engineering attempts continues to intensify. 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 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.*

Over the last few years, there has been an increase of malicious cyber activity across all industries, including the energy sector. TVA has observed a significant increase in malicious activity related to the COVID-19 pandemic including phishing campaigns and malicious websites. These types of malicious activity are occurring across the industry and have also been observed by TVA's external vendors, stakeholders, and partners. This activity has caused the need for heightened awareness and preparedness. TVA is leveraging federal and other partners to better identify, detect, protect, and respond to these potential attacks. While there have been incidents of phishing and attempted fraud against TVA and its vendors and service providers, these events have not had a significant or material impact on business or operations.

Transmission Assets. In addition to physical and cybersecurity attacks, TVA's transmission assets are vulnerable to various types of electrically charged energy disruptions such as those from geomagnetic disturbances ("GMDs") and electromagnetic pulses ("EMPs"). Because the effects of GMD and EMP are similar, they are often considered together. In September 2016, the Federal Energy Regulatory Commission ("FERC") approved a new standard to address GMD events, and in March 2020, FERC approved a revision to the standard. TVA has met the requirements of the original standard and subsequent revisions, and has evaluated the effects of solar storms ranging from NERC's reference case to possible extreme

levels. TVA continues as an active participant with NERC in this field. The most serious threats from EMP are those caused by high-altitude nuclear explosions. Like others in the industry, TVA is coordinating with federal and state authorities, NERC, Electric Power Research Institute, and other grid owners and operators to address this concern.

Bulk-Power System Assets. On May 1, 2020, President Trump issued EO 13920, *Securing the United States Bulk-Power System*. Among other things, the EO prohibits the acquisition or installation of any bulk-power system electric equipment where the transaction (1) involves any property in which any foreign country or a national thereof has any interest and (2) poses an undue risk to the bulk-power system in, or national security of, the United States. Whether a bulk-power system electric equipment acquisition or installation is prohibited will depend on determinations by the Secretary of DOE that have not yet been made. At this time, it is uncertain to what extent this EO may impact TVA's operations.

Critical Accounting Policies and 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 also discussed in Note 1 — *Summary of Significant Accounting Policies* of the Notes to Consolidated Financial Statements.

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

- Regulatory Accounting;
- AROs; and
- Pension and Other Post-Retirement Benefits.

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

Regulatory Accounting

The TVA Board is authorized by the TVA Act to set rates for power sold to customers; thus, TVA is "self-regulated." Additionally, TVA's regulated rates are designed to recover its costs of providing electricity. In view of demand for electricity and the level of competition, TVA has assumed that rates, set at levels that will recover TVA's costs, can be charged and collected. As a result of these factors, TVA records certain assets and liabilities that result from the regulated ratemaking process that would not be recorded under GAAP for non-regulated entities. Regulatory assets generally represent incurred costs that have been deferred because such costs are probable of future recovery in customer rates. Regulatory liabilities generally represent obligations to make refunds to customers for previous collections of costs that are not likely to be incurred or deferral of gains that will be credited to customers in future periods. The timeframe over which the regulatory assets are recovered from customers or regulatory liabilities are credited to customers is subject to annual TVA Board approval. At September 30, 2020, TVA had \$10.4 billion of Regulatory assets and \$164 million of Regulatory liabilities.

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.

In 2017, the TVA Board authorized management to accelerate amortization of certain regulatory assets to the extent actual net income in 2018 exceeded the budgeted amount, up to the aggregate amount of those certain regulatory assets. Assets included in this Board action include: deferred nuclear generating units, environmental cleanup costs related to the Kingston ash spill, and nuclear training costs related to the refurbishing and restarting of Browns Ferry Unit 1 and the construction of Watts Bar Unit 2. TVA recorded \$857 million of accelerated amortization of the Deferred nuclear generating units and Nuclear training costs regulatory assets in 2018. The TVA Board authorized TVA to use the amount included in the 2019 rate action for these two regulatory assets, to the extent needed, to accelerate amortization of the Environmental cleanup costs - Kingston ash spill regulatory asset in 2019. TVA recorded \$266 million of accelerated recovery for the Kingston ash spill regulatory asset in 2019. No accelerated amortization was recorded in 2020.

TVA does not believe there is a reasonable likelihood that there will be a material change in the estimates or assumptions used to record regulatory assets and liabilities. If future recovery of regulatory assets ceases to be probable, or any of the other factors described herein cease to be applicable, TVA would be required to write off these costs and recognize them in net income or other comprehensive income.

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 asset retirement obligation ("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 9 — *Regulatory Assets and Liabilities* — *Nuclear Decommissioning Costs and Non-Nuclear Decommissioning Costs* and Note 12 — *Asset Retirement Obligations*.

Nuclear Decommissioning. Utilities that own and operate nuclear plants are required to recognize a liability for legal obligations related to nuclear decommissioning. An equivalent amount is recorded as an increase in the carrying value of the capitalized asset and allocated to a regulatory asset over the useful life of the capitalized asset. The initial obligation is measured at its estimated fair value using various judgments and assumptions. Fair value is developed using an expected present value technique that is based on assumptions of market participants and that considers estimated retirement costs in current period dollars that are inflated to the anticipated decommissioning date and then discounted back to the date the ARO was incurred. Decommissioning cost studies are updated for each of TVA's nuclear units at least every five years. Changes in assumptions and estimates included within the calculations of the value of the AROs could result in significantly different results than those identified and recorded in the financial statements.

At September 30, 2020, the estimated future nuclear decommissioning cost recognized in the financial statements was \$3.3 billion and was included in AROs, and the unamortized regulatory asset related to nuclear decommissioning ARO costs of \$896 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, with the last study performed in 2017. 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 ARO for nuclear decommissioning cost at September 30, 2020, would have affected the liability by approximately \$328 million.

Non-Nuclear Decommissioning. At September 30, 2020, 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 \$2.5 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. 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. 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. See Note 8 — *Regulatory Assets and Liabilities — Non-Nuclear Decommissioning Costs*.

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 ARO for non-nuclear decommissioning costs at September 30, 2020, would have affected the liability by approximately \$351 million.

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, administers the qualified defined benefit pension plan. TVA also provides a Supplemental Executive Retirement Plan ("SERP") to certain executives in critical positions, which provides supplemental pension benefits tied to compensation levels that exceed limits imposed by IRS rules applicable to the qualified defined benefit pension plan. Additionally, TVA provides post-retirement health care benefits for most of its full-time employees who reach retirement age while still working for TVA.

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 and complexity associated with the future occurrence or outcome of events and conditions underlying the significant accounting assumptions discussed below.

Key actuarial assumptions utilized include discount rates, projected health care cost trend rates, 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. 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.

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. Based upon review of the current plan's asset target allocation mix, capital market outlooks, and the most recent studies, TVA management maintained its 6.75 percent expected long-term rate of return on plan assets assumption, which will be used to calculate the 2021 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 calculation. The market-related value of assets 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 2020 was 5.11 percent compared to the assumption of 6.75 percent. The difference between the expected and actual return on plan assets resulted in an actuarial loss of \$91 million that is recognized as an increase in the related regulatory asset and an increase in the pension benefit obligation at September 30, 2020.

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 2.75 percent and 3.05 percent, respectively, at September 30, 2020.

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 current health care cost trend rate is 6.50 percent, the ultimate trend rate is 5.00 percent, and the year to reach the ultimate rate is 2027. The post-Medicare current health care cost trend rate and ultimate health care cost trend rate remained constant at zero percent and 4.00 percent, respectively, whereas the year to reach the ultimate rate was extended to 2024 from 2023 attributable to lower than expected premium increases on the private exchange. This change in the post-Medicare health care cost trend rate assumption resulted in a \$15 million decrease in the post-retirement obligation at September 30, 2020.

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 based on the capital market outlooks, economic forecasts, and the Federal Reserve policy. See Note 21 — *Benefit Plans — Plan Assumptions — Cost of Living Adjustment* for further discussion on the calculation of the COLA. The actual COLA for CY 2020 was 1.54 percent. The CY 2021 COLA is assumed to be 1.00 percent, and for years thereafter is assumed to be 2.00 percent. A higher COLA increases the pension benefit obligation whereas a lower 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, 2020. 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 determining the benefit obligations at September 30, 2020, TVA adopted a modified version of the SOA PRI-2012 mortality table and a modified version of the MP-2019 projection scale based upon an updated mortality experience study. The change in TVA's mortality assumptions resulted in a \$137 million decrease in the pension obligation and a \$2 million increase in the post-retirement obligation at September 30, 2020.

Sensitivity to Changes in Key Assumptions

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:

Sensitivity to Certain Changes in Pension Assumptions
At September 30, 2020

Actuarial Assumption	Current Assumption	Change in Assumption	Impact
Effect on 2020 pension expense:			
Discount rate	3.20 %	(0.25)%	\$ 17
Expected return on assets	6.75 %	(0.25)%	18
COLA	2.00 %	0.25 %	30
Effect on benefit obligation			
Discount rate	2.75 %	(0.25)%	418
COLA	2.00 %	0.25 %	270

Sensitivity to Changes in Assumed Health Care Cost Trend Rates
At September 30, 2020

	1% Increase	1% Decrease
Effect on total of service and interest cost components for the year	\$ 4	\$ (4)
Effect on end-of-year accumulated post-retirement benefit obligation	70	(68)

Contributions. The minimum pension contribution for 2020 was \$300 million and was paid in twelve monthly installments. TVA made contributions of \$5 million to the SERP and \$25 million, net of rebates and subsidies received, to the unfunded other post-retirement benefit plans. TVA expects to contribute \$300 million to TVARS, \$5 million to the SERP, and \$28 million to the other post-retirement benefit plans in 2021.

Accounting Mechanisms. In accordance with current accounting guidance, TVA utilizes a number of accounting mechanisms that reduce the volatility of reported pension expense. Differences between actuarial assumptions and actual plan results are deferred and amortized into period expense only when the accumulated differences exceed 10 percent of the greater of the projected benefit obligation or the market-related value of plan assets. If necessary, the excess is amortized over the average future expected working lifetime of participants expected to receive benefits, which is approximately 11 years for the pension plan and 12 years for the post-retirement plan. Additionally, TVA recognizes pension costs as regulatory assets 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 recent 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. Furthermore, 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 a plan change is amortized over the average remaining service period of participating employees expected to receive benefits under the plans. The pension and post-retirement plans currently have prior service costs/(credits) from plan changes made in 2009, 2010, 2016, 2018, 2019, and 2020 with remaining amortization periods of one to nine years.

Fair Value Measurements

Investments

Investment Funds. Investments classified as trading consist of amounts held in the Nuclear Decommissioning Trust ("NDT"), Asset Retirement Trust ("ART"), SERP, and Deferred Compensation Plan ("DCP"). These assets are generally measured at fair value based on quoted market prices or other observable market data such as interest rate indices. These investments are primarily U.S. and international equities, real estate investment trusts, fixed income investments, high-yield fixed income investments, U.S. Treasury Inflation-Protected Securities, 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. 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 21 — *Benefit Plans — Fair Value Measurements* for disclosure of fair value measurements for investments held by TVARS that support TVA's qualified defined benefit pension plan.

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

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

Derivatives

TVA has 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.

Currency and Interest Rate Derivatives. TVA has three currency swaps and four "fixed for floating" interest rate swaps. The currency swaps protect against changes in cash flows caused by volatility in exchange rates related to outstanding Bonds denominated in British pounds sterling. 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. The application of credit valuation adjustments ("CVAs") did not materially affect the fair value of these assets and liabilities at September 30, 2020.

Commodity Contracts. TVA enters into commodity contracts for coal and natural gas that require physical delivery of the contracted quantity of the commodity. During the fourth quarter of 2020, TVA discontinued derivative accounting for forward coal contracts because these contracts no longer meet the criteria of net settlement. As a result, the associated net derivative liabilities and regulatory assets have been derecognized. 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. The application of CVAs did not materially affect the fair value of these assets and liabilities at September 30, 2020.

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.

Fair Value Considerations

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

Sources of Market Assumptions. TVA derives its financial instrument market assumptions from market data sources (e.g., CME 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 2019) 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 less than \$1 million decrease in the fair value of assets and a \$1 million decrease in the fair value of liabilities at September 30, 2020.

Collateral. TVA's interest rate swaps and currency swaps contain contract provisions that require a party to post collateral (in a form such as cash or a letter of credit) when the party's liability balance under the agreement exceeds a certain threshold. See Note 15 — *Risk Management Activities and Derivative Transactions — Other Derivative Instruments — Collateral* for a discussion of collateral related to TVA's derivative liabilities.

New Accounting Standards and Interpretations

See Note 2 — *Impact of New Accounting Standards and Interpretations* for a discussion of recent accounting standards and pronouncements which 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

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

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

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 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 a party to or otherwise involved in 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, 2020, TVA had accrued approximately \$14 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 22 — *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 Enterprise Risk Council 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.

TVA manages risk with commodity contracts for both coal and natural gas that require physical delivery of the contracted quantity. A hypothetical 10 percent decline in the market price of coal on September 30, 2019, would have resulted in a decrease of approximately \$34 million in the fair value of TVA's coal derivative instruments at this date. TVA discontinued derivative accounting for forward coal contracts during the fourth quarter of 2020; therefore, a hypothetical 10 percent decline in the market price of coal on September 30, 2020, is not presented. A hypothetical 10 percent decline in the market price of natural gas on September 30, 2020 and 2019, would have resulted in decreases of approximately \$84 million and \$79 million, respectively, in the fair value of TVA's natural gas derivative instruments at these dates.

Investment Price Risk

TVA's investment price risk relates primarily to investments in TVA's NDT, ART, pension fund, SERP, and 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. Treasury Inflation-Protected Securities ("TIPS"), treasuries, private real assets, private equity, and private credit strategies. At September 30, 2020 and 2019, an immediate 10 percent decrease in the price of the investments in the trust would have reduced the value of the trust by \$223 million and \$211 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, 2020 and 2019, an immediate 10 percent decrease in the price of the investments in the trust would have reduced the value of the trust by \$87 million and \$77 million, respectively.

Due to higher volatility in the financial markets associated with the COVID-19 pandemic, TVA has experienced fluctuations related to its ART and NDT investment portfolio during 2020. The losses experienced during the three months ended March 31, 2020, have been recovered. For the year ended September 30, 2020, the NDT increased in value \$123 million compared to the year ending September 30, 2019. Despite this volatility, TVA's NDT funding as of September 30, 2020, continues to be fully funded per the NRC funding requirements.

Qualified Pension Plan. The TVARS asset allocation policy for qualified pension plan assets has targets of 40 percent equity including global public and private equity investments, 40 percent fixed income securities, and 20 percent real assets, including public and private real asset investments. TVARS has a long-term investment plan that contains a dynamic de-risking strategy which will allocate investments to assets that better match the liability, such as long duration fixed income securities, over time as improved funding status targets are met. Pursuant to the TVARS Rules and Regulations, any proposed changes in asset allocation that would change the system's assumed rate of investment return are subject to TVA's review and veto.

As set forth above, the qualified pension plan assets are invested across global public equity, private equity, safety oriented fixed income, opportunistic fixed income, public real assets, and private real assets. The TVARS asset allocation policy includes permissible deviations from these target allocations, and action can be taken, as appropriate, to rebalance the plan's assets consistent with the asset allocation policy. At September 30, 2020 and 2019, 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 \$796 million and \$798 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, 2020 and 2019, an immediate 10 percent decrease in the value of the SERP investments would have reduced the value of the investments by \$7 million and \$6 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, 2020 and 2019, an immediate 10 percent decrease in the value of the deferred compensation accounts would have reduced the value of the accounts by \$3 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, 2020, TVA had \$500 million of cash and cash equivalents, and the average balance of cash and cash equivalents for 2020 was \$637 million. The average interest rate that TVA received on its short-term investments during 2020 was less than one percent. If the rates of interest that TVA received on its short-term investments during 2020 were zero percent, TVA would have received approximately \$4 million less in interest from its short-term investments. At September 30, 2019, TVA had \$299 million of cash and cash equivalents, and the average balance of cash and cash equivalents for 2019 was \$336 million. The average interest rate that TVA received on its short-term investments during 2019 was 2.40 percent. If the rates that TVA received on its short-term investments during 2019 were 1.40 percent, TVA would have received approximately \$3 million 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 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, 2020, TVA's short-term borrowings were \$57 million, and the current maturities of long-term debt were \$1.8 billion. Based on TVA's interest rate exposure at September 30, 2020, 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. At September 30, 2019, TVA's short-term borrowings were \$922 million, and the current maturities of long-term debt were \$1.1 billion. Based on TVA's interest rate exposure at September 30, 2019, an immediate one percentage point increase in interest rates would have resulted in an increase of \$20 million in TVA's short-term interest expense.

Long-Term Debt. At September 30, 2020 and 2019, 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, 2020 and 2019, the average life of TVA's debt portfolio was 15.3 years and 16.1 years, respectively. At September 30, 2020 and 2019, the average interest rate of TVA's debt portfolio was 4.56 percent and 4.65 percent, respectively. See Note 13 — *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 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 four interest rate swaps outstanding at September 30, 2020 and September 30, 2019. Net unrealized gains and losses on these instruments are reflected on TVA's Consolidated Balance Sheets in a regulatory asset account, and realized gains and losses are reflected in earnings. Based on TVA's interest rate exposure at September 30, 2020 and 2019, an immediate one-half percentage point decrease in interest rates would have increased the interest rate swap liabilities by \$270 million and \$253 million, respectively.

London Interbank Offered Rate. TVA has four "fixed for floating" interest rate swaps related to outstanding Bonds, and receives periodic payments under these swaps based on the floating London Interbank Offered Rate ("LIBOR") benchmark rate. TVA may also have additional contracts that could be impacted. LIBOR is expected to be discontinued after 2021. Various alternatives for LIBOR are being evaluated by market participants, with the Secured Overnight Financing Rate being the most widely-adopted alternative thus far. TVA may face risks related to the viability of an alternative benchmark over the remaining terms of its current contracts, or over the terms of any future contracts that rely on the benchmark rate.

Currency Exchange Rate Risk

Over the next several years, TVA plans to spend a significant amount of capital on clean air projects, capacity expansion, and other projects. A portion of this amount may be spent on contracts that are denominated in one or more foreign currencies. Additionally, TVA's three issues of Bonds denominated in British pounds sterling are hedged by currency swap agreements. The value of the U.S. dollar compared with other currencies has fluctuated widely in recent years, including 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.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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

	2020	2019	2018
Operating revenues			
Revenue from sales of electricity	\$ 10,104	\$ 11,159	\$ 11,075
Other revenue	145	159	158
Total operating revenues	10,249	11,318	11,233
Operating expenses			
Fuel	1,584	1,896	2,049
Purchased power	880	1,007	973
Operating and maintenance	2,720	3,090	2,598
Depreciation and amortization	1,826	1,973	2,527
Tax equivalents	528	541	518
Total operating expenses	7,538	8,507	8,665
Operating income	2,711	2,811	2,568
Other income (expense), net	36	62	50
Other net periodic benefit cost	253	258	256
Interest expense			
Interest expense	1,142	1,198	1,243
Net income (loss)	<u>\$ 1,352</u>	<u>\$ 1,417</u>	<u>\$ 1,119</u>

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

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

ASSETS

	2020	2019
Current assets		
Cash and cash equivalents	\$ 500	\$ 299
Accounts receivable, net	1,529	1,739
Inventories, net	1,003	999
Regulatory assets	130	156
Other current assets	84	85
Total current assets	3,246	3,278
Property, plant, and equipment		
Completed plant	64,970	62,944
Less accumulated depreciation	(33,550)	(31,384)
Net completed plant	31,420	31,560
Construction in progress	2,139	1,893
Nuclear fuel	1,504	1,534
Finance leases	516	146
Total property, plant, and equipment, net	35,579	35,133
Investment funds	3,198	2,968
Regulatory and other long-term assets		
Regulatory assets	10,245	8,763
Operating lease assets, net of amortization	232	—
Other long-term assets	325	325
Total regulatory and other long-term assets	10,802	9,088
Total assets	\$ 52,825	\$ 50,467

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

	2020	2019
Current liabilities		
Accounts payable and accrued liabilities	\$ 1,844	\$ 1,649
Accrued interest	298	296
Asset retirement obligations	345	163
Current portion of leaseback obligations	198	40
Regulatory liabilities	141	150
Short-term debt, net	57	922
Current maturities of power bonds	1,787	1,030
Current maturities of long-term debt of variable interest entities	41	39
Current maturities of notes payable	—	23
Total current liabilities	4,711	4,312
Other liabilities		
Post-retirement and post-employment benefit obligations	6,617	6,181
Asset retirement obligations	6,440	5,453
Finance lease liabilities	525	182
Other long-term liabilities	2,548	2,308
Leaseback obligations	25	223
Regulatory liabilities	23	—
Total other liabilities	16,178	14,347
Long-term debt, net		
Long-term power bonds, net	17,956	19,094
Long-term debt of variable interest entities, net	1,048	1,089
Total long-term debt, net	19,004	20,183
Total liabilities	39,893	38,842
Commitments and contingencies (Note 22)		
Proprietary capital		
Power program appropriation investment	258	258
Power program retained earnings	12,177	10,823
Total power program proprietary capital	12,435	11,081
Nonpower programs appropriation investment, net	548	556
Accumulated other comprehensive income (loss)	(51)	(12)
Total proprietary capital	12,932	11,625
Total liabilities and proprietary capital	\$ 52,825	\$ 50,467

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)

	2020	2019	2018
Net income (loss)	\$ 1,352	\$ 1,417	\$ 1,119
Other comprehensive income (loss)			
Net unrealized gain (loss) on cash flow hedges	(1)	(114)	10
Net unrealized (gain) loss reclassified to earnings from cash flow hedges	(38)	45	26
Total other comprehensive income (loss)	\$ (39)	\$ (69)	\$ 36
Total comprehensive income (loss)	\$ 1,313	\$ 1,348	\$ 1,155

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)

	2020	2019	2018
Cash flows from operating activities			
Net income (loss)	\$ 1,352	\$ 1,417	\$ 1,119
Adjustments to reconcile net income (loss) to net cash provided by operating activities			
Depreciation and amortization ⁽¹⁾	1,848	1,993	2,554
Amortization of nuclear fuel cost	388	379	382
Non-cash retirement benefit expense	324	314	324
Prepayment credits applied to revenue	—	(10)	(100)
Other regulatory amortization and deferrals	(23)	261	2
Changes in current assets and liabilities			
Accounts receivable, net	259	(40)	(68)
Inventories and other current assets, net	(12)	(87)	65
Accounts payable and accrued liabilities	(38)	(155)	143
Accrued interest	1	(8)	(36)
Pension contributions	(305)	(307)	(304)
Settlements of asset retirement obligations	(114)	(89)	(106)
Other, net	(44)	52	(37)
Net cash provided by operating activities	3,636	3,720	3,938
Cash flows from investing activities			
Construction expenditures	(1,643)	(1,700)	(1,759)
Nuclear fuel expenditures	(342)	(474)	(457)
Purchases of investments	(49)	(48)	(49)
Loans and other receivables			
Advances	(8)	(10)	(12)
Repayments	7	11	4
Other, net	20	(22)	4
Net cash used in investing activities	(2,015)	(2,243)	(2,269)
Cash flows from financing activities			
Long-term debt			
Issues of power bonds	997	—	998
Redemptions and repurchases of power bonds	(1,427)	(1,035)	(1,731)
Payments on debt of variable interest entities	(39)	(38)	(36)
Redemptions of notes payable	(23)	(46)	(53)
Short-term debt issues (redemptions), net	(865)	(294)	(782)
Payments on leases and leasebacks	(55)	(43)	(42)
Financing costs, net	(4)	—	(3)
Other, net	(6)	(21)	(9)
Net cash (used in) provided by financing activities	(1,422)	(1,477)	(1,658)
Net change in cash, cash equivalents, and restricted cash	199	—	11
Cash, cash equivalents, and restricted cash at beginning of year	322	322	311
Cash, cash equivalents, and restricted cash at end of year	\$ 521	\$ 322	\$ 322

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 Income (Loss)	Total
Balance at September 30, 2017	\$ 258	\$ 8,282	\$ 572	\$ 21	\$ 9,133
Net income (loss)	—	1,127	(8)	—	1,119
Total other comprehensive income (loss)	—	—	—	36	36
Return on power program appropriation investment	—	(5)	—	—	(5)
Balance at September 30, 2018	\$ 258	\$ 9,404	\$ 564	\$ 57	\$ 10,283
Net income (loss)	—	1,425	(8)	—	1,417
Total other comprehensive income (loss)	—	—	—	(69)	(69)
Return on power program appropriation investment	—	(6)	—	—	(6)
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

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(Dollars in millions except where noted)

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1. Summary of Significant Accounting Policies

General

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

Today, TVA operates the nation's largest public power system and supplies power in most of Tennessee, northern Alabama, northeastern Mississippi, and southwestern Kentucky and in portions of northern Georgia, western North Carolina, and southwestern Virginia to a population of approximately 10 million people.

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

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 of Directors (the "TVA Board") as authorized by the Tennessee Valley Authority Act of 1933, as amended (the "TVA Act"). The TVA Act requires TVA to charge rates for power that will produce gross revenues sufficient to provide funds for operation, maintenance, and administration of its power system; payments to states and counties in lieu of taxes ("tax equivalents"); debt service on outstanding indebtedness; payments to the U.S. Treasury in repayment of and as a return on the Power Program Appropriation Investment; and such additional margin as the TVA Board may consider desirable for investment in power system assets, retirement of outstanding Bonds in advance of maturity, additional reduction of the Power Program Appropriation Investment, and other purposes connected with TVA's power business. TVA fulfilled its requirement to repay \$1.0 billion of the Power Program Appropriation Investment with the 2014 payment; therefore, this item 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 (2020, 2019, etc.) refer to TVA's fiscal years unless they are preceded by "CY," in which case the references are to calendar years.

Cost-Based Regulation

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

Basis of Presentation

The accompanying consolidated financial statements, which have been prepared in accordance with GAAP, include the accounts of TVA, wholly-owned direct subsidiaries, and variable interest entities ("VIE") of which TVA is the primary beneficiary. See Note 10 — *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, including impacts from the COVID-19 pandemic, reported during the reporting period. Each of these estimates varies in regard to the level of judgment involved and its potential impact on TVA's financial results. Estimates are considered critical either when a different estimate could have reasonably been used, or where changes in the estimate are reasonably likely to occur from period to period, and such use or change would materially impact TVA's financial condition, results of operations, or cash flows.

Reclassifications

Certain historical amounts have been reclassified in the accompanying consolidated financial statements to the current presentation. In the Consolidated Balance Sheet at September 30, 2019, TVA reclassified \$163 million from Accounts payable and accrued liabilities to Asset retirement obligations in Current liabilities. In addition, as a result of the adoption of the new lease accounting standard effective for TVA October 1, 2019, TVA reclassified \$182 million from Other long-term liabilities to Finance lease liabilities in the Consolidated Balance Sheet at September 30, 2019.

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 includes cash held in trusts that are currently restricted for TVA economic development loans and for certain TVA environmental programs in accordance with agreements related to compliance with certain environmental regulations. See Note 22 — *Commitments and Contingencies — Legal Proceedings — Environmental Agreements*.

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

Cash, Cash Equivalents, and Restricted Cash		
At September 30		
	2020	2019
Cash and cash equivalents	\$ 500	\$ 299
Restricted cash and cash equivalents, included in Other long-term assets	21	23
Total Cash, cash equivalents, and restricted cash	\$ 521	\$ 322

Due to higher volatility in the financial markets associated with the COVID-19 pandemic, TVA increased its target balance of Cash and cash equivalents beginning in March 2020. TVA continued to hold higher target cash balances at September 30, 2020, and may hold higher balances in future periods due to potential market volatility.

Allowance for Uncollectible Accounts

The allowance for uncollectible accounts reflects TVA's estimate of probable losses inherent in its accounts and loans receivable balances excluding the EnergyRight® loans receivable. TVA determines the allowance based on known accounts, historical experience, and other currently available information including events such as customer bankruptcy and/or a customer failing to fulfill payment arrangements after 90 days. It also reflects TVA's corporate credit department's assessment of the financial condition of customers and the credit quality of the receivables. TVA continues to monitor the impact of the COVID-19 pandemic on accounts and loans receivable balances to evaluate the allowance for uncollectible accounts.

The allowance for uncollectible accounts was less than \$1 million at both September 30, 2020 and 2019, for accounts receivable. Additionally, loans receivable of \$105 million and \$131 million at September 30, 2020 and 2019, respectively, are included in Accounts receivable, net and Other long-term assets, for the current and long-term portions, respectively, and are reported net of allowances for uncollectible accounts of less than \$1 million at both September 30, 2020 and 2019, 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 are recorded in Other revenue. Revenues that are not related to the overall mission are recorded in Other income (expense), net.

Pre-Commercial Plant Operations

As part of the process of completing the construction of a generating unit, the electricity produced is used to serve the demands of the electric system. TVA estimates revenue from such pre-commercial generation based on the guidance provided by Federal Energy Regulatory Commission ("FERC") regulations. The Allen Combined Cycle Plant ("Allen CC") began pre-commercial plant operations in September 2017, and began commercial operations in April 2018. Cogeneration capability at Johnsonville Combustion Turbine Unit 20 commenced pre-commercial plant operations in September 2017, and was placed in service during December 2017. Estimated revenue of \$11 million related to Allen CC was capitalized to offset project costs for the year ended September 30, 2018. TVA also capitalized related fuel costs for these construction projects of approximately \$19 million during the year ended September 30, 2018. No such amounts were capitalized during 2019 or 2020.

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 Credits. 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 fair value approach. RECs created through TVA-owned asset generation are recorded at zero cost.

Emission Allowances. TVA has emission allowances for sulfur dioxide ("SO₂") and nitrogen oxide ("NO_x") which are accounted for as inventory. The cost of specific allowances used each month is charged to operating expense based on tons of SO₂ and NO_x emitted during the respective compliance periods. Allowances granted to TVA by the Environmental Protection Agency ("EPA") are recorded at zero cost.

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. In 2018, TVA started moving from a site-specific inventory management policy to a fleet-wide strategy 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.

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 the external depreciation studies. These studies will be updated approximately every five years. Depreciation expense for the years ended September 30, 2020, 2019, and 2018 was \$1.6 billion, \$1.8 billion, and \$1.3 billion, respectively. Depreciation expense expressed as a percentage of the average annual depreciable completed plant was 2.74 percent for 2020, 3.09 percent for 2019, and 2.45 percent for 2018. Average depreciation rates by asset class are as follows:

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

Asset Class	2020	2019	2018
Nuclear	2.38	2.38	2.64
Coal-fired ⁽¹⁾	3.62	4.96	2.32
Hydroelectric	1.60	1.61	1.57
Gas and oil-fired	3.04	3.00	2.93
Transmission	1.34	1.34	1.32
Other	7.26	7.16	5.90

Note

(1) The rates include the acceleration of depreciation related to retiring certain coal-fired units.

Coal-Fired. As a result of TVA's decision to idle or retire certain units since the previous depreciation study, TVA recognized \$387 million, \$566 million, and \$48 million in accelerated depreciation expense related to the units during the years ended September 30, 2020, 2019, and 2018, respectively. Accelerated depreciation is based on the remaining useful life of the asset at the time the decision is made to idle or retire a unit.

Reacquired Rights. Property, plant, and equipment includes intangible reacquired rights, net of amortization, of \$192 million and \$200 million as of September 30, 2020 and 2019, 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 life of the underlying CTs. Amortization expense was \$8 million for all years 2020, 2019, and 2018.

Software Costs. TVA capitalizes certain costs incurred in connection with developing or obtaining internal-use software. Capitalized software costs are included in Property, plant, and equipment on the Consolidated Balance Sheets and are generally amortized over seven years. At September 30, 2020 and 2019, unamortized computer software costs totaled \$54 million and \$63 million, respectively. Amortization expense related to capitalized computer software costs was \$42 million, \$38 million, and \$32 million for 2020, 2019, and 2018, respectively. Software costs that do not meet capitalization criteria are expensed as incurred.

Impairment of Assets. TVA evaluates long-lived assets for impairment when events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. For long-lived assets, TVA bases its evaluation on impairment indicators such as the nature of the assets, the future economic benefit of the assets, any historical or future profitability measurements, 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. See Note 6 — *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 power purchase agreements, the terms of which vary. The total lease obligation included in Accounts payable and accrued liabilities and lease liabilities related to these agreements were \$500 million and \$174 million for finance and operating leases, respectively, at September 30, 2020.

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, 2020.

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. These other property-related assets include, but are not limited to, easements and coal rights. Activities involved with retiring these assets could include decontamination and demolition of structures, removal and disposal of wastes, and site restoration. Revisions to the estimates of asset retirement obligations ("AROs") are made whenever factors indicate that the timing or amounts of estimated cash flows have changed materially. Any accretion or depreciation expense related to these liabilities and assets is charged to a regulatory asset. See Note 9 —

*Regulatory Assets and Liabilities — Nuclear Decommissioning Costs and Non-Nuclear Decommissioning Costs and Note 12 — Asset Retirement Obligations.**Down-blend Offering for Tritium*

TVA, the Department of Energy ("DOE"), and certain nuclear fuel contractors have entered into agreements, referred to as the Down-blend Offering for Tritium, 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 October 2027. Beginning October 2027, 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 \$89 million in reimbursements from the DOE. At September 30, 2020, TVA recorded \$6 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 22 — *Commitments and Contingencies — Decommissioning Costs*), the Supplemental Executive Retirement Plan ("SERP") (see Note 21 — *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.

Energy Prepayment Obligations

In 2004, TVA and its largest customer, Memphis Light, Gas and Water Division ("MLGW"), entered into an energy prepayment agreement under which MLGW prepaid TVA \$1.5 billion for the future costs of electricity to be delivered by TVA to MLGW over a period of 180 months. TVA accounted for the prepayment as unearned revenue and reported the obligation to deliver power under this arrangement as Energy prepayment obligations. The arrangement ceased in 2019. Revenue was recognized in each year of the arrangement as electricity was delivered to MLGW based on the ratio of units of kilowatt hours delivered to total units of kilowatt hours under contract. As of September 30, 2019, \$1.5 billion had been recognized as non-cash revenue on a cumulative basis during the life of the agreement, \$10 million and \$100 million of which was recognized as non-cash revenue during 2019 and 2018, respectively.

Discounts to account for the time value of money, which are recorded as a reduction to electricity sales, amounted to \$4 million and \$46 million for the years ended September 30, 2019 and 2018, respectively.

Insurance

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

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

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

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

- Nuclear liability insurance; nuclear property, decommissioning, and decontamination insurance; and nuclear accidental outage insurance. See Note 22 — *Commitments and Contingencies — Nuclear Insurance*.
- Excess liability insurance for aviation, auto, marine, and general liability exposures.
- Property insurance for certain conventional (non-nuclear) assets.

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

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 in 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 2020:

Lease Accounting											
Description	<p>This guidance changes the provisions of recognition in both the lessee and lessor accounting models. The standard requires entities that lease assets ("lessees") to recognize on the balance sheet the assets and liabilities for the rights and obligations created by leases with terms of more than 12 months, while also refining the definition of a lease. In addition, lessees are required to disclose key information about the amount, timing, and uncertainty of cash flows arising from leasing arrangements. The recognition, measurement, and presentation of expenses and cash flows arising from a lease by a lessee primarily depend on its classification as a finance lease (formerly referred to as capital lease) or operating lease. The standard requires both types of leases to be recognized on the balance sheet. Operating leases will result in straight-line expense, while finance leases will result in recognition of interest on the lease liability separate from amortization expense. The accounting rules for the owner of assets leased by the lessee ("lessor accounting") remain relatively unchanged.</p> <p>The standard allows for certain practical expedients to be elected related to lease term determination, separation of lease and non-lease elements, reassessment of existing leases, and short-term leases. The standard is to be applied using a modified retrospective transition.</p>										
Effective Date for TVA	October 1, 2019										
Effect on the Financial Statements or Other Significant Matters	<p>TVA elected the modified retrospective method of adoption effective October 1, 2019. Under the modified retrospective method of adoption, prior year reported results are not restated.</p> <p>TVA recorded \$205 million and \$210 million of lease assets and lease liabilities, respectively, for operating leases in effect at the adoption date. The accounting for finance leases remained substantially unchanged. Adoption of the standard did not materially impact results of operations or cash flows.</p> <p>TVA has elected to apply the following practical expedients:</p> <table border="1"> <thead> <tr> <th>Practical Expedient</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Package of transition practical expedients (for leases commenced prior to adoption date; expedients must be adopted as a package)</td><td>Do not need to (1) reassess whether any expired or existing contracts are leases or contain leases, (2) reassess the lease classification for any expired or existing leases, or (3) reassess initial direct costs for any existing leases.</td></tr> <tr> <td>Short-term lease expedient (elect by class of underlying asset)</td><td>Elect as an accounting policy to not apply the recognition requirements to short-term leases by asset class.</td></tr> <tr> <td>Existing and expired land easements not previously accounted for as leases</td><td>Elect to not evaluate existing or expired easements under the new guidance and carry forward current accounting treatment.</td></tr> <tr> <td>Comparative reporting requirements for initial adoption</td><td>Elect to (1) apply transition requirements at adoption date, (2) recognize cumulative effect adjustment to retained earnings in period of adoption, and (3) not apply the new requirements to comparative periods, including disclosures.</td></tr> </tbody> </table>	Practical Expedient	Description	Package of transition practical expedients (for leases commenced prior to adoption date; expedients must be adopted as a package)	Do not need to (1) reassess whether any expired or existing contracts are leases or contain leases, (2) reassess the lease classification for any expired or existing leases, or (3) reassess initial direct costs for any existing leases.	Short-term lease expedient (elect by class of underlying asset)	Elect as an accounting policy to not apply the recognition requirements to short-term leases by asset class.	Existing and expired land easements not previously accounted for as leases	Elect to not evaluate existing or expired easements under the new guidance and carry forward current accounting treatment.	Comparative reporting requirements for initial adoption	Elect to (1) apply transition requirements at adoption date, (2) recognize cumulative effect adjustment to retained earnings in period of adoption, and (3) not apply the new requirements to comparative periods, including disclosures.
Practical Expedient	Description										
Package of transition practical expedients (for leases commenced prior to adoption date; expedients must be adopted as a package)	Do not need to (1) reassess whether any expired or existing contracts are leases or contain leases, (2) reassess the lease classification for any expired or existing leases, or (3) reassess initial direct costs for any existing leases.										
Short-term lease expedient (elect by class of underlying asset)	Elect as an accounting policy to not apply the recognition requirements to short-term leases by asset class.										
Existing and expired land easements not previously accounted for as leases	Elect to not evaluate existing or expired easements under the new guidance and carry forward current accounting treatment.										
Comparative reporting requirements for initial adoption	Elect to (1) apply transition requirements at adoption date, (2) recognize cumulative effect adjustment to retained earnings in period of adoption, and (3) not apply the new requirements to comparative periods, including disclosures.										
Derivatives and Hedging - Improvements to Accounting for Hedging Activities											
Description	<p>This guidance better aligns an entity's risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. To meet that objective, the amendments expand and refine hedge accounting for both nonfinancial and financial risk components and align the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements.</p>										
Effective Date for TVA	October 1, 2019										
Effect on the Financial Statements or Other Significant Matters	TVA has adopted the standard on a prospective basis. The adoption of this standard did not have a material impact on TVA's financial condition, results of operations, or cash flows. TVA only uses hedge accounting under its foreign currency swap arrangements, and the adoption of this standard had no impact on those arrangements.										
Customer's Accounting for Implementation Costs in a Cloud Arrangement That Is a Service Contract											
Description	<p>This guidance relates to the accounting for a customer's implementation costs in a hosting arrangement that is a service contract. The amendments align the requirements for capitalizing those implementation costs with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software and hosting arrangements that include an internal-use software license. The amendments also provide requirements for the classification of the capitalized costs and related expense and cash flows in the financial statements, the application of impairment guidance to the capitalized costs, and the application of abandonment guidance to the capitalized costs. Entities are required to apply the amendments either retrospectively or prospectively to all implementation costs incurred after the adoption date.</p>										
Effective Date for TVA	October 1, 2019										
Effect on the Financial Statements or Other Significant Matters	TVA has adopted the 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. TVA records qualified implementation costs in a cloud arrangement that is a service contract as a prepaid asset and amortizes the prepaid asset to Operating and maintenance expense based on the term of the contract.										

The following accounting standards have been issued but as of September 30, 2020, were not effective and had not been adopted by TVA:

Financial Instruments - Credit Losses	
Description	This guidance eliminates the probable initial recognition threshold in current GAAP and, instead, requires an allowance to be recorded for all expected credit losses for certain financial assets that are not measured at fair value. The allowance for credit losses is based on historical information, current conditions, and reasonable and supportable forecasts. The new standard also makes revisions to the other than temporary impairment model for available-for-sale debt securities. Disclosures of credit quality indicators in relation to the amortized cost of financing receivables are further disaggregated by year of origination.
Effective Date for TVA	The new standard is effective for TVA's interim and annual reporting periods beginning October 1, 2020.
Effect on the Financial Statements or Other Significant Matters	TVA adopted this standard using the modified retrospective method through a cumulative-effect adjustment to retained earnings on October 1, 2020. TVA will recognize an allowance that reflects the current estimate of credit losses expected to be incurred over the life of the financial assets based on historical experience, current conditions, and reasonable and supportable forecasts. This standard will primarily impact TVA's long-term loans receivable. Adoption of this standard is not expected to have a material impact on TVA's financial condition, results of operations, or cash flows.
Fair Value Measurement Disclosure	
Description	The guidance changes certain disclosure requirements for fair value measurements. It removes certain disclosure requirements, such as the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy; the policy for timing of the transfers between levels; and the valuation processes for Level 3 fair value measurements. Some disclosure requirements are added, such as the change in unrealized gains and losses included in other comprehensive income for recurring Level 3 fair value measurements and the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements.
Effective Date for TVA	The new standard is effective for TVA's interim and annual reporting periods beginning October 1, 2020.
Effect on the Financial Statements or Other Significant Matters	TVA does not expect the adoption of this standard to have a material impact on TVA's financial condition, results of operations, or cash flows.
Reference Rate Reform	
Description	The 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.
Effective Date for TVA	The new standard is effective for adoption at any time between March 12, 2020, and December 31, 2022. TVA currently plans to adopt the standard by December 31, 2022.
Effect on the Financial Statements or Other Significant Matters	TVA continues to review this standard and evaluate the impact of using an alternative reference rate instead of LIBOR in its interest rate swap contracts. TVA expects the adoption of the standard will simplify the accounting for any modifications to its interest rate swap contracts.

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			
	2020		2019
Power receivables	\$	1,401	\$ 1,624
Other receivables		128	115
Accounts receivable, net ⁽¹⁾	\$	1,529	\$ 1,739

Note

(1) Allowance for uncollectible accounts was less than \$1 million at September 30, 2020 and 2019, and therefore is not represented in the table above.

In response to the COVID-19 pandemic, the TVA Board approved the Public Power Support and Stabilization program in March 2020, which includes alternative wholesale payment arrangements for LPCs. Through this program, TVA is offering up to \$1.0 billion of credit support to LPCs that demonstrate the need for temporary financial relief, through the deferral of a portion of LPCs' wholesale power payments owed to TVA. The program requires LPCs to apply for the deferral, which is subject to approval by TVA. If approved, TVA will establish and approve a repayment schedule with the LPC by December 31, 2020, with a repayment term not to exceed two years. The program is available through CY 2020, and as of November 16, 2020, \$1 million of credit support has been approved under the program.

4. Inventories, Net

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

Inventories, Net At September 30		
	2020	2019
Materials and supplies inventory	\$ 770	\$ 742
Fuel inventory	253	294
RECs inventory, net	15	16
Allowance for inventory obsolescence	(35)	(53)
Inventories, net	\$ 1,003	\$ 999

5. Net Completed Plant

Net completed plant consisted of the following:

Net Completed Plant At September 30						
	2020			2019		
	Cost	Accumulated Depreciation	Net	Cost	Accumulated Depreciation	Net
Coal-fired ⁽¹⁾⁽²⁾	\$ 18,613	\$ 13,944	\$ 4,669	\$ 17,400	\$ 12,538	\$ 4,862
Gas and oil-fired	6,010	1,696	4,314	6,054	1,562	4,492
Nuclear	25,741	12,141	13,600	25,543	11,656	13,887
Transmission	8,283	3,140	5,143	7,932	3,083	4,849
Hydroelectric	3,410	1,090	2,320	3,163	1,051	2,112
Other electrical plant	1,981	1,146	835	1,920	1,110	810
Intangible software	3	2	1	3	1	2
Multipurpose dams	900	381	519	900	373	527
Other stewardship	29	10	19	29	10	19
Total	\$ 64,970	\$ 33,550	\$ 31,420	\$ 62,944	\$ 31,384	\$ 31,560

Notes

(1) TVA recognized accelerated depreciation as a result of the decision to idle or retire certain units. See Note 6 — *Plant Closures*.

(2) In 2020, TVA recorded approximately \$1.1 billion in upward revisions to asset retirement costs for coal-fired assets. See Note 12 — *Asset Retirement Obligations*.

6. Plant Closures

Background

TVA must continuously evaluate all generating assets to ensure an optimal energy portfolio that provides safe, clean, and reliable power while maintaining flexibility and fiscal responsibility to the people of the Tennessee Valley. Based on results of assessments presented to the TVA Board in 2019, the retirement of Paradise Fossil Plant ("Paradise") Unit 3 by December 2020 and Bull Run Fossil Plant ("Bull Run") by December 2023 was approved. Subsequent to the TVA Board approval, TVA determined that Paradise would not be restarted after January 2020 due to the plant's material condition. Paradise Unit 3 was taken offline on February 1, 2020, effectively retiring the plant.

Financial Impact

As a result of TVA's decision to accelerate the retirements of Paradise and Bull Run, certain construction projects at these locations were identified as probable of abandonment or were no longer expected to be in service for greater than one year prior to the plants' retirement dates. The write-off of these projects resulted in \$11 million and \$151 million of Operating and maintenance expense during the years ended September 30, 2020 and 2019, respectively. TVA also recognized losses of \$2 million and \$19 million in Operating and maintenance expense related to additional materials and supplies inventory reserves and write-offs identified at Paradise during the years ended September 30, 2020 and 2019, respectively.

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 Paradise and Bull Run, TVA recognized an additional \$387 million and \$566 million of accelerated depreciation for the years ended September 30, 2020 and 2019, respectively.

7. Leases

As described in Note 2 — *Impact of New Accounting Standards and Interpretations*, TVA elected the modified retrospective method of adoption for the new lease accounting standard effective October 1, 2019. Under the modified retrospective method of adoption, prior year reported results are not restated.

TVA recorded \$205 million and \$210 million of lease assets and lease liabilities, respectively, for operating leases in effect at the adoption date. The accounting for finance leases remained substantially unchanged. Adoption of the standard did not materially impact results of operations or cash flows.

The following table provides additional information regarding the presentation of leases on the Consolidated Balance Sheets at September 30, 2020:

Amounts Recognized on TVA's Consolidated Balance Sheets At September 30, 2020			
Assets			
Operating	Operating lease assets, net of amortization	\$	232
Finance	Finance leases		516
Total lease assets		\$	748
Liabilities			
Current			
Operating	Accounts payable and accrued liabilities	\$	63
Finance	Accounts payable and accrued liabilities		41
Non-current			
Operating	Other long-term liabilities		171
Finance	Finance lease liabilities		525
Total lease liabilities		\$	800

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 26 years. The components of lease costs for the year September 30, 2020, were as follows:

Lease Costs		For the year ended September 30, 2020
Operating lease costs ⁽¹⁾	\$	84
Variable lease costs ⁽¹⁾		75
Short-term lease costs ⁽¹⁾		7
Finance lease costs		
Amortization of lease assets ⁽²⁾		15
Interest on lease liabilities ⁽³⁾⁽⁴⁾		33
Total finance lease costs		48
Total lease costs	\$	214

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. TVA's rental expense for operating leases was approximately \$97 million and \$92 million for the years ended September 30, 2019 and 2018, respectively.

(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.

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 Year Ended September 30, 2020**

Operating cash flows for operating leases	\$	85
Operating cash flows for finance leases		33
Financing cash flows for finance leases		15
Lease assets obtained in exchange for lease obligations (non-cash)		
Operating leases ⁽¹⁾	\$	110
Finance leases		394

Note
(1) Amount excludes operating lease assets recorded as a result of the adoption of the new lease standard.

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. At September 30, 2020, 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, 2020**

Weighted average remaining lease terms		
Operating leases		5 years
Finance leases		12 years

Weighted average discount rate⁽¹⁾		
Operating leases		1.6%
Finance leases		21.8%

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.

The following table presents maturities of lease liabilities and a reconciliation of the undiscounted cash flows to lease liabilities at September 30, 2020:

Future Minimum Lease Payments Minimum Payments Due at September 30, 2020		
Operating leases		
2021	\$	66
2022		51
2023		39
2024		37
2025		34
Thereafter		16
Minimum annual payments		243
Less: present value discount		(9)
Operating present value of net minimum lease payments	\$	234
Finance leases		
2021	\$	92
2022		93
2023		92
2024		87
2025		86
Thereafter		592
Minimum annual payments		1,042
Less: amount representing interest		(476)
Finance present value of net minimum lease payments	\$	566

The following table presents the future minimum lease payments under operating leases and the finance lease maturities as reported under the previous lease standard at September 30, 2019:

Future Minimum Lease Payments Minimum Payments Due at September 30, 2019		
Operating leases		
2020	\$	76
2021		75
2022		60
2023		12
2024		3
Thereafter		2
Minimum annual payments		228
Less: present value discount		—
Operating present value of net minimum lease payments	\$	228
Finance leases		
2020	\$	53
2021		53
2022		53
2023		55
2024		51
Thereafter		418
Minimum annual payments		683
Less: amount representing interest		(495)
Finance present value of net minimum lease payments	\$	188

TVA entered into a PPA with a renewable resource provider for solar generation and rights to charge and discharge a battery energy storage system. The system is considered a lease component in this agreement. This lease has a term of 20 years, and is expected to commence on October 1, 2022. Payments made over the term of this lease are expected to total approximately \$89 million.

8. 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			
	2020		2019 ⁽¹⁾
Loans and other long-term receivables, net	\$	100	\$ 125
EnergyRight® receivables		69	81
Prepaid long-term service agreements		42	22
Commodity contract derivative assets		23	—
Restricted cash and cash equivalents		21	23
Prepaid capacity payments		11	19
Other		59	55
Total other long-term assets	\$	325	\$ 325

Note

(1) At September 30, 2019, \$22 million previously classified as Other (a component of Other long-term assets) has been reclassified to Prepaid long-term service agreements (a component of Other long-term assets) to conform with current year presentation.

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, 2020 and 2019, the carrying amount of the loans receivable, net of discount, reported in Accounts receivable, net was approximately \$18 million and \$20 million, respectively. See Note 11 — *Other Long-Term Liabilities* for information regarding the associated financing obligation.

In response to the COVID-19 pandemic, customers experiencing financial hardship can request a deferral of EnergyRight® loan payments for a period of up to six months. This deferral option began April 20, 2020, and is available through October 31, 2020. Deferred loans will not accrue interest during the deferral months. These deferred loans have resulted in a less than \$1 million impact to TVA.

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 September 30, 2020 and 2019, prepayments of \$3 million and \$5 million, respectively, were recorded in Other current assets.

9. Regulatory Assets and Liabilities

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

Regulatory Assets and Liabilities At September 30				
	2020		2019 ⁽¹⁾	
Current regulatory assets				
Unrealized losses on interest rate derivatives	\$	114	\$	89
Unrealized losses on commodity derivatives		4		39
Fuel cost adjustment receivable		12		28
Total current regulatory assets		130		156
Non-current regulatory assets				
Deferred pension costs and other post-retirement benefits costs		5,193		4,756
Non-nuclear decommissioning costs		2,512		1,741
Unrealized losses on interest rate derivatives		1,506		1,241
Nuclear decommissioning costs		896		868
Unrealized losses on commodity derivatives		—		15
Other non-current regulatory assets		138		142
Total non-current regulatory assets		10,245		8,763
Total regulatory assets	\$	10,375	\$	8,919
Current regulatory liabilities				
Fuel cost adjustment tax equivalents	\$	115	\$	138
Unrealized gains on commodity derivatives		26		12
Total current regulatory liabilities		141		150
Non-current regulatory liabilities				
Unrealized gains on commodity derivatives		23		—
Total non-current regulatory liabilities		23		—
Total regulatory liabilities	\$	164	\$	150

Note

(1) At September 30, 2019, \$12 million previously classified as Environmental agreements (a component of Regulatory assets) has been reclassified to Other non-current regulatory assets (a component of Regulatory assets) to conform with current year presentation.

In 2017, the TVA Board authorized management to accelerate amortization of certain regulatory assets to the extent actual net income in 2018 exceeded the budgeted amount, up to the aggregate amount of those certain regulatory assets. Assets included in this TVA Board action include: deferred nuclear generating units, environmental cleanup costs related to the Kingston ash spill, and nuclear training costs related to the refurbishing and restarting of Browns Ferry Nuclear Plant ("Browns Ferry") Unit 1 and the construction of Watts Bar Nuclear Plant ("Watts Bar") Unit 2. TVA recorded \$857 million of accelerated amortization of the Deferred nuclear generating units and Nuclear training costs regulatory assets in 2018. The TVA Board authorized TVA to use the amount included in the 2019 rate action for these two regulatory assets, to the extent needed, to accelerate amortization of the Environmental cleanup costs - Kingston ash spill regulatory asset in 2019. TVA recorded \$266 million of accelerated recovery for the Kingston ash spill regulatory asset in 2019. No accelerated amortization was recorded in 2020.

Deferred Pension Costs and Other Post-retirement Benefit Costs. 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 would be recognized as an increase or decrease to accumulated other comprehensive income (loss) ("AOCI").

"Incurred cost" is a cost arising from cash paid out or an obligation to pay for an acquired asset or service, and a loss from any cause that has been sustained and for which payment has been or must be made. In the cases of pension and OPEB costs, the unfunded obligation represents a projected liability to the employee for services rendered, and thus it meets the definition of an incurred cost. Therefore, amounts that otherwise would be charged to AOCI for these costs are recorded as a regulatory asset 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 21 — *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 recent 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 already set aside in the ART, future earnings on those investment funds, and future cash contributions to the ART and future earnings thereon. For 2020, TVA recovered in rates a portion of its estimated current year non-nuclear decommissioning costs and contributions to the ART. Deferred charges will be recovered in rates based on an analysis of the expected expenditures, contributions, and investment earnings required to recover the decommissioning costs. There is not a specified recovery period; therefore, the regulatory asset is classified as long-term consistent with the ART investments and ARO liability.

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 changing interest rates in the financial markets associated with the COVID-19 pandemic, TVA has experienced unrealized losses related to its derivative instruments for the year ended September 30, 2020. 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, future earnings on the investment funds, and future earnings thereon. 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*. There is not a specified recovery period; therefore, the regulatory asset is classified as long-term consistent with the NDT investments and ARO liability.

Unrealized Gains (Losses) on Commodity Derivatives. 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. During the fourth quarter of 2020, TVA discontinued derivative accounting for forward coal contracts because these contracts no longer meet the criteria of net settlement. As a result, the associated net regulatory assets have been derecognized. 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 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*.

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 Capital Leases and Other Financing Obligations. For certain leases that were determined prior to TVA's adoption of the new lease accounting standard effective October 1, 2019, TVA recognized the initial capital lease liability and asset at inception. However, the annual expense recognized in rates is equal to the annual lease payments, which differs from GAAP treatment. 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 each capital lease. These costs will be amortized over the respective lease as lease 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.

10. Variable Interest Entities

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

John Sevier VIEs

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

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

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

Southaven VIE

In 2013, TVA entered into a \$400 million lease financing arrangement with Southaven Combined Cycle Generation LLC ("SCCG") for the lease by TVA of the Southaven Combined Cycle Facility ("Southaven CCF"). SCCG is a special single-purpose limited liability company formed in June 2013 to finance the Southaven CCF through a \$360 million secured notes issuance (the "SCCG notes") and the issuance of \$40 million of membership interests subject to mandatory redemption. The membership interests were purchased by Southaven Holdco LLC ("SHLLC"). SHLLC is a special single-purpose entity, also formed in June 2013, established to acquire and hold the membership interests in SCCG. A non-controlling interest in SHLLC is held by a third-party through nominal membership interests, to which none of the income, expenses, and cash flows of SHLLC are allocated.

The membership interests held by SHLLC were purchased with proceeds from the issuance of \$40 million of secured notes (the "SHLLC notes") and are subject to mandatory redemption pursuant to a schedule of amortizing, semi-annual payments due each February 15 and August 15, with a final payment due on August 15, 2033. The payment dates for the mandatorily redeemable membership interests are the same as those of the SHLLC notes, and the payment amounts are sufficient to provide returns on, as well as returns of, capital until the investment has been repaid to SHLLC in full. The rate of return on investment to SHLLC is 7.0 percent, which is reflected as interest expense in the consolidated statements of operations. SHLLC is required to pay a pre-determined portion of the return on investment to Seven States Southaven, LLC ("SSSL") on each lease payment date as agreed in SHLLC's formation documents (the "Seven States Return"). The current and long-term portions of the Membership interests of VIE subject to mandatory redemption are included in Accounts payable and accrued liabilities and Other long-term liabilities, respectively.

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

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

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

Impact on Consolidated Financial Statements

The financial statement items attributable to carrying amounts and classifications of JSCCG, Holdco, and SCCG as of September 30, 2020 and 2019, as reflected on the Consolidated Balance Sheets, are as follows:

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

	2020	2019
Current liabilities		
Accrued interest	\$ 10	\$ 11
Accounts payable and accrued liabilities	3	3
Current maturities of long-term debt of variable interest entities	41	39
Total current liabilities	54	53
Other liabilities		
Other long-term liabilities	23	25
Long-term debt, net		
Long-term debt of variable interest entities, net	1,048	1,089
Total liabilities	\$ 1,125	\$ 1,167

Interest expense of \$54 million, \$56 million, and \$58 million related to debt of VIEs and membership interests of variable interest entity subject to mandatory redemption is included in the Consolidated Statements of Operations for the years ended September 30, 2020, 2019, and 2018, respectively.

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

11. Other Long-Term Liabilities

Other long-term liabilities consist primarily of liabilities related to certain derivative agreements as well as for environmental remediation liabilities and liabilities under agreements related to compliance with certain environmental regulations. See Note 12 — *Asset Retirement Obligations*, Note 15 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment — Interest Rate Derivatives*, and Note 22 — *Commitments and Contingencies — Legal Proceedings — Environmental Agreements*. The table below summarizes the types and amounts of Other long-term liabilities:

Other Long-Term Liabilities⁽¹⁾ At September 30

	2020	2019
Interest rate swap liabilities	\$ 1,927	\$ 1,676
Operating lease liabilities	171	—
Currency swap liabilities	123	193
EnergyRight® financing obligation	78	90
Paradise pipeline financing obligation	—	80
Accrued long-term service agreements	56	66
Other	193	203
Total other long-term liabilities	\$ 2,548	\$ 2,308

Note

(1) Due to the implementation of the new lease accounting standard effective October 1, 2019, TVA reclassified \$182 million of finance leases from Other long-term liabilities to Finance lease liabilities in the Consolidated Balance Sheet for the year ending September 30, 2019.

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. As of September 30, 2020 and 2019, the carrying amount of the interest rate swap liabilities reported in Accounts payable and accrued liabilities and Accrued interest was approximately \$114 million and \$88 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, 2020, Interest rate swap liabilities increased \$277 million as compared to September 30, 2019, primarily due to a decrease in interest rates resulting in higher mark-to-market values on future expected net cash flows.

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. As of September 30, 2020 and 2019, the carrying amount of the financing obligation reported in Accounts payable and accrued liabilities was approximately \$19 million and \$23 million, respectively. See Note 8 — *Other Long-Term Assets* for information regarding the associated loans receivable.

In response to the COVID-19 pandemic, customers experiencing financial hardship can request a deferral of EnergyRight® loan payments for a period of up to six months. This deferral option began April 20, 2020, and is available through October 31, 2020. Deferred loans will not accrue interest during the deferral months. These deferred loans have resulted in a less than \$1 million impact to TVA.

Paradise Pipeline Financing Obligation. TVA reserves firm pipeline capacity on an approximately 19-mile pipeline owned by Texas Gas, which serves TVA's Paradise Combined Cycle Facility. TVA had been accounting for the contract covering this arrangement as a financing transaction due to failed sale-leaseback treatment. The contract was revised during the fourth quarter of 2020 and is no longer deemed to contain a lease component. Accordingly, amounts related to the pipeline asset and financing obligation recorded in connection with this transaction were derecognized as of September 30, 2020. The current and long-term portions of less than \$1 million and \$80 million, respectively, of the financing obligation are reported in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA's Consolidated Balance Sheet at September 30, 2019.

Accrued Long-Term Service Agreement. 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 reported in Accounts payable and accrued liabilities and Other long-term liabilities, respectively, on TVA's Consolidated Balance Sheets. As of September 30, 2020 and 2019, related liabilities of \$15 million and \$12 million, respectively, were recorded in Accounts payable and accrued liabilities.

12. Asset Retirement Obligations

During the year ended September 30, 2020, TVA's total ARO liability increased \$1.2 billion.

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

TVA bases its nuclear decommissioning estimates on site-specific cost studies. The most recent study was approved and implemented in September 2017. An increase of \$250 million was recorded to the nuclear AROs as a result of the updates. Site-specific cost studies are updated for each of TVA's nuclear units at least every five years.

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.

During 2020, the revisions in non-nuclear estimates increased \$1.1 billion for the year ended September 30, 2020. In November 2019, the Tennessee Department of Environment and Conservation ("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. This regulatory revision resulted in an increase of \$129 million, of which \$38 million was related to operating CCR facilities and \$91 million was related to inactive or closed CCR facilities. In June 2020, based on recent project cost data and estimates, TVA revised its AROs for closure-by-removal of certain CCR facilities at Allen Fossil Plant, resulting in an increase to AROs of \$273 million. In September 2020, TVA completed an engineering review of its cost estimates to close the ash pond complex at Gallatin Fossil Plant, resulting in an increase of \$173 million due to expected cost increases for excavation, disposal, and other activities required in a closure-by-removal project. Also in September 2020, TVA completed a study of its plant decommissioning obligations and CCR post-closure care and monitoring obligations. TVA increased its plant decommissioning obligations by \$19 million, primarily due to asbestos and hazardous material abatement costs. TVA increased its CCR post-closure care and monitoring AROs primarily as a result of expected cost increases to monitor groundwater and maintain CCR areas after closure as well as increases in expected acreage to maintain after closure, totaling \$460 million.

During 2019, the revisions in non-nuclear estimates increased \$50 million for the year ended September 30, 2019. As a result of recent experience in completing settlements at certain facilities, costs for asbestos abatement activities across TVA's fossil fleet increased \$114 million. TVA changed the preferred closure method for Allen West Impoundment from closure-in-place to closure-by-removal, which resulted in a cost increase of \$33 million. Partially offsetting these increases was a \$57 million decrease in costs for Paradise closure projects, and a \$44 million decrease in costs for the Allen East Impoundment closure project. Additionally, as a result of the decision in TVA's favor by the Sixth Circuit in the lawsuit brought by TSRA and TCWN, as well as the June 2019 consent order filed in the case brought by TDEC, Gallatin discounted cash flows related to CCR closure and post-closure costs of \$672 million have been recorded as Asset retirement obligations. The obligation is based upon the assumptions outlined in the consent order, including a new lined facility will be permitted and constructed on the Gallatin site and existing CCR materials in the existing wet ash disposal impoundments at Gallatin will be moved to this new facility over a 20-year period.

Additionally, during the years ended September 30, 2020 and 2019, 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 2020, 2019, and 2018, \$169 million, \$144 million, and \$144 million, respectively, of the related regulatory assets were amortized into expense as these amounts were collected in rates. See Note 9 — *Regulatory Assets and Liabilities*. TVA maintains investment trusts to help fund its decommissioning obligations. See Note 16 — *Fair Value Measurements — Investment Funds* and Note 22 — *Commitments and Contingencies — Decommissioning Costs* for a discussion of the trusts' objectives and the current balances of the trusts.

Asset Retirement Obligation Activity

	Nuclear	Non-Nuclear	Total
Balance at September 30, 2018	\$ 2,989	\$ 1,790	\$ 4,779
Settlements	(7)	(82)	(89)
Revisions in estimate	—	50	50
Additional obligations	18	—	18
Gallatin CCR	—	672	672
Accretion (recorded as regulatory asset)	136	50	186
Balance at September 30, 2019	3,136	2,480	5,616 ⁽¹⁾
Settlements	(1)	(113)	(114)
Revisions in estimate	—	1,077	1,077
Accretion (recorded as regulatory asset)	143	63	206
Balance at September 30, 2020	\$ 3,278	\$ 3,507	\$ 6,785 ⁽¹⁾

Note
(1) Includes \$345 million and \$163 million at September 30, 2020 and 2019, respectively, in Current liabilities.

13. 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, 2020, TVA had only two types of Bonds outstanding: power bonds and discount notes. Power bonds have maturities between one and 50 years, and discount notes have maturities of less than one year. Power bonds and discount notes are both issued pursuant to Section 15d of the TVA Act and pursuant to the Basic Tennessee Valley Authority Power Bond Resolution adopted by the TVA Board on October 6, 1960, as amended on September 28, 1976, October 17, 1989, and March 25, 1992 (the "Basic Resolution"). Bonds are not obligations of the 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, 2020, 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 10 — *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 10 — *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, 2020 and 2019 totaled \$1.1 billion.

Secured Notes

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

On September 20, 2017, TVA acquired two entities, in an asset acquisition, designed to administer rent payments TVA makes under certain of its lease/leaseback arrangements. On November 14, 2001, the entities issued secured notes totaling \$272 million that had an interest rate of 5.572 percent and required amortizing semi-annual payments on each May 1 and November 1 with a maturity date of May 1, 2020. In 2017, TVA assumed these secured notes in the acquisition at a fair value of \$74 million. The secured notes of the entities, including current maturities, outstanding at September 30, 2019, totaled approximately \$23 million, and are included in Notes payable on TVA's Consolidated Balance Sheet. The secured notes of the entities were paid in full in 2020.

Short-Term Debt

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

Short-term Borrowings At September 30			
	2020	2019	2018
Gross amount outstanding - discount notes	\$ 57	\$ 922	\$ 1,217
Weighted average interest rate - discount notes	0.06 %	2.15 %	2.05 %

Put and Call Options

At September 30, 2019, bond issues of \$357 million held by the public were redeemable in whole or in part, at TVA's option, on call dates through 2020 and at call prices of 100 percent of the principal amount. Nine of these bond issues totaling \$217 million, with maturity dates ranging from 2025 to 2043, included a "survivor's option," which allowed for right of redemption upon the death of a beneficial owner in certain specified circumstances. These bonds were classified as long-term at September 30, 2019. TVA subsequently announced in October 2019 that \$217 million of callable bonds were redeemed at par on November 15, 2019.

Additionally, TVA has two issues of Puttable 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, 2020. 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, 2020.

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, 2020 and 2019.

Debt Securities Activity For the years ended September 30		
	2020	2019
Issues		
2020 Series A ⁽¹⁾	\$ 1,000	\$ —
Discount on debt issues	(3)	—
Total	\$ 997	\$ —
Redemptions/Maturities⁽²⁾		
electronotes®	\$ 219	\$ 5
2013 Series A		1,000
2009 Series B	28	30
2018 Series A	1,000	—
1999 Series A PARRS (TVE)	23	—
1998 Series D PARRS (TVC)	17	—
1995 Series B	140	—
Total redemptions/maturities of power bonds	1,427	1,035
Notes payable	23	46
Variable interest entities	39	38
Total	\$ 1,489	\$ 1,119

Notes

(1) The 2020 Series A Bonds were issued at 99.7 percent of par.

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

Debt Outstanding

Total debt outstanding at September 30, 2020 and 2019, consisted of the following:

Short-Term Debt At September 30					
CUSIP or Other Identifier	Maturity	Call/(Put) Date	Coupon Rate	2020	2019
Short-term debt, net of discounts				\$ 57	\$ 922
Current maturities of long-term debt of VIEs issued at par				41	39
Current maturities of notes payable				—	23
Current maturities of power bonds issued at par					
880591EF5	12/15/2019		3.770%	—	1
880591EF5	6/15/2020		3.770%	—	27
880591EF5	12/15/2020		3.770%	1	—
880591EF5	6/15/2021		3.770%	28	—
88059TEL1	11/15/2019		2.650%	—	1
88059TEL1	5/15/2020		2.650%	—	1
880591EV0	3/15/2020		2.250%	—	1,000
880591EL2	2/15/2021		3.875%	1,500	—
880591DC3	6/7/2021		5.805%	258 ⁽¹⁾	—
Total current maturities of power bonds issued at par				1,787	1,030
Total current debt outstanding, net				\$ 1,885	\$ 2,014

Note

(1) Includes net exchange gain from currency transactions of \$73 million at September 30, 2020.

Long-Term Debt
At September 30

CUSIP or Other Identifier	Maturity	Coupon Rate	Effective Call Date	2020 Par	2019 Par	Stock Exchange Listings
electronotes ⁽²⁾	5/15/2020 - 2/15/2043	2.375% - 3.625%	2/15/2015 - 2/15/2018 ⁽⁵⁾	\$ —	\$ 217	None
880591EL2	2/15/2021	3.875%		—	1,500	New York
880591DC3	6/7/2021	5.805% ⁽³⁾		—	246 ⁽¹⁾	New York, Luxembourg
880591EN8	8/15/2022	1.875%		1,000	1,000	New York
880591ER9	9/15/2024	2.875%		1,000	1,000	New York
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 ⁽⁴⁾	6/1/2028	2.134%		256	273	New York
880591409 ⁽⁴⁾	5/1/2029	2.216%		208	232	New York
880591DM1	5/1/2030	7.125%		1,000	1,000	New York, Luxembourg
880591DP4	6/7/2032	6.587% ⁽³⁾		323 ⁽¹⁾	307 ⁽¹⁾	New York, Luxembourg
880591DV1	7/15/2033	4.700%		472	472	New York, Luxembourg
880591EF5	6/15/2034	3.770%		218	246	None
880591DX7	6/15/2035	4.650%		436	436	New York
880591CK6	4/1/2036	5.980%		121	121	New York
880591CS9	4/1/2036	5.880%		1,500	1,500	New York
880591CP5	1/15/2038	6.150%		1,000	1,000	New York
880591ED0	6/15/2038	5.500%		500	500	New York
880591EH1	9/15/2039	5.250%		2,000	2,000	New York
880591EP3	12/15/2042	3.500%		1,000	1,000	New York
880591DU3	6/7/2043	4.962% ⁽³⁾		194 ⁽¹⁾	185 ⁽¹⁾	New York, Luxembourg
880591CF7	7/15/2045	6.235%	7/15/2020	—	140	New York
880591EB4	1/15/2048	4.875%		500	500	New York, Luxembourg
880591DZ2	4/1/2056	5.375%		1,000	1,000	New York
880591EJ7	9/15/2060	4.625%		1,000	1,000	New York
880591ES7	9/15/2065	4.250%		1,000	1,000	New York
Subtotal				18,078	19,225	
Unamortized discounts, premiums, issue costs, and other				(122)	(131)	
Total long-term outstanding power bonds, net				17,956	19,094	
Long-term debt of VIEs, net				1,048	1,089	
Total long-term debt, net				\$ 19,004	\$ 20,183	

Notes

- (1) Includes net exchange gain from currency transactions of \$80 million and \$191 million at September 30, 2020 and 2019, respectively.
(2) Includes one electronotes[®] issue with partial maturities of principal for each required annual payment.
(3) The coupon rate represents TVA's effective interest rate.
(4) TVA PARRS, CUSIP numbers 880591300 and 880591409, may be redeemed under certain conditions. See *Put and Call Options* above.
(5) The bonds were callable on or after the dates shown.

Maturities Due in the Year Ending September 30

	2021	2022	2023	2024	2025	Thereafter	Total
Long-term power bonds, long-term debt of VIEs, and notes payable including current maturities ⁽¹⁾	\$ 1,901	\$ 1,071	\$ 69	\$ 1,058	\$ 1,059	\$ 15,957	\$ 21,115
Short-term debt, net of discounts	57	—	—	—	—	—	57

Note

(1) Long-term power bonds does not include non-cash items of foreign currency exchange gain of \$153 million, unamortized debt issue costs of \$45 million, and net discount on sale of Bonds of \$77 million. Long-term debt of VIE does not include non-cash item of unamortized debt issue costs of \$8 million.

Credit Facility Agreements

TVA has funding available under four long-term revolving credit facilities totaling \$2.7 billion: a \$150 million credit facility that matures on December 11, 2021, a \$1.0 billion credit facility that matures on June 13, 2023, a \$1.0 billion credit facility that matures on September 28, 2023, and a \$500 million credit facility that matures on February 1, 2025. 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, 2020 and 2019, there were \$1.5 billion and \$1.3 billion, respectively, 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, 2020

Maturity Date	Facility Limit	Letters of Credit Outstanding	Cash Borrowings	Availability
December 2021	\$ 150	\$ 38	\$ —	\$ 112
June 2023	1,000	432	—	568
September 2023	1,000	487	—	513
February 2025	500	500	—	—
Total	\$ 2,650	\$ 1,457	\$ —	\$ 1,193

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 2021 with a maturity date of September 30, 2021. 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 one year or less. There were no outstanding borrowings under the facility at September 30, 2020. The availability of this credit facility may be impacted by how the U.S. government addresses the possibility of approaching its debt limit.

Lease/Leasebacks

TVA previously entered into leasing transactions to obtain third-party financing for 24 peaking 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. On September 30, 2020 and 2019, the outstanding leaseback obligations related to the remaining CTs and QTE were \$223 million and \$263 million, respectively. In March 2019, TVA made final rent payments under lease/leaseback transactions involving eight CTs, and TVA had previously acquired the equity interests related to these transactions. These transactions were terminated in July 2019. In May 2020, TVA made final rent payments under lease/leaseback transactions involving eight additional CTs, and TVA had previously acquired the equity interest related to these transactions. Rent payments under the remaining CT lease/leaseback transactions are scheduled to be made through January 2022. TVA does have the option to acquire the equity interests related to transactions involving the remaining eight CTs for additional amounts. In addition, on October 30, 2019, TVA provided notice of its intent to purchase the ownership interest in certain QTE. Repurchase payments are expected to be paid through a series of installments in 2021 and 2022, after which the associated leases will be terminated.

14. Accumulated Other Comprehensive Income (Loss)

AOCI represents market valuation adjustments related to TVA's currency swaps. The currency swaps are cash flow hedges and are the only derivatives in TVA's portfolio that have been designated and qualify for hedge accounting treatment. TVA records exchange rate gains and losses on its foreign currency-denominated debt and any related accrued interest in net income and marks its currency swap assets and liabilities to market through other comprehensive income (loss) ("OCI"). TVA then reclassifies an amount out of AOCI into net income, offsetting the exchange gain/loss recorded on the debt. For the years ended September 30, 2020 and 2019, TVA reclassified \$38 million of gains and \$45 million of losses, respectively, related to its cash flow hedges from AOCI to Interest expense. See Note 15 — *Risk Management Activities and Derivative Transactions*.

TVA records certain assets and liabilities that result from the regulated ratemaking process that would not be recorded under GAAP for non-regulated entities. As such, certain items that would generally be reported in AOCI or that would impact the statements of operations are recorded as regulatory assets or regulatory liabilities. See Note 9 — *Regulatory Assets and Liabilities* for a schedule of regulatory assets and liabilities. See Note 15 — *Risk Management Activities and Derivative Transactions* for a discussion of the recognition in AOCI of gains and losses associated with certain derivative contracts. See Note 16 — *Fair Value Measurements* for a discussion of the recognition of certain investment fund gains and losses as regulatory assets and liabilities. See Note 21 — *Benefit Plans* for a discussion of the regulatory accounting related to components of TVA's benefit plans.

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. During the fourth quarter of 2020, TVA discontinued derivative accounting for forward coal contracts because these contracts no longer meet the criteria of net settlement. As a result, the associated \$10 million net derivative liabilities have been derecognized. TVA suspended its FTP in 2014 and no longer uses financial instruments to hedge risks related to commodity prices; however, TVA plans to continue to manage fuel price volatility through other methods and is currently reevaluating its suspended FTP program for future use of financial instruments.

Overview of Accounting Treatment

TVA recognizes certain of its derivative instruments as either assets or liabilities on its Consolidated Balance Sheets at fair value. The accounting for changes in the fair value of these instruments depends on (1) whether TVA uses regulatory accounting to defer the derivative gains and losses, (2) whether the derivative instrument has been designated and qualifies for hedge accounting treatment, and (3) if so, the type of hedge relationship (for example, cash flow hedge).

The following tables summarize the accounting treatment that certain of TVA's financial derivative transactions receive:

Summary of Derivative Instruments That Receive Hedge Accounting Treatment (part 1)
Amount of Mark-to-Market Gain (Loss) Recognized in 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	2020	2019
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	\$ (1)	\$ (114)

Summary of Derivative Instruments That Receive Hedge Accounting Treatment (part 2)⁽¹⁾
Amount of Gain (Loss) Reclassified from Accumulated Other Comprehensive Income to Interest Expense
For the years ended September 30

Derivatives in Cash Flow Hedging Relationship	2020	2019
Currency swaps	\$ 38	\$ (45)

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 \$27 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 exchange gain on the debt.

Summary of Derivative Instruments That Do Not Receive Hedge Accounting Treatment
Amount of Gain (Loss) Recognized in Income on Derivatives⁽¹⁾
For the years ended September 30

Derivative Type	Objective of Derivative ⁽²⁾	Accounting for Derivative Instrument	2020	2019
Interest rate swaps	To fix short-term debt variable rate to a fixed rate (interest rate risk)	Mark-to-market gains and losses are recorded as regulatory assets or liabilities Realized gains and losses are recognized in Interest expense when incurred during the settlement period and are presented in operating cash flow	\$ (97)	\$ (79)
Commodity contract derivatives	To protect against fluctuations in market prices of purchased coal or natural gas (price risk)	Mark-to-market gains and losses are recorded as regulatory assets or liabilities Realized gains and losses due to contract settlements are recognized in Fuel expense as incurred	(1)	—

Notes

(1) All of TVA's derivative instruments that do not receive hedge accounting treatment have unrealized gains (losses) that would otherwise be recognized in income but instead are deferred as regulatory assets and liabilities. As such, there were no related gains (losses) recognized in income for these unrealized gains (losses) for the years ended September 30, 2020 and 2019.

(2) During the fourth quarter of 2020, TVA discontinued derivative accounting for forward coal contracts.

Fair Values of TVA Derivatives
At September 30

2020			2019	
Derivatives That Receive Hedge Accounting Treatment:				
	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Currency swaps				
£200 million Sterling	\$ (78)	Accounts payable and accrued liabilities \$(78)	\$ (90)	Accounts payable and accrued liabilities \$(6); Other long-term liabilities \$(84)
£250 million Sterling	(63)	Accounts payable and accrued liabilities \$(5); Other long-term liabilities \$(58)	(61)	Accounts payable and accrued liabilities \$(5); Other long-term liabilities \$(56)
£150 million Sterling	(68)	Accounts payable and accrued liabilities \$(3); Other long-term liabilities \$(65)	(57)	Accounts payable and accrued liabilities \$(4); Other long-term liabilities \$(53)
Derivatives That Do Not Receive Hedge Accounting Treatment:				
	Balance	Balance Sheet Presentation	Balance	Balance Sheet Presentation
Interest rate swaps				
\$1.0 billion notional	\$ (1,449)	Accounts payable and accrued liabilities \$(43); Accrued interest \$(37); Other long-term liabilities \$(1,369)	\$ (1,261)	Accounts payable and accrued liabilities \$(29); Accrued interest \$(33); Other long-term liabilities \$(1,199)
\$476 million notional	(588)	Accounts payable and accrued liabilities \$(22); Accrued interest \$(10); Other long-term liabilities \$(556)	(498)	Accounts payable and accrued liabilities \$(15); Accrued interest \$(9); Other long-term liabilities \$(474)
\$42 million notional	(4)	Accounts payable and accrued liabilities \$(2); Other long-term liabilities \$(2)	(5)	Accounts payable and accrued liabilities \$(1); Accrued interest \$(1); Other long-term liabilities \$(3)
Commodity contract derivatives	46	Other current assets \$26; Other long-term assets \$23; Accounts payable and accrued liabilities \$(3)	(41)	Other current assets \$12; Other long-term liabilities \$(16); Accounts payable and accrued liabilities \$(37)

Cash Flow Hedging Strategy for Currency Swaps

To protect against exchange rate risk related to three British pound sterling denominated Bond transactions, TVA entered into foreign currency hedges at the time the Bond transactions occurred. TVA had the following currency swaps outstanding at September 30, 2020:

Currency Swaps Outstanding September 30, 2020			
Effective Date of Currency Swap Contract	Associated TVA Bond Issues Currency Exposure	Expiration Date of Swap	Overall Effective Cost to TVA
1999	£200 million	2021	5.81%
2001	£250 million	2032	6.59%
2003	£150 million	2043	4.96%

When the dollar strengthens against the British pound sterling, the exchange gain on the Bond liability 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 Accounts payable and accrued liabilities, 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 assets or liabilities on TVA's Consolidated Balance Sheets and are included in the ratemaking formula when gains or losses are realized. The values of these derivatives are included in Accounts payable and accrued liabilities, Accrued interest, and Other long-term liabilities on the Consolidated Balance Sheets, and realized gains and losses, if any, are included in TVA's Consolidated Statements of Operations. For the years ended September 30, 2020 and 2019, the changes in fair market value of the interest rate swaps resulted in the deferral of unrealized losses of \$272 million and \$565 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 commodity contracts for coal and natural gas that require physical delivery of the contracted quantity of the commodity. During the fourth quarter of 2020, TVA discontinued derivative accounting for forward coal contracts. TVA marks to market natural gas contracts and defers the fair market values as regulatory assets or liabilities on a gross basis. At September 30, 2020, TVA's natural gas contract derivatives had terms of up to four years.

Commodity Contract Derivatives At September 30						
	2020			2019		
	Number of Contracts	Notional Amount	Fair Value (MtM)	Number of Contracts	Notional Amount	Fair Value (MtM)
Coal contract derivatives	—	— million tons	\$ —	8	9 million tons	\$ (4)
Natural gas contract derivatives	42	302 million mmBtu	\$ 46	65	330 million mmBtu	\$ (37)

Offsetting of Derivative Assets and Liabilities

The amounts of TVA's derivative instruments as reported on the Consolidated Balance Sheets at September 30, 2020 and 2019, are shown in the table below.

Derivative Assets and Liabilities ⁽¹⁾ (in millions)		
	At September 30, 2020	At September 30, 2019
Assets		
Commodity derivatives not subject to master netting or similar arrangement	\$ 49	\$ 12
Liabilities		
Currency swaps ⁽²⁾	\$ 209	\$ 208
Interest rate swaps ⁽²⁾	2,041	1,764
Total derivatives subject to master netting or similar arrangement	2,250	1,972
Commodity derivatives not subject to master netting or similar arrangement	3	53
Total liabilities	\$ 2,253	\$ 2,025

Notes

(1) Offsetting amounts primarily include counterparty netting of derivative contracts, margin account deposits for futures commission merchants transactions, and cash collateral received or paid in accordance with the accounting guidance for derivatives and hedging transactions. There were no offsetting amounts on TVA's Consolidated Balance Sheets at either September 30, 2020 or 2019.

(2) Letters of credit of approximately \$1.5 billion and \$1.3 billion were posted as collateral at September 30, 2020 and 2019, respectively, to partially secure the liability positions of one of the currency swaps and one of the interest rate swaps in accordance with the collateral requirements for these derivatives.

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, 2020 and 2019, the NDT held investments in forward contracts to purchase debt securities. The fair values of these derivatives were in net asset positions totaling \$13 million and \$22 million at September 30, 2020 and 2019, respectively.

Collateral. TVA's interest rate swaps and currency swaps contain contract provisions that require a party to post collateral (in a form such as cash or a letter of credit) when the party's liability balance under the agreement exceeds a certain threshold. At September 30, 2020, the aggregate fair value of all derivative instruments with credit-risk related contingent features that were in a liability position was \$2.2 billion. TVA's collateral obligations at September 30, 2020, under these arrangements, were approximately \$1.5 billion, for which TVA had posted approximately \$1.5 billion in letters of credit. These letters of credit reduce the available balance under the related credit facilities. TVA's assessment of the risk of its nonperformance includes a reduction in its exposure under the contract as a result of this posted collateral.

For all of its derivative instruments with credit-risk related contingent features:

- If TVA remains a majority-owned U.S. government entity but Standard & Poor's Financial Services, LLC ("S&P") or Moody's Investors Service, Inc. ("Moody's") downgrades TVA's credit rating to AA or Aa2, respectively, TVA's collateral obligations would likely increase by \$22 million, and
- If TVA ceases to be majority-owned by the U.S. government, TVA's credit rating would likely be downgraded and TVA would be required to post additional collateral.

Counterparty Risk

TVA may be exposed to certain risks when a counterparty has the potential to fail to meet its obligations in accordance with agreed terms. These risks may be related to credit, operational, or nonperformance matters. To mitigate certain counterparty risk, TVA analyzes the counterparty's financial condition prior to entering into an agreement, establishes credit limits, monitors the appropriateness of those limits, as well as any changes in the creditworthiness of the counterparty, on an ongoing basis, and when required, employs credit mitigation measures, such as collateral or prepayment arrangements and master purchase and sale agreements.

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 \$1.4 billion and \$1.6 billion of receivables from power sales outstanding at September 30, 2020 and 2019, 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* and Note 3 — *Accounts Receivable, Net*.

TVA had revenue from two LPCs that collectively accounted for 17 percent of total operating revenue for the years ended both September 30, 2020 and September 30, 2019.

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 from other vendors, TVA could experience delays, disruptions, additional costs, or other operational outcomes that may impact generation, maintenance, and capital programs. If one of TVA's fuel or purchased power suppliers fails to perform under the terms of its contract with TVA, TVA might lose the money that it paid to the supplier under the contract and have to purchase replacement fuel or power on the spot market, perhaps at a significantly higher price than TVA was entitled to pay under the contract. In addition, TVA might not be able to acquire replacement fuel or power in a timely manner and thus might be unable to satisfy its own obligations to deliver power.

Natural Gas. TVA purchases the majority of its natural gas requirements from a variety of suppliers under primarily short-term contracts. In the event of nonperformance by these suppliers, TVA believes that it can obtain replacement natural gas.

Coal. To help ensure a reliable supply of coal, TVA had coal contracts with multiple suppliers at September 30, 2020. The contracted supply of coal is sourced from multiple geographic regions of the United States and is to be delivered via various transportation methods (e.g., barge, rail, and truck). Emerging technologies, environmental regulations, and low natural gas prices have contributed to weak demand for coal. As a result, coal suppliers are facing increased financial pressure, which has led to relatively poor credit ratings and bankruptcies. Continued difficulties by coal suppliers, including impacts from the COVID-19 pandemic, could result in consolidations, additional bankruptcies, restructuring, contract renegotiations, or other scenarios.

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.

Purchased Power. TVA has a power purchase agreement that expires on March 31, 2032, with a supplier of electricity for 440 megawatts ("MW") of summer net capability from a lignite-fired generating plant. TVA has determined that the supplier has the equivalent of a non-investment grade credit rating; therefore, the supplier has provided credit assurance to TVA under the terms of the agreement.

Other Suppliers. At this time, TVA has experienced minimal impacts due to force majeure events, with the exception of a manufacturing delay for a major turbine component. A mitigation strategy was developed by TVA and the vendor to reduce projected delays and impacts to TVA's outage schedule. TVA will continue to monitor the supply base and remain in contact with suppliers to identify potential risks.

Derivative Counterparties. TVA has entered into physical and financial contracts that qualify as derivatives for hedging purposes, and TVA's NDT, ART, and qualified defined benefit 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 substantial costs in connection with entering into a replacement transaction. If a counterparty to the derivative contracts into which the NDT, the ART, and the qualified pension plan have entered for investment purposes defaults, the value of the investment could decline significantly or perhaps become worthless. TVA has concentrations of credit risk from the banking, coal, and gas industries because multiple companies in these industries serve as counterparties to TVA in various derivative transactions. At September 30, 2020, all of TVA's currency swaps and interest rate swaps as well as all of the derivatives in the NDT and ART were with banking counterparties whose Moody's credit ratings were A3 or higher.

TVA classifies qualified forward natural gas contracts as derivatives. See *Derivatives Not Receiving Hedge Accounting Treatment* above. At September 30, 2020, the natural gas contracts were with counterparties whose ratings ranged from Caa2 to A2. TVA recognizes the slowdown in demand and the impacts on the oil and gas industry as a result of the COVID-19 pandemic. TVA will continue to monitor the impacts and affected credit ratings and enforce contract performance assurance provisions when applicable.

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, 2020, Investment funds were comprised of \$3.2 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 \$2.2 billion and \$866 million, respectively, at September 30, 2020.

TVA established a SERP to provide benefits to selected employees of TVA which are comparable to those provided by competing organizations. The DCP is designed to provide participants with the ability to defer compensation to future periods. The NDT, ART, SERP, and DCP funds are invested in portfolios of securities generally designed to achieve a return in line with overall equity and debt market performance.

The NDT, ART, SERP, and DCP are composed of multiple types of investments and are managed by external institutional investment managers. Most U.S. and international equities, U.S. Treasury inflation-protected securities, real estate investment trust securities, and cash securities and certain derivative instruments are measured based on quoted exchange prices in active markets and are classified as Level 1 valuations. Fixed-income investments, high-yield fixed-income investments, currencies, and most derivative instruments are non-exchange traded and are classified as Level 2 valuations. These measurements are based on market and income approaches with observable market inputs.

Private equity limited partnerships, private real asset investments, and private credit investments may include holdings of investments in private real estate, venture capital, buyout, mezzanine or subordinated debt, restructuring or distressed debt, and special situations through funds managed by third-party investment managers. These investments generally involve a three-to-four-year period where the investor contributes capital, followed by a period of distribution, typically over several years. The investment period is generally, at a minimum, 10 years or longer. The NDT had unfunded commitments related to limited partnerships in private equity of \$218 million, private real assets of \$67 million, and private credit of \$33 million at September 30,

2020. The ART had unfunded commitments related to limited partnerships in private equity of \$133 million, private real assets of \$54 million, and private credit of \$16 million at September 30, 2020. 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 net asset value 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*. TVA recorded unrealized gains and losses related to its equity and trading debt securities held during each period as follows:

Fund	Financial Statement Presentation	Unrealized Investment Gains (Losses) At or for the years ended September 30	
		2020	2019
NDT	Regulatory asset	\$ 37	\$ (112)
ART	Regulatory asset	32	(70)
SERP	Other income (expense)	3	—
DCP	Other income (expense)	2	(2)

Due to higher volatility in the financial markets associated with the COVID-19 pandemic, TVA has experienced fluctuations related to its ART and NDT investment portfolio during 2020. The losses experienced during the three months ended March 31, 2020, have been recovered. For the year ended September 30, 2020, the NDT increased in value \$123 million compared to the year ended September 30, 2019. Despite this volatility, TVA's NDT funding as of September 30, 2020, continues to be fully funded per the NRC funding requirements.

Currency and Interest Rate 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

See Note 15 — *Risk Management Activities and Derivative Transactions — Derivatives Not Receiving Hedge Accounting Treatment*. Most of these contracts are valued based on market approaches which utilize short-term and mid-term market-quoted prices from an external industry brokerage service.

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 2019) for companies with a similar credit rating over a time period consistent with the remaining term of the contract. The application of CVAs resulted in a less than \$1 million decrease in the fair value of assets and a \$1 million decrease in the fair value of liabilities at September 30, 2020.

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, 2020 and 2019. 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, 2020				
	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	\$ 500	\$ —	\$ —	\$ 500
Government debt securities ⁽¹⁾	485	40	—	525
Corporate debt securities ⁽²⁾	—	356	—	356
Mortgage and asset-backed securities	—	27	—	27
Institutional mutual funds	188	—	—	188
Forward debt securities contracts	—	13	—	13
Private equity funds measured at net asset value ⁽³⁾	—	—	—	194
Private real asset funds measured at net asset value ⁽³⁾	—	—	—	168
Private credit measured at net asset value ⁽³⁾	—	—	—	53
Commingled funds measured at net asset value ⁽³⁾	—	—	—	1,174
Total investments	1,173	436	—	3,198
Commodity contract derivatives	—	49	—	49
Total	\$ 1,173	\$ 485	\$ —	\$ 3,247
Liabilities				
Currency swaps ⁽⁴⁾	\$ —	\$ 209	\$ —	\$ 209
Interest rate swaps	—	2,041	—	2,041
Commodity contract derivatives	—	3	—	3
Total	\$ —	\$ 2,253	\$ —	\$ 2,253

Notes

(1) Includes government-sponsored entities.

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

(3) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented 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.

Fair Value Measurements
At September 30, 2019

	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	\$ 464	\$ —	\$ —	\$ 464
Government debt securities	279	65	—	344
Corporate debt securities	—	417	—	417
Mortgage and asset-backed securities	—	32	—	32
Institutional mutual funds	250	—	—	250
Forward debt securities contracts	—	22	—	22
Private equity funds measured at net asset value ⁽¹⁾	—	—	—	140
Private real asset funds measured at net asset value ⁽¹⁾	—	—	—	135
Private credit measured at net asset value ⁽¹⁾	—	—	—	33
Commingled funds measured at net asset value ⁽¹⁾	—	—	—	1,131
Total investments	993	536	—	2,968
Commodity contract derivatives	—	7	5	12
Total	\$ 993	\$ 543	\$ 5	\$ 2,980
Liabilities				
Currency swaps ⁽²⁾	\$ —	\$ 208	\$ —	\$ 208
Interest rate swaps	—	1,764	—	1,764
Commodity contract derivatives	—	44	9	53
Total	\$ —	\$ 2,016	\$ 9	\$ 2,025

Notes

(1) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented on the Consolidated Balance Sheets.

(2) TVA records currency swaps net of cash collateral received from or paid to the counterparty, to the extent such amount is not recorded in Accounts payable and accrued liabilities. See Note 15 — *Risk Management Activities and Derivative Transactions — Offsetting of Derivative Assets and Liabilities*.

During the fourth quarter of 2020, TVA discontinued derivative accounting for forward coal contracts. TVA previously used internal valuation specialists for the calculation of its commodity contract derivatives fair value measurements classified as Level 3. Analytical testing was performed on the change in fair value measurements each period to ensure the valuation is reasonable based on changes in general market assumptions. Significant changes to the estimated data used for unobservable inputs, in isolation or combination, may result in significant variations to the fair value measurement reported.

The following table presents a reconciliation of all commodity contract derivatives measured at fair value on a recurring basis using significant unobservable inputs (Level 3):

Fair Value Measurements Using Significant Unobservable Inputs

	Commodity Contract Derivatives
Balance at October 1, 2018	\$ 58
Change in net unrealized gains (losses) deferred as regulatory assets and liabilities	(62)
Balance at September 30, 2019	(4)
Settlements	(1)
Change in net unrealized gains (losses) deferred as regulatory assets and liabilities	5
Balance at September 30, 2020	\$ —

The following table presents quantitative information related to the significant unobservable inputs used in the measurement of fair value of TVA's assets and liabilities classified as Level 3 in the fair value hierarchy:

Quantitative Information about Level 3 Fair Value Measurements				
	Fair Value at September 30, 2019	Valuation Technique(s)	Unobservable Inputs	Range
Assets				
Commodity contract derivatives	\$ 5	Pricing model	Coal supply and demand	0.4 - 0.8 billion tons/year
			Long-term market prices	\$12.10 - \$94.51/ton
Liabilities				
Commodity contract derivatives	\$ 9	Pricing model	Coal supply and demand	0.4 - 0.8 billion tons/year
			Long-term market prices	\$12.10 - \$94.51/ton

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, 2020 and 2019, 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, 2020 and 2019, were as follows:

Estimated Values of Financial Instruments Not Recorded at Fair Value					
	Valuation Classification	At September 30, 2020		At September 30, 2019	
		Carrying Amount	Fair Value	Carrying Amount	Fair Value
EnergyRight® receivables (including current portion)	Level 2	\$ 87	\$ 86	\$ 101	\$ 100
Loans and other long-term receivables, net (including current portion)	Level 2	\$ 105	\$ 93	\$ 131	\$ 120
EnergyRight® financing obligations (including current portion)	Level 2	\$ 97	\$ 108	\$ 113	\$ 126
Unfunded loan commitments	Level 2	\$ —	\$ 2	\$ —	\$ 10
Membership interests of VIEs subject to mandatory redemption (including current portion)	Level 2	\$ 26	\$ 35	\$ 28	\$ 37
Long-term outstanding power bonds (including current maturities), net	Level 2	\$ 19,743	\$ 26,630	\$ 20,124	\$ 26,059
Long-term debt of VIEs (including current maturities), net	Level 2	\$ 1,089	\$ 1,419	\$ 1,128	\$ 1,371
Long-term notes payable (including current maturities)	Level 2	\$ —	\$ —	\$ 23	\$ 23

The carrying value of Cash and cash equivalents, Restricted cash and cash equivalents, 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

TVA adopted *Revenue from Contracts with Customers* effective October 1, 2018, using the modified retrospective method of adoption, which does not require restatement of prior year reported results. As a result of the adoption of this standard, no cumulative effect adjustment was recorded. Additionally, comparative disclosures for 2018 operating results with

the previous revenue recognition rules are not applicable as TVA's revenue recognition has not materially changed as a result of the new standard.

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 93 percent of TVA's revenue from sales of electricity is 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, 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 and demand response credits allowing TVA to reduce industrial customer usage in periods of peak demand to balance system demand. Payments are typically due within approximately one month of invoice issuance.</p>

Other Revenue

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

Disaggregated Revenue

In 2020, the revenues generated from TVA's electricity sales were \$10.1 billion and accounted for virtually all of TVA's revenues. TVA's revenues by state for each of the last three years are detailed in the table below:

Operating Revenues By State For the years ended September 30 (in millions)			
	2020	2019	2018
Alabama	\$ 1,439	\$ 1,593	\$ 1,600
Georgia	249	270	267
Kentucky	624	691	696
Mississippi	941	1,063	1,052
North Carolina	65	74	66
Tennessee	6,740	7,419	7,350
Virginia	42	45	48
Subtotal	10,100	11,155	11,079
Off-system sales	4	4	7
Revenue capitalized during pre-commercial plant operations ⁽¹⁾	—	—	(11)
Revenue from sales of electricity	10,104	11,159	11,075
Other revenue	145	159	158
Total operating revenues	\$ 10,249	\$ 11,318	\$ 11,233

Note

(1) Represents revenue capitalized during pre-commercial operations of \$11 million at Allen CC in 2018. See Note 1 — *Summary of Significant Accounting Policies — Pre-Commercial Plant Operations*.

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)			
	2020	2019	2018
Revenue from sales of electricity			
Local power companies ⁽¹⁾	\$ 9,406	\$ 10,351	\$ 10,262
Industries directly served	588	686	695
Federal agencies and other	110	122	129
Revenue capitalized during pre-commercial plant operations ⁽²⁾	—	—	(11)
Revenue from sales of electricity	10,104	11,159	11,075
Other revenue	145	159	158
Total operating revenues	\$ 10,249	\$ 11,318	\$ 11,233

Notes

(1) The amount for the years ended September 30, 2020 and 2019, is net of \$163 million and \$14 million, respectively, of wholesale bill credits to LPCs participating in the long-term Partnership Agreement. There were no such credits in 2018.

(2) Represents revenue capitalized during pre-commercial operations of \$11 million at Allen CC in 2018. See Note 1 — *Summary of Significant Accounting Policies — Pre-Commercial Plant Operations*.

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 20-year Partnership Agreement option that better aligns the length of LPC contracts with TVA's long-term commitments. These agreements are automatically extended each year after their initial effective date, contingent upon certain circumstances, including limited rate increases going forward. Participating LPCs will 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. In June 2020, TVA provided participating LPCs a flexibility option that allows them to locally generate up to approximately five percent of average total hourly energy sales over the prior five years in order to meet their individual customers' needs. As of November 16, 2020, 142 LPCs had signed the 20-year Partnership Agreement with TVA, and 64 LPCs had signed a Flexibility Agreement.

In August 2020, the TVA Board approved a \$200 million Pandemic Relief Credit. The 2.5 percent base rate credit will be applied beginning in October 2020 and will remain in effect through the end of 2021. The credit will apply to service provided to TVA's local power company customers, their large commercial and industrial customers, and TVA directly served customers.

The number of LPCs with the contract arrangements described below, the revenues derived from such arrangements during 2020, and the percentage of TVA's total operating revenues during 2020 represented by these revenues are summarized in the tables below:

TVA Local Power Company Contracts
At or for the year ended September 30, 2020

Contract Arrangements ⁽¹⁾	Number of LPCs	Revenue from Sales of Electricity to LPCs (in millions)	Percentage of Total Operating Revenues
20-year termination notice	142	\$ 7,666	74.8 %
5-year termination notice	11	1,740	17.0 %
Total ⁽²⁾	153	\$ 9,406	91.8 %

Notes

(1) Ordinarily, the LPCs and TVA have the same termination notice period; however, in contracts with two of the LPCs with five-year termination notices, TVA has a 10-year termination notice (which becomes a five-year termination notice if TVA loses its discretionary wholesale rate-setting authority). 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.

(2) TVA wholesale power contracts decreased to 153 in 2020 due to a merger between two LPCs in July 2020.

TVA's two largest LPCs — MLGW and 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 2020. In May 2020, MLGW published a draft IRP to guide energy choices in the future, and in July 2020, TVA made a proposal to MLGW that highlights the benefits of remaining a TVA customer. In August 2020, MLGW published a final IRP and announced its plan to issue requests for proposal to validate the cost estimates included in the IRP. In addition, certain other LPCs 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 does not have any material contract assets as of September 30, 2020.

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.

Energy Prepayment Obligations. In 2004, TVA and its largest customer, MLGW, entered into an energy prepayment agreement under which MLGW prepaid TVA \$1.5 billion for the future costs of electricity to be delivered by TVA to MLGW over a period of 15 years. TVA accounted for the prepayment as unearned revenue and reported the obligation to deliver power under this arrangement as Energy prepayment obligations. The arrangement ceased in 2019. TVA recognized approximately \$100 million of noncash revenue in each year of the arrangement as electricity was delivered to MLGW based on the ratio of units of kilowatt hours delivered to total units of kilowatt hours under contract. As of September 30, 2019, \$1.5 billion had been recognized as noncash revenue on a cumulative basis during the life of the agreement, \$100 million of which was recognized as noncash revenue and a corresponding reduction in the balance of Energy prepayment obligations during 2018. During 2019, \$10 million was recognized as noncash revenue and a corresponding reduction in the balance of Energy prepayment obligations. Discounts to account for the time value of money, which were recorded as a reduction to electricity sales, amounted to \$4 million and \$46 million during 2019 and 2018, respectively.

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. In 2020 and 2019, TVA recorded a total of \$318 million and \$310 million, respectively, in incentives as a reduction of revenue. 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, 2020 and 2019, the outstanding unpaid incentives were \$172 million and \$157 million, respectively. Incentives that have been paid out may be subject to claw back if the customer fails to meet certain program requirements. Additionally, in May 2020, TVA established flexibility provisions to support the continued operations and recovery of participating customers experiencing financial and operational hardships as a result of the COVID-19 pandemic and corresponding economic downturn. These provisions have not had a material impact to TVA.

18. Proprietary Capital

Appropriation Investment

TVA's power program and stewardship (nonpower) programs were originally funded primarily by appropriations from Congress. In 1959, Congress passed an amendment to the TVA Act that required TVA's power program to be self-financing from power revenues and proceeds from power program financings. While TVA's power program did not directly receive appropriated funds after it became self-financing, TVA continued to receive appropriations for certain multipurpose and other nonpower mission-related activities as well as for its stewardship activities. TVA has not received any appropriations from Congress for any activities since 1999, and since that time, TVA has funded stewardship program activities primarily with power revenues.

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.

The table below summarizes TVA's activities related to appropriated funds and retained earnings.

Summary of Proprietary Capital Activity At or for the years ended September 30				
	2020		2019	
	Power Program	Nonpower Programs	Power Program	Nonpower Programs
Appropriation Investment	\$ 258	\$ 4,351	\$ 258	\$ 4,351
Proprietary Capital				
Balance at beginning of year	10,823	(3,795)	9,404	(3,787)
Net income (loss) for year	1,360	(8)	1,425	(8)
Return on power program appropriation investment	(6)	—	(6)	—
Balance at end of year	12,177	(3,803)	10,823	(3,795)
Net proprietary capital at September 30	\$ 12,435	\$ 548	\$ 11,081	\$ 556

Payments to the U.S. Treasury

TVA paid the U.S. Treasury \$6 million, \$6 million, and \$5 million in 2020, 2019, and 2018, 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 2.44 percent, 2.37 percent, and 2.09 percent for 2020, 2019, and 2018, respectively.

Accumulated Other Comprehensive Income (Loss)

The items included in AOCI consist of market valuation adjustments for certain derivative instruments. See Note 15 — *Risk Management Activities and Derivative Transactions*.

TVA records exchange rate gains and losses on debt and related accrued interest in net income and marks its currency swap assets and liabilities to market through OCI. TVA recognized unrealized gains (losses) of \$(1) million and \$(114) million in 2020 and 2019, respectively, into AOCI on the mark-to-market of currency swaps. TVA then reclassified an amount out of AOCI into net income, offsetting the gain/loss from recording the exchange gain/loss on the debt and related accrued interest. The amounts reclassified from OCI into net income resulted in increases (decreases) to net income of \$38 million, \$(45) million, and \$(26) million in 2020, 2019, and 2018, respectively. These reclassifications, coupled with the recording of the exchange gain/loss on the debt and related accrued interest, did not have an impact on net income in 2020, 2019, and 2018. Based on forecasted foreign currency exchange rates, TVA expects to reclassify approximately \$27 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 exchange gain on the debt and related accrued interest.

19. Other Income (Expense), Net

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

Other Income (Expense), Net For the years ended September 30			
	2020	2019	2018
Bellefonte deposit	\$ —	\$ 21	\$ —
Interest income	18	25	23
External services	12	13	14
Gains (losses) on investments	9	3	6
Miscellaneous	(3)	—	7
Total other income (expense), net	\$ 36	\$ 62	\$ 50

During 2020, Other income (expense), net decreased \$26 million, primarily driven by \$21 million of other income in 2019 related to a deposit liability received by TVA as a down payment on the sale of Bellefonte. The purchaser, Nuclear Development, LLC, failed to fulfill the requirements of the sales contract with respect to obtaining NRC approval of the transfer of required nuclear licenses and payment of the remainder of the selling price before the November 30, 2018 closing date. Additionally, Interest income decreased \$7 million primarily as a result of lower interest rates. See Note 22 — *Commitments and Contingencies — Legal Proceedings* for a discussion of the lawsuit filed by Nuclear Development, LLC.

20. Supplemental Cash Flow Information

Interest paid was \$1.1 billion for 2020 and \$1.2 billion for both 2019 and 2018. These amounts differ from interest expense in certain years due to the timing of payments. There was no interest capitalized in 2020, 2019, or 2018.

Construction in progress and Nuclear fuel expenditures included in Accounts payable and accrued liabilities at September 30, 2020, 2019, and 2018 were \$398 million, \$324 million, and \$372 million, respectively, and are excluded from the Statements of Consolidated Cash Flows for the years ended September 30, 2020, 2019, and 2018 as non-cash investing activities.

Excluded from the Statements of Consolidated Cash Flows for the years ended September 30, 2020 and 2019, as non-cash financing activities were \$394 million related to lease obligations incurred primarily in connection with a PPA and \$10 million related to lease obligations incurred for leased equipment, respectively. There were no capital leases incurred during 2018. See Note 7 — *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.

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.

21. Benefit Plans

TVA sponsors a qualified defined benefit plan ("pension plan") that covers most of its full-time employees hired prior to July 1, 2014, a qualified defined contribution plan ("401(k) plan") that covers most of its full-time employees, two unfunded post-retirement health care plans that provide for non-vested contributions toward the cost of eligible retirees' medical coverage, other 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 \$88 million, \$84 million, and \$80 million during 2020, 2019, and 2018, respectively. The 2021 plan contribution costs are estimated to be approximately \$92 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. Effective January 2017, all Medicare-eligible retirees and spouses were provided Medicare supplement coverage through a private exchange. Transition to the exchange does not affect any TVARS supplemental benefits for eligible retirees, and the credit will continue to be calculated in the same manner as before.

Other Post-Employment Benefits. TVA employees injured in work-related incidents are covered by the workers' compensation program for federal employees administered through the Department of Labor by the Office of Workers' Compensation Programs in accordance with the provisions of the Federal Employees' Compensation Act ("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 recent 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 remaining service period of participating employees expected to receive benefits. The current projected amortization periods of unrecognized net gain or loss is approximately 11 years for the pension plan and 12 years for the post-retirement 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 have prior service costs/(credits) related to plan changes made in 2009, 2010, 2016, 2018, 2019, and 2020 with remaining amortization periods ranging from one to nine 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. Therefore, TVA cannot estimate the potential impact to the pension plan and other post-retirement plans at this time.

The changes in plan obligations, assets, and funded status for the years ended September 30, 2020 and 2019, were as follows:

Obligations and Funded Status				
For the years ended September 30				
	Pension Benefits		Other Post-Retirement Benefits	
	2020	2019	2020	2019
Change in benefit obligation				
Benefit obligation at beginning of year	\$ 13,312	\$ 11,725	\$ 499	\$ 428
Service cost	55	44	16	11
Interest cost	415	499	16	18
Plan participants' contributions	6	7	—	—
Collections ⁽¹⁾	—	—	20	22
Actuarial (gain) loss	614	1,756	39	78
Plan change	2	7	—	—
Net transfers (to) from variable fund/401(k) plan	2	1	—	—
Expenses paid	(5)	(6)	—	—
Benefits paid	(726)	(721)	(46)	(58)
Benefit obligation at end of year	13,675	13,312	544	499
Change in plan assets				
Fair value of net plan assets at beginning of year	7,980	8,003	—	—
Actual return on plan assets	397	389	—	—
Plan participants' contributions	6	7	—	—
Collections ⁽¹⁾	—	—	20	22
Net transfers (to) from variable fund/401(k) plan	2	1	—	—
Employer contributions	305	307	26	36
Expenses paid	(5)	(6)	—	—
Benefits paid	(726)	(721)	(46)	(58)
Fair value of net plan assets at end of year	7,959	7,980	—	—
Funded status	\$ (5,716)	\$ (5,332)	\$ (544)	\$ (499)

Note

(1) Collections include retiree contributions as well as provider discounts and rebates.

For 2020, the \$614 million pension benefit obligation actuarial loss is primarily due to the decrease in the discount rate from 3.20 percent to 2.75 percent, which increased the liability by \$714 million. In addition, TVA recognized \$74 million of actuarial losses due to demographic and plan experience, and an actuarial loss of \$32 million due to the assumption change of elections for lump sum payments based upon an updated actuarial study. These actuarial losses were partially offset by a \$137 million gain due to mortality assumption changes and \$69 million gain due to a lower COLA than previously assumed. The

2020 plan change of \$2 million was due to the plan change in the interest rate and mortality basis used to determine SERP retirement payments.

For 2019, the \$1.8 billion pension benefit obligation actuarial loss is primarily due to the decrease in the discount rate from 4.35 percent to 3.20 percent, which increased the liability by \$1.6 billion. In addition, TVA recognized actuarial losses of \$147 million due to demographic and plan experience. These actuarial losses were partially offset by a \$14 million gain due to mortality assumption changes. The 2019 pension plan change of \$7 million was a result of two new participants entering the SERP plan during 2019.

The other post-retirement actuarial loss for 2020 increased the benefit obligation by \$39 million. TVA recognized a \$30 million loss due to the updated plan assumptions related to the election rate for pre-Medicare retirees, assumed per capita claims costs, and expected retiree contributions to reflect observed and anticipated plan experience. In addition, TVA recognized a \$20 million loss due to the decrease in the discount rate from 3.30 percent to 3.05 percent, and a \$4 million loss due to actual experience different from assumed. These losses were partially offset by a gain of \$15 million due to the updated post-Medicare trend rate assumption attributable to lower than expected premium increases on the private exchange.

The other post-retirement actuarial loss for 2019 was primarily due to the decrease in the discount rate from 4.40 percent to 3.30 percent, which increased the liability by \$71 million. TVA recognized losses of \$24 million primarily due to the updated per capita claim costs assumption and an additional loss of \$7 million related to actual experience different from assumed. These losses were partially offset by a net gain of \$24 million due to the change in health care trend rate assumptions.

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, 2020 and 2019, and the funded status of TVA's benefit plans, which are included in Accounts payable and accrued liabilities and Post-retirement and post-employment benefit obligations:

Amounts Recognized on TVA's Consolidated Balance Sheets
At September 30

	Pension Benefits		Other Post-Retirement Benefits	
	2020	2019	2020	2019
Regulatory assets (liabilities)	\$ 5,115	\$ 4,731	\$ 78	\$ 25
Accounts payable and accrued liabilities	(5)	(5)	(28)	(28)
Pension and post-retirement benefit obligations ⁽¹⁾	(5,711)	(5,327)	(516)	(471)

Note

(1) The table above excludes \$390 million and \$383 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, 2020 and 2019, respectively.

Unrecognized amounts included in regulatory assets or liabilities yet to be recognized as components of accrued benefit cost at September 30, 2020 and 2019, consisted of the following:

Post-Retirement Benefit Costs Deferred as Regulatory Assets (Liabilities)
At September 30

	Pension Benefits		Other Post-Retirement Benefits	
	2020	2019	2020	2019
Unrecognized prior service credit	\$ (615)	\$ (714)	\$ (112)	\$ (135)
Unrecognized net loss	5,620	5,350	190	160
Amount capitalized due to actions of regulator	110	95	—	—
Total regulatory assets (liabilities)	\$ 5,115	\$ 4,731	\$ 78	\$ 25

The projected benefit obligation, accumulated benefit obligation, and fair value of plan assets for the pension plan at September 30, 2020 and 2019, were as follows:

Projected Benefit Obligations and Accumulated Benefit Obligations in Excess of Plan Assets
At September 30

	2020	2019
Projected benefit obligation	\$ 13,675	\$ 13,312
Accumulated benefit obligation	13,613	13,246
Fair value of net plan assets	7,959	7,980

The components of net periodic benefit cost and other amounts recognized as changes in regulatory assets for the years ended September 30, 2020, 2019, and 2018 were as follows:

Components of Net Periodic Benefit Cost
For the years ended September 30

	Pension Benefits			Other Post-Retirement Benefits		
	2020	2019	2018	2020	2019	2018
Service cost	\$ 55	\$ 44	\$ 53	\$ 16	\$ 11	\$ 14
Interest cost	415	499	473	16	18	19
Expected return on plan assets	(488)	(477)	(478)	—	—	—
Amortization of prior service credit	(97)	(99)	(99)	(24)	(24)	(22)
Recognized net actuarial loss	436	336	409	10	4	8
Total net periodic benefit cost as actuarially determined	321	303	358	18	9	19
Amount expensed (capitalized) due to actions of regulator	(15)	1	(54)	—	—	—
Net periodic benefit cost	\$ 306	\$ 304	\$ 304	\$ 18	\$ 9	\$ 19

The amounts in the regulatory asset that are expected to be recognized as components of net periodic benefit cost during the next fiscal year are as follows:

Expected Amortization of Regulatory Assets in 2021
At September 30, 2020

	Pension Benefits	Other Post-Retirement Benefits	Total
Prior service credit	\$ (97)	\$ (18)	\$ (115)
Net actuarial loss	447	12	459
Amounts expensed due to actions of regulator	28	—	28

Plan Assumptions

Plan assumptions utilized to determine benefit obligations and net periodic benefit costs include discount rates, projected health care cost trend rates, expected long-term rate on plan assets, rate of increase in future compensation levels, retirement rates, expected timing and form of payments, and mortality rates, the most significant of which 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	
	2020	2019	2020	2019
Discount rate	2.75%	3.20%	3.05%	3.30%
Rate of compensation increase	3.43%	3.50%	N/A	N/A
Cost of living adjustment (COLA) ⁽¹⁾	2.00%	2.00%	2.00%	2.00%
Pre-Medicare eligible				
Current health care cost trend rate ⁽²⁾	N/A	N/A	6.50%	6.75%
Ultimate health care cost trend rate	N/A	N/A	5.00%	5.00%
Year ultimate trend rate is reached	N/A	N/A	2027	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	2024	2023

Notes

(1) The COLA assumption is the ultimate long-term rate. The calendar year rate for 2021 is assumed to be one percent, and for years thereafter the ultimate is used.

(2) In 2019, TVA reset the pre-Medicare health care cost trend rates assumption with an initial rate of 6.75 percent, declining 0.25 percent per year until it reaches the ultimate rate of 5.00 percent in 2027. For 2020, TVA maintained this trend assumption for pre-Medicare per capita claims cost with a current health care cost rate of 6.50 percent. However, to account for cumulative delayed medical care due to the COVID-19 pandemic and the expected spending as the demand for care returns, the pre-Medicare per capita retiree contributions current health care cost trend rate is 11.93 percent, and in 2022 assumed to return to 6.25 percent in line with the health care cost trend rates assumption.

Actuarial Assumptions Utilized to Determine Net Periodic Benefit Cost for the Years Ended September 30⁽¹⁾

	Pension Benefits			Other Post-Retirement Benefits		
	2020	2019	2018	2020	2019	2018
Discount rate	3.20 %	4.35 %	3.85 %	3.30 %	4.40 %	3.95 %
Expected return on plan assets ⁽²⁾	6.75 %	6.75 %	6.75 %	N/A	N/A	N/A
Cost of living adjustment (COLA) ⁽³⁾	2.00 %	2.00 %	2.00 %	2.00 %	2.00 %	2.00 %
Rate of compensation increase	3.43 %	3.50 %	5.34 %	N/A	N/A	N/A
Pre-Medicare eligible						
Current health care cost trend rate	N/A	N/A	N/A	6.75 %	6.25 %	6.50 %
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	2024	2024
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	2023	2021	2021

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 2020, 2019, and 2018 were 5.11%, 4.99%, and 5.84%, 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.

Rate of Return. 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.

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. The average assumed compensation increased used to determine benefit obligations and net periodic benefit cost 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 2020, based upon the most recent mortality experience study, TVA adopted a modified version of the SOA PRI-2012 table and a modified version of the SOA MP-2019 improvement scale.

The following mortality assumptions were used to determine the benefit obligations for the pension and other post-retirement benefit plans at September 30, 2020, 2019, and 2018. 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		
	2020	2019	2018
Mortality table	PRI-2012 table (adjusted)	RP-2014 table (adjusted)	RP-2014 table (adjusted)
Improvement scale	MP-2019 (modified)	MP-2018 (modified)	RP-2017 (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 a COLA on pension and supplemental benefits equal to the percentage change in the Consumer Price Index for All Urban Consumers ("CPI-U") in January following any year in which the 12-month average CPI-U exceeded by as much as one percent the 12-month average of the CPI-U for the preceding year in which a COLA was given. Increases in the COLA will be the percent increase in CPI-U over the preceding year 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 2020, 2019, and 2018 were 1.54 percent, 2.21 percent, and 1.84 percent, respectively.

Sensitivity of Costs to Changes in Assumptions. The following chart reflects the sensitivity of pension cost to changes in certain actuarial assumptions:

Sensitivity to Certain Changes in Pension Assumptions
At September 30, 2020

Actuarial Assumption	Change in Assumption	Impact on 2020 Pension Cost	Impact on 2020 Projected Benefit Obligation
Discount rate	(0.25)%	\$ 17	\$ 418
Rate of return on plan assets	(0.25)%	18	N/A
Cost of living adjustments	0.25 %	30	270

Each fluctuation above assumes that the other components of the calculation are held constant and excludes any impact for unamortized actuarial gains or losses.

The following chart reflects the sensitivity of post-retirement benefit cost to changes in the health care trend rate:

Sensitivity to Changes in Assumed Health Care Cost Trend Rates
At September 30, 2020

	1% Increase	1% Decrease
Effect on total of service and interest cost components for the year	\$ 4	\$ (4)
Effect on end-of-year accumulated post-retirement benefit obligation	70	(68)

Each fluctuation above assumes that the other components of the calculation are held constant and excludes any impact for unamortized actuarial gains or losses.

Plan Investments

The TVARS asset allocation policy for qualified pension plan assets has targets of 40 percent equity including global public and private equity investments, 40 percent fixed income securities, and 20 percent real assets including public and private real assets. TVARS has a long-term investment plan that contains a dynamic de-risking strategy which will allocate investments to assets that better match the liability, such as long duration fixed income securities, over time as improved funding status targets are met. Pursuant to the TVARS Rules and Regulations, any proposed changes in asset allocation that would change TVARS's assumed rate of investment return are subject to TVA's review and veto.

As set forth above, the qualified pension plan assets are invested across global public equity, private equity, safety oriented fixed income, opportunistic fixed income, public real assets, and private real assets. The TVARS asset allocation policy includes permissible deviations from target allocations, and action can be taken, as appropriate, to rebalance the plan's assets consistent with the asset allocation policy. At September 30, 2020 and 2019, the asset holdings of TVARS included the following:

Asset Holdings of TVARS At September 30			
Asset Category	Target Allocation	Plan Assets at September 30	
		2020	2019
Global public equity	32 %	36 %	37 %
Private equity	8 %	13 %	10 %
Safety oriented fixed income	20 %	18 %	18 %
Opportunistic fixed income	20 %	15 %	12 %
Public real assets	10 %	10 %	15 %
Private real assets	10 %	8 %	8 %
Total	100 %	100 %	100 %

Fair Value Measurements

The following table provides the fair value measurement amounts for assets held by TVARS at September 30, 2020:

TVA Retirement System At September 30, 2020				
	Total ⁽¹⁾⁽²⁾	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Equity securities	\$ 1,624	\$ 1,621	\$ —	\$ 3
Preferred securities	11	—	11	—
Debt securities				
Corporate debt securities	1,421	—	1,418	3
Residential mortgage-backed securities	317	—	314	3
Debt securities issued by U.S. Treasury	701	701	—	—
Debt securities issued by foreign governments	231	—	179	52
Asset-backed securities	116	—	88	28
Debt securities issued by state/local governments	23	—	23	—
Commercial mortgage-backed securities	91	—	86	5
Commingled funds measured at net asset value ⁽³⁾				
Equity	931	—	—	—
Debt	203	—	—	—
Blended	102	—	—	—
Institutional mutual funds	277	277	—	—
Cash equivalents and other short-term investments	338	77	261	—
Private credit measured at net asset value ⁽³⁾	166	—	—	—
Private equity measured at net asset value ⁽³⁾	1,003	—	—	—
Private real assets measured at net asset value ⁽³⁾	629	—	—	—
Securities lending collateral	167	—	167	—
Derivatives				
Futures	3	3	—	—
Swaps	10	—	10	—
Options	2	—	2	—
Foreign currency forward receivable	2	—	2	—
Total assets	\$ 8,368	\$ 2,679	\$ 2,561	\$ 94
Liabilities				
Derivatives				
Futures	\$ 1	\$ 1	\$ —	\$ —
Foreign currency forward payable	3	—	3	—
Swaps	6	—	6	—
Options	2	—	2	—
Securities sold under agreements to repurchase	123	—	123	—
Total liabilities	\$ 135	\$ 1	\$ 134	\$ —

Notes

(1) Excludes approximately \$107 million in net payables associated with security purchases and sales and various other payables.

(2) Excludes a \$167 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 net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

The following table provides the fair value measurement amounts for assets held by TVARS at September 30, 2019:

TVA Retirement System At September 30, 2019				
	Total ⁽¹⁾⁽²⁾	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Equity securities	\$ 1,766	\$ 1,762	\$ —	\$ 4
Preferred securities	10	1	9	—
Debt securities				
Corporate debt securities	1,387	—	1,382	5
Residential mortgage-backed securities	427	—	424	3
Debt securities issued by U.S. Treasury	807	807	—	—
Debt securities issued by foreign governments	210	—	209	1
Asset-backed securities	144	—	116	28
Debt securities issued by state/local governments	18	—	18	—
Commercial mortgage-backed securities	81	—	80	1
Commingled funds measured at net asset value ⁽³⁾				
Equity	795	—	—	—
Debt	308	—	—	—
Commodities	217	—	—	—
Blended	125	—	—	—
Institutional mutual funds	97	97	—	—
Cash equivalents and other short-term investments	329	1	328	—
Certificates of deposit	3	—	3	—
Private credit measured at net asset value ⁽³⁾	78	—	—	—
Private equity measured at net asset value ⁽³⁾	778	—	—	—
Private real assets measured at net asset value ⁽³⁾	659	—	—	—
Securities lending collateral	224	—	224	—
Derivatives				
Futures	2	2	—	—
Swaps	5	—	5	—
Options	1	—	1	—
Foreign currency forward receivable	1	—	1	—
Total assets	\$ 8,472	\$ 2,670	\$ 2,800	\$ 42
Liabilities				
Derivatives				
Futures	\$ 4	\$ 4	\$ —	\$ —
Foreign currency forward payable	1	—	1	—
Swaps	12	—	12	—
Options	1	—	1	—
Securities sold under agreements to repurchase	118	—	118	—
Total liabilities	\$ 136	\$ 4	\$ 132	\$ —

cNotes

(1) Excludes approximately \$132 million in net payables associated with security purchases and sales and various other payables.

(2) Excludes a \$224 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 net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

The following table provides a reconciliation of beginning and ending balances of pension plan assets measured at fair value on a recurring basis where the determination of fair value includes significant unobservable inputs (Level 3):

Fair Value Measurements Using Significant Unobservable Inputs

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at October 1, 2018	\$ 58
Net realized/unrealized gains (losses)	4
Purchases, sales, issuances, and settlements (net)	(12)
Transfers in and/or out of Level 3	(8)
Balance at September 30, 2019	42
Net realized/unrealized gains (losses)	46
Purchases, sales, issuances, and settlements (net)	11
Transfers in and/or out of Level 3	(5)
Balance at September 30, 2020	<u>\$ 94</u>

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 net asset values established by the investment managers. In instances where pricing is determined to be based on unobservable inputs, a Level 3 classification has been assigned. 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. Certain securities priced using an unobservable input have been classified as Level 3.

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 net asset values (or unit value) per share as reported by the managers of the commingled funds and as supported by the unit prices of actual purchases and sale transactions occurring as of or close to the financial statement date. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The 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 U.S. Treasury Inflation-Protected Securities ("TIPS") index. 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 commodity commingled funds, which can be categorized as actively managed funds. The funds seek to outperform certain commodity benchmarks through fundamental research and analysis. The funds invest in a diversified portfolio of commodity securities and derivatives of varying maturities. The objective is to achieve a positive relative return through active security selection.

The 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 net asset value. Institutional mutual funds have daily published market prices that represent their net asset value (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 net asset values provided by the fund managers. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The private 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, 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 net asset values provided by the fund managers. These funds have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015.

The private equity limited partnerships typically make longer-term investments in private companies and seek to obtain financial returns through long-term appreciation based on corporate stewardship, improved operating processes, and financial restructuring which may involve a merger or acquisition. Significant investment strategies include venture capital, buyout, mezzanine or subordinated debt, restructuring or distressed debt, 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 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 net asset values provided by the investment managers. These investments have not been classified in the fair value hierarchy in accordance with FASB guidance issued in May 2015. The investment strategies and methodologies utilized by the investment managers to calculate their net asset values are summarized as follows:

The 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.

Reclassification. In the September 30, 2019 fair value measurements table, \$113 million and \$546 million of private equity and private real estate have been reclassified to private real assets to conform with current year presentation.

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, 2020

	Pension Benefits⁽¹⁾	Other Post-Retirement Benefits
2021	\$ 777	\$ 28
2022	776	26
2023	773	24
2024	768	23
2025	767	22
2026 - 2030	3,741	117

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 2020 and 2019. 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 \$5 million and \$7 million for 2020 and 2019, respectively. TVA made cash contributions to the other post-retirement benefit plans of \$25 million (net of \$5 million in rebates) and \$36 million (net of \$4 million in rebates) for 2020 and 2019, respectively. TVA expects to contribute \$300 million to TVARS, \$5 million to the SERP, and \$28 million to the other post-retirement benefit plans in 2021.

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 0.69 percent discount rate resulted in the recognition of \$45 million in expenses in 2020 and an unpaid benefit obligation of \$390 million at September 30, 2020. The use of a 1.68 percent discount rate resulted in the recognition of approximately \$59 million in expenses in 2019 and an unpaid benefit obligation of \$419 million at September 30, 2019. The use of a 3.05 percent discount rate resulted in the recognition of approximately \$(6) million in expenses in 2018 and an unpaid benefit obligation of \$339 million at September 30, 2018.

The decrease in the unpaid obligation at September 30, 2020 compared to the prior year is due to the timing of the payment of workers compensation claims to the U.S. Department of Labor ("DOL") in September 2020 compared to the prior year claims paid in October 2019. TVA paid \$74 million in claims during 2020 compared to \$39 million in 2019. TVA estimated losses for 2021 are \$32 million and due in October 2021.

Overall, the decrease in the discount rate from 1.68 percent in 2019 to 0.69 percent in 2020 increased the long-term portion of the unpaid benefit obligation. This increase was offset by a decrease in loss experience and fewer claims partially attributable to delayed medical treatments as a result of the COVID-19 pandemic. 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 increase in the unpaid benefit obligation when comparing 2019 to 2018 was due primarily to the decrease of the discount rate from 3.05 percent in 2018 to 1.68 percent in 2019.

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

	2020	2019
Accounts payable and accrued liabilities	\$ —	\$ 36
Post-retirement and post-employment benefit obligations	390	383

22. 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 2,384 MW of summer net capability. The remaining terms of the agreements range up to 12 years. Additionally, TVA has contracted with regional transmission organizations to reserve 1,450 MW of transmission service to support purchases from the market and wind power purchase agreements. The remaining terms of these agreements range up to four years. Excluding lease-related costs, TVA incurred \$202 million, \$195 million, and \$188 million of expense under these power purchase and transmission service agreements during 2020, 2019, and 2018, respectively.

Under federal law, TVA is obligated to purchase power from qualifying facilities (cogenerators and small power producers). As of September 30, 2020, there was a combined qualifying facility capacity of 268 MW from 111 different generation sources, from which TVA purchased power under this law.

Membership Interests of VIE Subject to Mandatory Redemption. At September 30, 2020, TVA had outstanding membership interests subject to mandatory redemption (including current portion) of \$26 million issued by one of its VIEs of which it is the primary beneficiary. See Note 10 — *Variable Interest Entities* for additional information. At September 30, 2020, the mandatory redemptions for each of the next five years are shown below:

	2021	2022	2023	2024	2025
Membership interests of variable interest entity subject to mandatory redemption	\$ 3	\$ 3	\$ 2	\$ 1	\$ 1

Leasebacks. At September 30, 2020 and 2019, the outstanding leaseback obligations related to CTs and QTE were \$223 million and \$263 million, respectively. See Note 13 — *Debt and Other Obligations — Lease/Leasebacks*. At September 30, 2020, the future minimum payments under leaseback obligations are shown below.

Lease/Leasebacks	
Minimum payments due in years ending September 30	
2021	\$ 207
2022	25
2023	—
2024	—
2025	—
Thereafter	—
Total	\$ 232

Leases. TVA also has obligations to make lease payments related to finance and operating leases. See Note 7 — *Leases* for additional information.

Unfunded Loan Commitments. At September 30, 2020, TVA's commitments under unfunded loan commitments were \$1 million for 2021. TVA has no commitments under unfunded loan commitments for 2022 through 2025.

In addition to the commitments above, TVA had contractual obligations in the form of revenue discounts related to energy prepayments. TVA recognized \$10 million of prepayment obligations and related interest payments of \$4 million in revenue during 2019. The arrangement ceased in 2019. See Note 1 — *Summary of Significant Accounting Policies — Energy Prepayment Obligations* and Note 17 — *Revenue*.

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 ("ANI") 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 incident, per reactor. Currently, 97 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 ANI combined with the Secondary Financial Protection should provide up to approximately \$13.8 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"). The limits for each site vary depending on the site and range from up to \$2.1 billion to \$2.8 billion available for a loss at TVA's three sites. Some of this insurance may require the payment of retrospective premiums up to a maximum of approximately \$145 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 \$43 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 12 — *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, 2020, \$3.3 billion, representing the discounted value of future estimated decommissioning costs, was included in AROs. The actual decommissioning costs may vary from the derived estimates because of, among other things, changes in current assumptions, such as the assumed dates of decommissioning, changes in regulatory requirements, changes in technology, and changes in the cost of labor, materials, and equipment. Utilities that own and operate nuclear plants are required to use different procedures in calculating nuclear decommissioning costs under GAAP than those that are used in calculating nuclear decommissioning costs when reporting to the NRC. The two sets of procedures produce different estimates for the costs of decommissioning primarily because of differences in the underlying assumptions. Decommissioning costs studies are updated for each of TVA's nuclear units at least every five years.

TVA maintains a 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 9 — *Regulatory Assets and Liabilities — Nuclear Decommissioning Costs* and Note 12 — *Asset Retirement Obligations*.

Non-Nuclear Decommissioning. At September 30, 2020, \$3.5 billion, representing the discounted value of future estimated decommissioning costs, was included in 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 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 9 — *Regulatory Assets and Liabilities — Non-Nuclear Decommissioning Costs* and Note 12 — *Asset Retirement Obligations*.

Environmental Matters. TVA's power generation activities, like those across the utility industry and in other industrial sectors, are subject to federal, state, and local environmental laws and regulations. Major areas of regulation affecting TVA's activities include air quality control, GHG emissions, water quality control, and management and disposal of solid and hazardous wastes. In the future, regulations in all of these areas are expected to become more stringent. Regulations are also expected to 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 generating units in general. Environmental requirements placed on the operation of TVA's coal-fired and other generating units will likely continue to become more restrictive over time. Litigation over the regulation of emissions or discharges from coal-fired generating units is also occurring. Failure to comply with environmental and safety laws can result in TVA being subject to enforcement actions, which can lead to the imposition of significant civil liability, including fines and penalties, criminal sanctions, and/or the shutting down of non-compliant facilities.

From 1970 to 2020, TVA spent approximately \$6.8 billion to reduce emissions from its power plants, including \$19 million, \$17 million, and \$62 million in 2020, 2019, and 2018, respectively, on clean air controls. TVA estimates that compliance with existing and future Clean Air Act ("CAA") requirements (excluding greenhouse gas ("GHG") requirements) could lead to costs of \$156 million from 2021 to 2025, which include existing controls capital projects and air operations and maintenance projects. TVA also estimates additional expenditures of approximately \$949 million from 2021 to 2025 relating to TVA's CCR Conversion Program as well as expenditures of approximately \$190 million from 2021 to 2025 relating to compliance with Clean Water Act requirements. Future costs could differ from these estimates if new environmental laws or regulations become applicable to TVA or the facilities it operates, or if existing environmental laws or regulations are revised or reinterpreted. There could also be costs that cannot reasonably be predicted at this time, due to uncertainty of actions, that could increase these estimates.

Liability for releases and cleanup of hazardous substances is primarily regulated by the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), the Resource Conservation and Recovery Act ("RCRA"), and other federal and parallel state statutes. In a manner similar to many other industries and power systems, TVA has generated or used hazardous substances over the years. TVA operations at some facilities have resulted in releases of contaminants that TVA is addressing consistent with state and federal requirements. At September 30, 2020 and 2019, TVA's estimated liability for cleanup and similar environmental work for those sites for which sufficient information is available to develop a cost estimate was approximately \$14 million and \$15 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.

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 certain 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 had 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 alleged that exposure to the fly ash caused a variety of significant health issues and illnesses, including in some cases death. The case was split into two phases, with the first phase considering, among other issues, general causation and the second determining specific causation and damages. On November 7, 2018, a jury hearing the first phase returned a verdict in favor of the plaintiffs, including determinations 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 list of medical conditions, ranging from hypertension to cancer. On January 11, 2019, the Eastern District referred the parties to mediation. Mediation has concluded, but the parties did not resolve the matter. The litigation will now proceed to the second phase on the question of whether Jacobs's breaches were the specific medical cause of the plaintiffs' alleged injuries and damages.

On May 13, 2019, an additional group of contractor employees and family members filed suit against Jacobs in the Circuit Court for Roane County, Tennessee. These plaintiffs have raised similar claims to those being litigated in the case referenced above.

While TVA is not a party to either of these lawsuits, TVA may potentially have an indemnity obligation to reimburse Jacobs for some amounts that Jacobs is required to pay. TVA will continue monitoring the litigation to determine whether these or similar cases could have broader implications for the utility industry. 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, 2020, TVA had accrued \$14 million of probable losses with respect to Legal Proceedings. Of the accrued amount, \$12 million is included in Other long-term liabilities and \$2 million is included in Accounts payable and accrued liabilities. No assurance can be given that TVA will not be subject to significant additional claims and liabilities. If actual liabilities significantly exceed the estimates made, TVA's results of operations, liquidity, and financial condition could be materially adversely affected.

Environmental Agreements. In April 2011, TVA entered into two substantively similar agreements, one with the EPA and the other with Alabama, Kentucky, North Carolina, Tennessee, and three environmental advocacy groups: the Sierra Club, the National Parks Conservation Association, and Our Children's Earth Foundation (collectively, the "Environmental Agreements"). Under the Environmental Agreements, TVA committed to, among other things, take actions regarding coal units that have been completed. TVA also agreed to invest \$290 million in certain TVA environmental projects of which TVA had spent approximately \$280 million as of September 30, 2020. Additionally, TVA holds restricted cash in an interest earning trust to fund the remaining project commitments. Under the Environmental Agreements, any interest earned through the trust must also be re-invested to agreed upon environmental projects. The total remaining committed spend, including interest earned on the trust, is approximately \$11 million as of September 30, 2020. In exchange for these commitments, most past claims against TVA based on alleged New Source Review ("NSR") and associated violations were waived and cannot be brought against TVA. Future claims, including those for sulfuric acid mist and GHG emissions, can still be brought against TVA.

The liabilities related to the Environmental Agreements are included in Accounts payable and accrued liabilities and Other long-term liabilities on the September 30, 2020, 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, 2020, Consolidated Balance Sheets and will be recovered in rates in future periods.

Case Involving Kingston Fossil Plant. In May 2019, Roane County and the Cities of Kingston and Harriman ("local governments") filed a lawsuit in the Circuit Court for Roane County, Tennessee, against TVA and Jacobs for monetary damages and unspecified injunctive relief relating to TVA's cleanup response to the 2008 ash spill at Kingston. The local governments allege that TVA and Jacobs failed to take proper measures to mitigate environmental and health risks during the cleanup response and misled the local governments and their citizens about health and environmental risks associated with exposure to coal fly ash. The local governments seek to recover monetary damages on behalf of their citizens for personal injury and property loss claims, damages for lost tax revenue, damages for increased emergency and medical response costs, punitive damages, and unspecified injunctive relief. In June 2019, TVA removed the lawsuit to the Eastern District, and TVA and Jacobs filed separate motions to dismiss. Plaintiffs, in response, filed a response opposing both motions and a separate motion seeking leave to file a proposed amended class action complaint in which Roane County would serve as class representative for the municipalities and their citizens.

In December 2019, the Eastern District court ruled that the local governments did not have standing to assert representative claims on behalf of their citizens and rejected their motion to proceed as a class action on behalf of their citizens because of the dissimilarity of the injuries allegedly suffered by the local governments (lost tax revenue) and the personal injuries and personal medical expenses allegedly suffered by the individuals. The court indicated, however, that the local governments may have legal standing to assert claims for their direct injuries (claims relating to municipally owned property) and directed the local governments to file an amended pleading in conformance with the court's order by January 16, 2020. The plaintiffs filed their amended complaint on January 15, 2020. On February 26, 2020, TVA and Jacobs moved to dismiss the amended complaint, and on September 30, 2020, the court dismissed the lawsuit without prejudice.

Class Action Lawsuit Involving Kingston Fossil Plant. On November 7, 2019, a resident of Roane County, Tennessee, filed a proposed class action lawsuit against Jacobs and TVA in the Eastern District. The complaint alleges that the class representative and all other members of the proposed class were damaged as a result of the 2008 ash spill at Kingston and the resulting cleanup activities. The complaint alleges, among other things, that (1) TVA was negligent in its construction and operation of the Kingston CCR facility, (2) TVA and Jacobs failed to take proper measures to mitigate environmental and health risks during the cleanup response, and (3) TVA and Jacobs misled the community about health and environmental risks associated with exposure to coal fly ash. The complaint seeks monetary damages and injunctive relief in the form of an order requiring the defendants to establish a blood testing program and medical monitoring protocol and to remediate damage to the properties of the proposed class. On April 22, 2020, TVA and Jacobs moved to dismiss the complaint, and the court has not yet ruled on this motion.

Case Involving Bull Run Fossil Plant. On February 5, 2020, two plaintiffs who reside near Bull Run filed suit against TVA in the Circuit Court for Anderson County, Tennessee, on behalf of themselves and their two minor children. The plaintiffs allege that they and their children were injured from direct exposures to CCR material originating from Bull Run and from second-hand exposures to coal ash through contact with a family member who worked at an undisclosed TVA facility. TVA removed the case to the Eastern District on March 5, 2020, and the plaintiffs filed an amended complaint in federal court on March 12, 2020. On June 19, 2020, TVA moved to dismiss the amended complaint, and on August 5, 2020, the court dismissed the amended complaint without prejudice on procedural grounds.

Case Involving Tennessee River Boat Accident. In July 2015, plaintiffs filed suit in the U.S. District Court for the Northern District of Alabama ("Northern District"), seeking recovery for personal injuries sustained when the plaintiffs' boat struck a TVA transmission line which was being raised from the Tennessee River during a repair operation. The Northern District dismissed the case, finding that TVA's exercise of its discretion as a governmental entity in deciding how to carry out the operation barred any liability for negligence. In August 2017, the U.S. Court of Appeals for the Eleventh Circuit ("Eleventh Circuit") affirmed the decision. The plaintiffs petitioned the Supreme Court for review of the decision, arguing that the provision of the TVA Act which allows suit to be brought against TVA does not allow TVA to claim immunity for discretionary actions. In April

2019, the Supreme Court issued its opinion reversing the judgment of the Eleventh Circuit and remanding the case to the Eleventh Circuit. In July 2019, the Eleventh Circuit remanded the case to the district court for further proceedings consistent with the Supreme Court's opinion. Trial is currently scheduled for February 16, 2021.

Case Involving Bellefonte Nuclear Plant. In November 2018, Nuclear Development, LLC, filed suit against TVA in the Northern District. The plaintiff alleges that TVA breached its agreement to sell Bellefonte to the plaintiff. The plaintiff seeks, among other things, (1) an injunction requiring TVA to maintain Bellefonte and the associated NRC permits until the case is concluded, (2) an order compelling TVA to complete the sale of Bellefonte to the plaintiff, and (3) if the court does not order TVA to complete the sale, monetary damages in excess of \$30 million. In December 2018, Nuclear Development, LLC, and TVA filed a joint stipulation with the court. Under the stipulation, Nuclear Development, LLC, withdrew its request for an expedited hearing on its injunction in exchange for TVA's agreement to continue to maintain Bellefonte in accordance with the NRC permits and to give Nuclear Development, LLC, and the court five days prior notice of any filing by TVA to terminate the permits or sell the site. TVA filed a motion to dismiss the case in February 2019. In May 2019, the court denied TVA's motion. Discovery is ongoing. On September 23, 2020, the parties filed competing motions for summary judgment, but a decision on the motions is not expected for several months. The case is scheduled to be trial ready by December 1, 2020.

Case Involving Rate Changes. On June 9, 2020, a proposed class action lawsuit was filed in federal court in Abingdon, Virginia, by a LPC customer, asserting claims for breach of contract and violation of the Administrative Procedure Act. The lawsuit alleges that the customers of TVA's LPCs are third-party beneficiaries under 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 include an injunction prohibiting TVA rate changes that violate Section 11, monetary damages, and repayment of rates charged in violation of Section 11. TVA filed a motion to dismiss the case on November 9, 2020.

Case Involving Long-Term Agreements. On August 17, 2020, the Southern Environmental Law Center ("SELC") filed a lawsuit in the United States District Court for the Western District of Tennessee on behalf of three environmental groups 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 represented by SELC are Protect Our Aquifer, Energy Alabama, and Appalachian Voices.

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," because, the groups allege, the twenty-year rolling contract with a twenty-year notice of termination requirement makes the LTAs effectively "never ending."

The environmental groups request the federal court to (1) declare that TVA's entry into long-term power agreements 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 filed a motion to dismiss the case on October 20, 2020.

23. Related Parties

TVA is a wholly-owned corporate agency of the federal government, and because of this relationship, TVA's revenues and expenses are included as part of the federal budget as a revolving fund. TVA's purpose and responsibilities as an agency are described under the "Other Agencies" section of the federal budget.

TVA currently receives no appropriations from Congress and funds its business using power system revenues, power financings, and other revenues. TVA is a source of cash to the federal government. TVA will indefinitely continue to pay the U.S. Treasury a return on the outstanding \$258 million of the government's appropriation investment in TVA's power facilities (the "Power Program Appropriation Investment"). See Note 18 — *Proprietary Capital — Appropriation Investment*.

TVA also has access to a financing arrangement with the U.S. Treasury pursuant to the TVA Act. TVA and the U.S. Treasury entered into a memorandum of understanding under which the U.S. Treasury provides TVA with a \$150 million credit facility. This credit facility has a maturity date of September 30, 2021, 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 13 — *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				
For the years ended, or at, September 30				
	2020	2019	2018	
Revenue from sales of electricity	\$ 105	\$ 118	\$ 122	
Other income	260	258	240	
Expenditures				
Operating expenses	224	222	220	
Additions to property, plant, and equipment	9	10	8	
Cash and cash equivalents	31	45	46	
Accounts receivable, net	94	76	60	
Investment funds	485	279	199	
Long-term accounts receivable	27	53	46	
Accounts payable and accrued liabilities	39	69	69	
Long-term power bonds, net	1	—	—	
Return on power program appropriation investment	6	6	5	

24. Unaudited Quarterly Financial Information

A summary of the unaudited quarterly results of operations for the years 2020 and 2019 follows. This summary should be read in conjunction with the audited consolidated financial statements appearing herein. Results for interim periods may fluctuate as a result of seasonal weather conditions, changes in rates, and other factors.

Unaudited Quarterly Financial Information					
2020					
	First	Second	Third	Fourth	Total
Operating revenues	\$ 2,578	\$ 2,521	\$ 2,251	\$ 2,899	\$ 10,249
Operating expenses	2,046	1,914	1,716	1,862	7,538
Operating income	532	607	535	1,037	2,711
Net income (loss)	192	255	205	700	1,352

Unaudited Quarterly Financial Information					
2019					
	First	Second	Third	Fourth	Total
Operating revenues	\$ 2,725	\$ 2,750	\$ 2,604	\$ 3,239	\$ 11,318
Operating expenses	1,960	2,158	2,088	2,301	8,507
Operating income	765	592	516	938	2,811
Net income (loss)	423	241	165	588	1,417

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, 2020 and 2019, 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, 2020, 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, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended September 30, 2020, 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, 2020, 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 16, 2020 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.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2007
Chattanooga, Tennessee
November 16, 2020

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

TVA's management, including the President and Chief Executive Officer, the Executive Vice President and Chief Financial Officer, and members of the Disclosure Control Committee, including the Vice President and Controller (Principal Accounting Officer) ("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, 2020. Based on this evaluation, TVA's management, concluded that TVA's disclosure controls and procedures were effective as of September 30, 2020, to ensure that information required to be disclosed by TVA in reports that it files or submits under the Exchange Act, is recorded, processed, summarized, and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms, and include controls and procedures designed to ensure that information required to be disclosed by TVA in such reports is accumulated and communicated to TVA's management, as appropriate, to allow timely decisions regarding required disclosure.

Internal Control over Financial Reporting

(a) Management's Annual Report on Internal Control over Financial Reporting

TVA's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Exchange Act Rule 13a-15(f) and required by Section 404 of the Sarbanes-Oxley Act. TVA's internal control over financial reporting is designed to provide reasonable, but not absolute, assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles. Because of the inherent limitations in all control systems, internal 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 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, 2020, 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, 2020.

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, 2020, 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, 2020, 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, 2020, 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, 2020 and 2019, 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, 2020, and the related notes and our report dated November 16, 2020 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 16, 2020

ITEM 9B. OTHER INFORMATION**No Adjustments to CEO Compensation**

On October 22, 2020, the People and Performance Committee (the "Committee") commissioned FW Cook to conduct an independent study of CEO compensation that provides increased direct focus on pay levels among government agencies. TVA's CEO benchmarking approach has historically considered TVA's federal agency status in both a direct and indirect manner: the direct manner has been to incorporate government agencies from Willis Towers Watson's ("WTW") Energy Services Survey into the survey sample used to develop benchmarks (four of the 31 companies in the 2019 sample were government agencies). The indirect manner has been to position CEO target total direct compensation below the 25th percentile of the market composite data even though TVA's compensation plan provides for a general target at the 50th percentile.

The independent study for 2021 seeks to further incorporate government agency pay into the market composite data via the following actions: (1) the Committee has authorized a custom survey of CEO/Principal Executive compensation at non-utility government agencies to be conducted by Willis Towers Watson and (2) the Committee will consider compensation practices from an expanded pool of government agencies and non-profit entities that participate in the WTW Energy Services Survey. The results of the independent study will be presented to the Committee in January 2021 and will be used by the Committee and TVA Board in determining Mr. Lyash's target total direct compensation for 2021.

Compensation Adjustments for Other NEOs

On November 13, 2020, Chief Executive Officer ("CEO") Jeffrey J. Lyash approved compensation adjustments for the following Named Executive Officers ("NEOs") for 2021. (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 2021, effective October 1, 2020:

John M. Thomas, III

- Salary increased from \$666,584 to \$686,582.
- Long-term performance ("LTP") grant of \$1,000,000, which will vest on September 30, 2023.
- Long-term retention ("LTR") grant of \$432,000, which will vest in three equal increments on September 30, 2021, September 30, 2022, and September 30, 2023.

Michael D. Skaggs

- Salary increased from \$663,400 to \$689,936.
- LTP grant of \$1,175,000, which will vest on September 30, 2023.
- LTR grant of \$504,000, which will vest in three equal increments on September 30, 2021, September 30, 2022, and September 30, 2023.

Sherry A. Quirk

- Salary increased from \$557,291 to \$574,010.
- LTP grant of \$695,000, which will vest on September 30, 2023.
- LTR grant of \$295,000, which will vest in three equal increments on September 30, 2021, September 30, 2022, and September 30, 2023.

Timothy S. Rausch

- Salary increased from \$535,600 to \$551,668.
- LTP grant of \$500,000, which will vest on September 30, 2023.
- LTR grant of \$330,000, which will vest in three equal increments on September 30, 2021, September 30, 2022, and September 30, 2023.

No adjustments were made to any other existing elements of compensation for these NEOs for 2021.

Supplemental Compensation Plan Change to Better Align to Market*Long-Term Incentive Plan*

On November 12, 2020, the CEO approved an amended and restated Long-Term Incentive Plan ("LTIP") that allows TVA to make off-cycle performance-based grants and retention grants on a pro-rated basis. A copy of the amended and restated LTIP is attached as an exhibit to this Annual Report and is incorporated herein by reference. The foregoing description is qualified in its entirety by reference to such document.

Corporate Multiplier

On November 13, 2020, the TVA Board approved the following performance measures for the Corporate Multiplier for 2021: (1) Safety, (2) Total Financing Obligations, (3) Cash Flow from Operations, (4) Net Income, (5) Jobs Created and Retained, and (6) Board Level Significant Events. These measures are described in more detail in the table below:

Performance Measure	Description	Target
Safety (Serious Injury Incident Rate)	(Number of cases X 200,000) / (Number of hours worked by TVA employees and staff augmentation contractors)	0
Total Financing Obligations	The total amount of net long-term debt (including unamortized premiums and discounts), net short-term debt, leaseback obligations, energy prepayment obligations, and variable interest entities less unbudgeted contributions to unfunded liabilities	\$21,249
Cash Flow from Operating Activities	Net cash provided by operating activities as shown on TVA's Consolidated Statements of Cash Flows	\$2,707
Net Income	Net income as shown on TVA's Consolidated Statements of Operations	\$1,010
Jobs Created and Retained	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	42,000-70,000
Board Level Significant Events	Items (both favorable and unfavorable) that the Board deems significant and that affect TVA's reputation, organizational health, or the public at large	0

The TVA Board and the CEO will jointly qualitatively assess TVA's performance and determine the final Corporate Multiplier, which will range between 0 and 1.0, after the end of 2021.

The award for certain participants in the Winning Performance Team Incentive Plan ("WPTIP") and the Executive Annual Incentive Plan ("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, 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.

Establishment of LTIP Performance Measures and Goals for the 2021 - 2023 Performance Cycle

On November 13, 2020, the TVA Board approved LTIP performance measures for the 2021 - 2023 performance cycle. These performance measures, along with their associated weights and goals, are as follows:

2021 - 2023 LTIP Performance Cycle

Performance Measure	Weight	Threshold (50%)	Target (100%)	Maximum (150%)
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 TVA Nuclear Fleet ⁽³⁾	15%	95.3	96.8	98.3
Customer Survey ⁽⁴⁾	5%	67.3	71.3	75.3
Stakeholder Survey ⁽⁵⁾	5%	75.2	77.7	80.2

Notes

- ⁽¹⁾ Non-Fuel Delivered Cost of Power = (Operating and Maintenance Expense + Base Capital Expense + Interest Expense + Other Expense) / Budgeted Electric Power Sales. For the 2021 - 2023 LTIP performance cycle, the Non-Fuel Delivered Cost of Power measure will be calculated using an average of the 2021, 2022, and 2023 results.
- ⁽²⁾ Load Not Served = (Percentage of Total Load Not Served) x (Number of Minutes in the Period). The Load Not Served measure excludes events during declared major events, variances, gunfire, vandalism, and verified tornadoes and includes distributor provided load not served estimates for distributor connection point interruptions caused by TVA. For the 2021 - 2023 LTIP performance cycle, the Load Not Served measure will be calculated using an average of the 2021, 2022, and 2023 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 2021 - 2023 LTIP performance cycle, this measure will be based on 2023 results.
- ⁽⁴⁾ For the 2021 - 2023 LTIP 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.
- ⁽⁵⁾ For the 2021 - 2023 LTIP 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.

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 TVA Board as of November 16, 2020, consisted of the following five individuals with their ages and terms of office provided:

Directors	Age	Year Current Term Began	Year Term Expires
John L. Ryder, Chair ⁽¹⁾	71	2019	2021
Kenneth E. Allen	74	2018	2021
A.D. Frazier	76	2018	2022
William B. Kilbride	69	2019	2023
Jeff W. Smith	61	2018	2022

Note

(1) Mr. Ryder assumed the Board Chair role on August 13, 2020.

Mr. Ryder of Memphis, Tennessee, joined the TVA Board in March 2019. He has served as a bankruptcy and election law attorney with Harris Shelton Hanover Walsh, PLLC, since 2000. In addition, he served as General Counsel to the Republican National Committee from 2013 to 2017 and as Chairman of the Republican National Lawyers Association from 2017 to 2018.

Mr. Allen of White Plains, Kentucky, joined the TVA Board in January 2018. He spent more than 50 years in the coal industry and held a number of executive management positions prior to his retirement in June 2017. Most recently, he served as Executive Vice President and Chief Operating Officer ("COO") of Armstrong Energy, Inc. from July 2014 to June 2017, as Executive Vice President of Operations for Armstrong Energy, Inc. from 2011 to July 2014, and as COO of Armstrong Coal Company, Inc. from December 2013 until June 2017. He is currently a member of the Board of Directors for the First United Bank in Madisonville, Kentucky.

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.

Mr. Kilbride of Chattanooga, Tennessee, joined the TVA Board in August 2019. 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 Home Division of Mohawk Industries after earlier holding positions with both Dean Witter Reynolds Financial Services and the New York Stock Exchange.

Mr. Smith of Knoxville, Tennessee, joined the TVA Board in January 2018. Since April 2000, Mr. Smith has served as the deputy for operations at Oak Ridge National Laboratory ("ORNL"). Since April 2001, he has 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 16, 2020, 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	59	2019
John M. Thomas, III	Executive Vice President and Chief Financial Officer	57	2005
Michael D. Skaggs	Executive Vice President and Chief Operating Officer	60	1994
Sherry A. Quirk	Executive Vice President and General Counsel	66	2015
Timothy S. Rausch	Executive Vice President and Chief Nuclear Officer	56	2018
Susan E. Collins	Executive Vice President and Chief People and Communications Officer	54	2014
Jeannette Mills	Executive Vice President and Chief External Relations Officer	53	2020 ⁽¹⁾
Diane T. Wear	Vice President and Controller (Principal Accounting Officer)	52	2008

Note

(1) Ms. Mills commenced employment with TVA on February 3, 2020.

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 has served as TVA's CFO since June 2010 and was also named Executive Vice President in February 2012. He served as Executive Vice President of People and Performance from January 2010 to June 2010, as Senior Vice President, Corporate Governance and Compliance from July 2009 to January 2010, as Controller and Chief Accounting Officer from January 2008 to September 2009, and as the General Manager, Operations Business Services from November 2005 to January 2008. Prior to joining TVA, Mr. Thomas was 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. Skaggs was named TVA's Executive Vice President and COO effective October 2018. Since joining TVA in 1994 as Manager of Projects at Watts Bar Nuclear Plant ("Watts Bar"), Mr. Skaggs has held several management positions, including Executive Vice President, Operations from October 2016 to September 2018, Senior Vice President, Watts Bar Operations and Construction from September 2013 to October 2016, Senior Vice President, Nuclear Construction from February 2012 to September 2013, Senior Vice President of Nuclear Generation Development and Construction from October 2011 to February 2012, Site Vice President of Sequoyah Nuclear Plant from November 2010 to October 2011, Vice President of Nuclear Operations Support from December 2009 to November 2010, Site Vice President at Watts Bar from July 2005 to December 2009, and Site Vice President at Browns Ferry Nuclear Plant from July 2004 to July 2005.

Ms. Quirk has served as TVA's Executive Vice President and General Counsel since February 2015. From October 2010 to February 2015, Ms. Quirk was an equity partner in the law firm of Schiff Hardin LLP, which specializes in federal energy regulation, legislation, and power supply transactions. Prior to joining Schiff Hardin, Ms. Quirk was a partner in the Energy

Group of Sullivan & Worcester LLP, and a partner in the Energy Group of Verner, Liipfert, Bernhard, McPherson and Hand, specializing in federal energy regulation, legislation, power supply transactions, and state proceedings.

Mr. 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. In November 2020, he was named Executive Vice President and Chief Nuclear Officer.

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. In November 2020, she was named Executive Vice President, Chief People and Communications Officer to reflect the broader scope of her role.

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, Risk, and Regulation Committee established in accordance with the TVA Act. TVA's Audit, Risk, and Regulation Committee consists of John L. Ryder and William B. Kilbride. 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, Risk, and Regulation Committee:

- Finance, Rates, and Portfolio Committee,
- External Relations Committee,
- People and Performance Committee, 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 2020 compensation awarded to TVA's CEO, CFO, and three other most highly compensated executive officers serving at the end of 2020. Collectively, these officers are TVA's 2020 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 Officer	2005
Michael D. Skaggs	Executive Vice President and Chief Operating Officer	1994
Sherry A. Quirk	Executive Vice President and General Counsel	2015
Timothy S. Rausch	Executive Vice President and Chief Nuclear Officer ⁽¹⁾	2018

⁽¹⁾Effective November 13, 2020; formerly Senior Vice President and Chief Nuclear Officer

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 mandates a primary objective of providing reliable energy at rates that are as low as feasible; managing natural resources responsibly; and promoting economic development. The Consolidated Appropriations Act of 2005 altered the TVA Act in several key areas designed to more closely align TVA with other corporate entities, including changing its Board structure, providing for a CEO, requiring TVA to follow Securities and Exchange Commission reporting requirements, and requiring that compensation be based on prevailing compensation for similar positions in investor-owned companies as well as governmental entities. TVA's operational and financial performance have considerably improved since the transition to its current governance structure.

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 our 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. utility companies in terms of generating capacity.

However, TVA's "Public Power" mission sets it apart from its investor-owned peers: as an instrumentality of the federal government, its 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, no American tax dollars are used: 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 more than 16,000 miles of transmission lines to a population of approximately 10 million people over nearly 80,000 square miles in seven states, employs nearly 10,000 people, and helps recruit and retain billions of dollars in economic development and environmental stewardship 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

<div><div><div><div><div><div></div><div>Largest Public Power Provider</div><div>In the United States</div></div></div><div><div><div>2nd Largest Transmission System</div><div>In high voltage lines among United States utilities</div></div><div><div>More than 16,000 miles of high voltage lines and 69 interconnections with neighboring electric systems</div></div></div></div></div><div><div><div>36,937 MW</div><div>Summer Net Capacity</div></div><div><div>3rd Largest Electricity Generator</div><div>In the United States, based on 2019 Total Electric Generation</div></div><div><div>3rd Largest Nuclear Fleet</div><div>In the United States, providing over 40 percent of the energy produced by TVA</div></div></div></div>	
<div><div><div><div><div></div><div>29 Power-Generating Dams with 109 Units</div></div></div><div><div><div>3rd Largest Pumped-Storage Hydro Plant</div><div>In the United States, capable of producing 1,635 megawatts of net summer capability on demand</div></div></div></div></div>	
<div><div><div><div><div></div><div>Generating Assets</div><div><div><div>– Three nuclear sites</div><div>– Five coal-fired sites</div><div>– 29 hydroelectric sites</div><div>– One pumped-storage site</div><div>– Nine combustion turbine gas sites</div><div>– Eight combined cycle gas sites</div><div>– 14 solar energy sites</div></div></div></div></div></div></div>	<div><div><div><div><div></div><div>Partnering with 153 Local Power Companies, Every Day We Serve</div></div></div><div><div><div><div><div>Approximately</div><div>10 Million People Served</div></div><div><div>Over 750,000 Businesses</div><div>Including 56 large corporations and federal installations</div></div></div></div><div><div><div>Across Seven States</div></div><div><div><div>Managing Large, Complex Operations Safely</div><div>2020 Was One of TVA's Safest Years on Record</div></div></div></div></div></div></div>



Environment

Caring for our region's natural resources

Managing

49 Dams

Hydroelectric and non-power providing **5,394 MW** summer net capability

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

Water Source for more than

Five Million People

Using **10 Billion Gallons** in the Valley every day



Economic Development

Creating sustainable economic growth

<div>Attracting</div> <div>Over \$45.4 Billion Capital Investment in Tennessee Valley</div> <div>over the last five years, creating and retaining approximately 341,000 jobs</div>	<div>Nearly 10,000</div> <div>Employees</div> <div>13,800</div> <div>Contractors</div>
--	--

TVA Programs

Rural Development

Rural Leadership Institute / Rural Certified Communities

Telework Technology Grant

Assistance for rural or economically distressed communities to enhance technology capabilities that support remote work opportunities

Technical Services

Site evaluations and master planning, 3D renderings, video, photography, and virtual reality

Product Development

Financial support for communities to make sites and buildings more marketable for companies to locate and grow

Workforce Analytics Company Research

Support communities in fulfillment of information for company prospects

Community

Training & development, facilitation services, leadership training, workforce training, and young talent development

Attracting Experienced Talent Requires Competitive Pay

Talent matters, because of its high value and scarcity. Attraction and retention of talent is paramount to TVA given its complex operations and 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 fulfill its public power mission in the most effective way possible, TVA must provide market-based, competitive compensation levels to deliver superior performance and execute 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, assets, and customer counts that surpass most of its peers. 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 vast majority of the top U.S. utilities. 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. **TVA successfully manages all of this with an employee count below the median employee count of its peers, demonstrating a comparatively greater efficiency.**

TVA WELL-POSITIONED AGAINST PEERS*

Revenue ⁽¹⁾	45th percentile	▼ median	Lower Revenue = Lower Rates for Customers
Assets ⁽²⁾	52nd percentile	▲ median	
Employee Count ⁽³⁾	29th percentile	▼ median	Delivering Efficiency with an Employee Count Below Median
Generating Capacity ⁽⁴⁾	86th percentile	▲ median	
Customer Count ⁽⁵⁾	72nd percentile	▲ median	

*For information on peer group see "Compensation Setting Process Demonstrates Strong Governance - TVA Competes with Peers for Talent" below

- (1) Based on data from the consecutive four quarters ending June 30, 2019 (data source S&P's Capital IQ)
- (2) Based on data from the consecutive four quarters ending June 30, 2019 (data source S&P's Capital IQ)
- (3) Based on preceding fiscal year end as of October 2019 (data source S&P's Capital IQ)
- (4) Estimated as of October 2019 (data source SNL Energy)
- (5) As of October 2019 (data source SNL Energy)

Given the nature and scale of its operations, TVA competes with large investor-owned utilities to attract and retain talent. In fact, over 70 percent of TVA executives that were externally recruited over the last five years are former employees of investor-owned utilities. Three of TVA's five NEOs, including its CEO, were formerly employed by investor-owned utilities. TVA's ability to compete with these organizations for talent has yielded success for TVA and its stakeholders.

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. As shown below, TVA has executed on this objective year after year, making a positive impact on all of its stakeholders. Under the leadership of TVA's NEOs, TVA's employees delivered another year of performance improvements – and achieved or exceeded original 2020 plan objectives – despite the significant challenges arising from the COVID-19 pandemic.

Value Delivered to Partners Low Rates and Customers

- Residential rates lower than 70 percent of the top 100 U.S. utilities (based on U.S. Energy Information Administration ("EIA") data for CY 2019)
- Industrial rates lower than 90 percent of the top 100 U.S. utilities (based on EIA data for CY 2019)
- Effective wholesale rates held flat, stable, and low for past seven years and through next decade

Reliable Energy

- 99.999 percent transmission reliability since 2000

Strong Partnerships

- COVID-19 Pandemic Support
 - Made \$1.0 billion of credit support available to local power companies ("LPCs")
 - Provided regulatory relief and flexibility to LPCs
 - Approved a \$200 million Pandemic Relief Credit that will apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA's directly served customers as a 2.5 percent monthly base rate credit during 2021
 - Created Back-to-Business Credit Program with approximately \$10 million in incentives to help large customers return to work at pre-pandemic levels
- Returned \$163 million in bill credits to local power companies participating in Long-Term Partnership Agreements in 2020

TVA Strength and Stability

- Reduced total financing obligations ("TFO") to \$21.4 billion, the lowest level in 30 years
 - Organization and operations entirely self-funded since 1999
-

Value Delivered to the Community**Economic Development**

- Named Top Utility in Economic Development by Site Selection Magazine for 15th year in a row
- Attracted or allocated more than \$45.4 billion in investment into the Tennessee Valley in the last five years, with more than \$8.6 billion of that in 2020 alone
- Responsible for approximately 341,000 jobs attracted or retained in the Tennessee Valley in the last five years, with approximately 67,000 of those added in 2020 despite the COVID-19 pandemic headwinds
- Supported rural communities with nearly half of TVA economic development projects tailored to meet the needs of these areas
- Contributed nearly \$552 million in tax equivalent payments to states and local governments in 2020 (excluding impacts from tax equivalents related to fuel cost adjustments)

Community Organization Support

- Supported community organizations and education in the Tennessee Valley with more than \$3 million in corporate giving and grants
- Distributed more than one million meals to families in need in 2020 through TVA's partnership with Feeding America

COVID-19 Pandemic Support

- Created Community Care Fund that has already provided over \$2 million to charitable and community organizations, with an additional \$2 million available

National Defense

- Proudly supports national defense efforts and partners with Oak Ridge National Laboratory on cutting-edge research
-

Value Delivered to Employees

Safety-Focused Operations

- Top decile performance in 2020 for both TVA's Serious Injury Rate and Recordable Injury Rate
 - One of TVA's best safety performance years on record
- Invested in innovative trend tracking technology and employee engagement and oversight to continuously improve safety performance

Pay for Performance

- Above target at-risk incentive payouts awarded to employees for achieving company performance goals in 2020

Inclusive Culture

- Ranked as Top 10 Employer for U.S. military veteran support in the workforce - military veterans comprise nearly 20 percent of the TVA workforce
- TVA Employee Resource Groups received a 2020 Diversity Impact Award from the Association of ERGs and Councils
- Recognized as a 2020 Leading Disability Employer
- Ranked on Forbes list of America's Best Employers for 2020 and ranked No. 2 employer in Tennessee

Training and Education

- Invested in TVA's employees through training and performance improvement programs

COVID-19 Pandemic Support

- Established TVA Employee Relief Fund to support employees adversely impacted by the COVID-19 pandemic and natural disasters

Strong Labor Partnerships

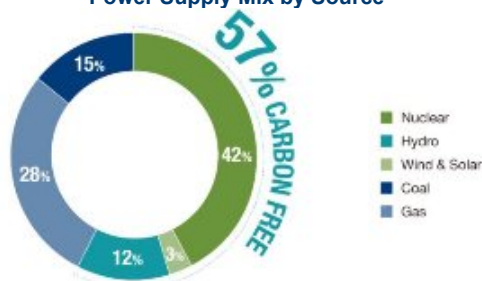
- Employees and contractors are represented by 17 different labor union groups
- Extended agreements with the Trades and Labor Council for Annual Employees and North America's Building Trades Unions for 10 year periods

Value Delivered to the Public and the Environment

Sustainability

- \$15 billion in cleaner, more diverse energy generation mix since 2013
- Contracted additional solar that increased total operating and contracted capacity approximately 70 percent in 2020
- Nearly 50 percent more renewable energy generation than TVA's closest regional peer
- Increased carbon-free power supply mix to 57 percent for the year ended September 30, 2020 (nearly 59 percent including the impact of TVA's energy efficiency programs)
- For CY2019, TVA's emissions of carbon dioxide were at a 55 percent reduction from 2005 levels

Power Supply Mix by Source*



*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 2020 energy needs by about 2,300 GWh or 1.5%.

- Programs and Partnerships
 - Exploring grid-scale, battery energy-storage systems, the first of which TVA expects to install in eastern Tennessee and expects to store 40 megawatt hours of energy with enough power to run more than 11,000 homes for three hours
 - Established annual carbon reduction awards for top performing and most-improved companies across the Tennessee Valley
 - TVA offers green programs in partnership with LPCs which allow businesses and individuals to purchase renewable energy certificates to meet their renewable energy and sustainability goals
- Published first TVA Sustainability Report in 2020

Effective Resource Management

- Prevented over \$9.5 billion in potential flood damage over TVA's recorded history, with approximately \$1.0 billion in potential flood damage averted in 2020 despite it being the wettest year on record
- Provides both conservation and responsible recreation, and serves as a driver for nearly \$12.0 billion of annual economic activity across the Tennessee Valley each year

Public Power Mission Means Exceptional Performance with Conservative Compensation

As noted above, TVA's workforce has consistently performed at a high level in managing TVA's extensive, complex operations and delivering on its public power mission. 2020 was no exception **despite the headwinds created by the COVID-19 pandemic. As a result of its high level of performance, TVA was able to fund annual and long-term incentives above target for 2020 - at 137 percent and 129 percent**, respectively, of target payout. 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 executives conservatively relative to its compensation peers. In particular, TVA's CEO is currently compensated below the 25th percentile of 2020 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.

TVA's Executive Compensation Philosophy

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:

- | |
|---|
| <ul style="list-style-type: none">• Provide market-based, competitive compensation levels so TVA can attract, retain, and motivate highly competent employees. Target total direct compensation generally is determined by reference to the 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.• Align performance and productivity improvement at all levels by setting consistent performance goals and objectives for all levels of the organization. |
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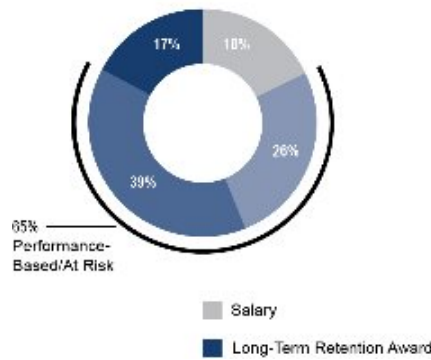
The TVA Board follows these requirements of the TVA Act in designing and implementing its Compensation Plan:

- 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.

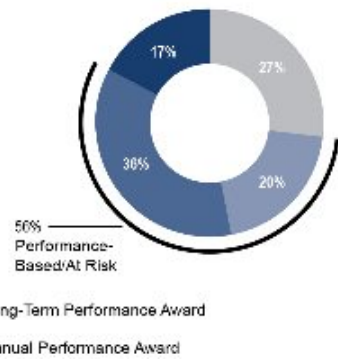
TVA's Executive Compensation Program Aligns Pay with Performance

Nearly two-thirds of the CEO's target direct compensation is performance-based and/or at risk, based on achievement of performance goals that further advance TVA's mission and strategic objectives. More than half of the other NEOs' target direct compensation 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, communities, and the economy of the Tennessee Valley.

CEO (LYASH) TARGET DIRECT
COMPENSATION MIX



OTHER NEO TARGET DIRECT
COMPENSATION MIX



2020 CEO Target Total Direct Compensation Is Well Below Peer Median

The TVA Act requires competitive, market-based executive compensation. Many of TVA's peers, with similarly complex and large-scale operations, are large, investor-owned utilities. The TVA Board considers TVA's federal agency status in setting compensation components and pay levels, in both a direct and indirect manner. This is done directly by incorporating government agencies into the executive compensation survey sample used to develop benchmarks, as required by the TVA Act.

CEO 2020
Total Direct Compensation at Target is

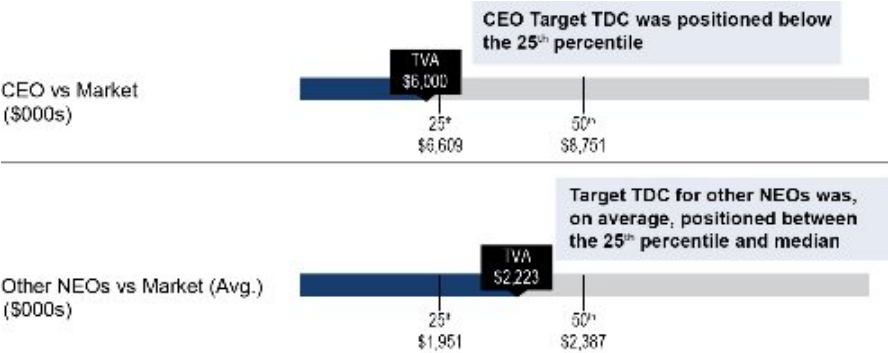
below
25th
percentile

of 2020 market composite data

Although the TVA Board moved Mr. Lyash's pay closer to the median in 2020, its compensation decisions resulted in positioning his pay below the 25th percentile of the 2020 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 graphic below illustrates the variance between 2020 target total direct compensation for the CEO and the average 2020 target total direct compensation for the other NEOs, and the 2020 market composite 50th (median) and 25th percentiles.



CEO Compensation at a Glance

ACTUAL 2020 TOTAL DIRECT COMPENSATION EARNED

\$1,058,000
BASE SALARY

\$2,391,609
ANNUAL PERFORMANCE INCENTIVE
under Executive Annual Incentive Plan
137 percent of target enterprise performance achieved
1.10x Individual Multiplier applied

\$338,000
LONG-TERM RETENTION INCENTIVE⁽¹⁾
2020 tranche of 2020 Long-Term Retention Award

Note

⁽¹⁾ Mr. Lyash's long-term incentives earned in 2020 reflect a partial long-term incentive award. Since Mr. Lyash joined TVA in 2019, he did not vest in any long-term performance award in 2020, and while executives typically have three overlapping retention awards (granted annually with ratable vesting over three years subject to continued employment), Mr. Lyash only had one such award outstanding in 2020.

Total Direct Compensation earned reflects the decisions made by the Committee at the end of 2020 to reward NEOs for past performance. Under Mr. Lyash's leadership in his first full year as CEO, TVA has made meaningful progress on improving its Public Power mission. The company's outperformance under key operational metrics strengthened TVA's ability to deliver low-cost and reliable energy to the Tennessee Valley. 2020 objectives were established in 2019 and despite challenges presented by the COVID-19 pandemic, **TVA achieved or exceeded nearly all targeted objectives, delivering high operational, safety, and financial strength performance for 2020.**

As a result of TVA's 2020 achievements, eligible TVA employees were rewarded with payouts under TVA's annual incentive plans.

KEY COMPANY PERFORMANCE METRICS

Metric(1)	Target Performance	Actual Performance	Performance Against Target
TVA Total Spend (\$M) ⁽²⁾	\$4,847	\$4,441	Exceeded stretch goal
Load Not Served (System Minutes)	3.9	2.7	Exceeded stretch goal
Annualized Nuclear Unit Capability Factor	90.9 %	90.0 %	Exceeded threshold goal despite challenges
Combined Cycle Equivalent Availability Factor	77.6 %	84.0 %	Exceeded target goal
Coal Equivalent Availability Factor	61.8 %	79.4 %	Exceeded target goal; ahead of 5-year plan for coal fleet

Notes

(1) See "2020 Performance Goals and Performance Achievement" below for further information on each performance metric.

(2) 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).

2020 TARGET TOTAL DIRECT COMPENSATION OPPORTUNITY GRANTED BELOW MARKET



Target Total Direct Compensation opportunity is forward-looking – it represents potential compensation set by the Committee at the beginning of 2020 to incentivize superior performance. Some of the \$6 million opportunity was earned in 2020 (salary, annual performance award and 1/3 of the long-term retention award) while most will not be earned until future satisfaction of performance or employment conditions: Mr. Lyash will earn the long-term performance award component only upon achievement of certain performance targets at the end of the three-year performance period (September 30, 2022), and he will receive the second and third tranches of the long-term retention award opportunity only upon his continued employment on each of September 30, 2021 and September 30, 2022. See "2020 Performance Goals and Performance Achievement" below for more information on long-term incentives.

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.

OTHER COMPENSATION

Mr. Lyash was paid \$1,092,000 in 2020 as the second tranche of a deferred cash recruitment and relocation incentive award under his employment offer letter. This deferred cash incentive award was intended to compensate him for amounts he forfeited from his previous employer in order to join TVA, as well as to provide some measure of substitute compensation in light of his not being eligible to receive any long-term performance incentive payments until September 2021.

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);
- On the recommendation of the CEO, the TVA Board will approve the salaries of employees whose salaries would be in excess of Level IV of the Executive Schedule of the U.S. Government (\$170,800 in 2020); and
- The CEO will determine the salary and benefits of employees whose annual salary is not greater than Level IV of the Executive Schedule (\$170,800 in 2020).

Under the authority of the TVA Act, the TVA Board, its People and Performance Committee (the "Committee"), and individual TVA Board members are involved in compensation matters. The TVA Board has taken the following actions to delegate authority with respect to executive compensation:

- The TVA Board has delegated to the TVA Board Chair, in consultation with the Committee and with input from individual members of the TVA Board, the authority to evaluate and rate the CEO's performance during the year, and the authority to approve any payout to the CEO under the EAIP, based on, among other things, the CEO's evaluated performance during the year.
- The TVA Board has authorized the CEO to set or adjust compensation for present or future direct reports within a compensation range of 80 percent to 110 percent of the target total direct compensation, as well as to approve the parameters under which such executives may participate in certain supplemental benefit plans such as TVA's Supplemental Executive Retirement Plan ("SERP"), provided that the CEO may not finally set or adjust such compensation until the TVA Board members have been notified of the proposed compensation and given the opportunity to ask the Committee, or the full TVA Board, to review the proposed compensation before it becomes effective.
- The TVA Board has delegated to the CEO, in consultation with the Committee and with input from individual members of the TVA Board, the authority to approve the individual performance goals for the CEO's direct reports and the authority to evaluate and rate the performance of the CEO's direct reports during the year against such performance goals.
- The TVA Board has delegated to the CEO the authority to approve, or delegate to others the authority to approve, all personnel and compensation actions for which the TVA Board is responsible but has not reserved for itself.
- The Committee is responsible for oversight of executive compensation pursuant to the Compensation Plan and review of this Compensation Discussion and Analysis.

Role of Compensation Consultant

The Committee engaged the independent consulting firm Frederic W. Cook & Co., Inc. ("FW Cook") in 2020 to determine the peer group and the benchmarking process, and to help evaluate competitive compensation. The Committee assessed certain independence factors and determined the firm's work raised no potential conflict of interest.

The following chart sets forth the roles of the TVA Board, Board Chair, Committee, and CEO in setting compensation for the NEOs.

What	When	How
Compensation Governance	Typically April	<ul style="list-style-type: none"> – Committee reviews and evaluates independent compensation consultant. – Committee reviews TVA Compensation Plan, peer group, and benchmarking process and recommends any changes to the TVA Board.
	Typically August	<ul style="list-style-type: none"> – TVA Board reviews and approves any changes.
Corporate Multiplier (WPTIP/EAIP)	Typically October	<ul style="list-style-type: none"> – CEO evaluates and assesses performance results compared to target goals. – CEO recommends corporate multiplier (reviewed by the Committee) for TVA Board approval.
	Typically October - November	<ul style="list-style-type: none"> – Committee reviews and recommends to the TVA Board.
	Typically November	<ul style="list-style-type: none"> – TVA Board reviews and approves.
Long-Term Incentive Plan ("LTIP")	Typically October	<ul style="list-style-type: none"> – CEO evaluates performance and recommends LTIP payout percentage (reviewed by Committee) for TVA Board approval.
	Typically October - November	<ul style="list-style-type: none"> – Committee reviews and recommends LTIP payout percentage.
	Typically November	<ul style="list-style-type: none"> – TVA Board reviews and approves the LTIP payout percentage. – 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	Typically October - November	<ul style="list-style-type: none"> – The list of employees (excluding CEO and Inspector General ("IG")) whose salaries would be above ES Level IV is made available to the Committee and other TVA Board members. – Proposed delegation for the CEO to approve the list is reviewed prior to presentation for TVA Board approval.
	Typically November	<ul style="list-style-type: none"> – TVA Board approves, on recommendation of CEO, the salaries of employees (excluding CEO and IG) whose annual salary would be above ES Level IV (\$170,800 for 2020). – Approval of employee list has been delegated annually to CEO (2008 – 2020).
CEO Compensation Adjustment	Typically October	<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, if applicable).
	Typically November	<ul style="list-style-type: none"> – TVA Board reviews and approves at the November Board meeting, if applicable.
CEO Annual Performance Goals	Mid-July to September 30	<ul style="list-style-type: none"> – Board Chair reviews and discusses with CEO performance goals for the next fiscal year. – Board Chair consults with appropriate TVA Board committee. – Board Chair solicits input from individual TVA Board members.
CEO Performance Evaluation	September – October	<ul style="list-style-type: none"> – Individual TVA Board members complete CEO performance assessment and return to Compensation. – Compensation 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 • Determined the EAIP award – Board Chair and Committee Chair jointly inform CEO of his/her performance evaluation.
CEO Executive Annual Incentive Plan ("EAIP") Award	Typically October	<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. – Informs EVP, Chief People and Communications Officer via memo.
Compensation Discussion and Analysis ("CD&A")	August – November	<ul style="list-style-type: none"> – Committee reviews and recommends inclusion in TVA's Annual Report on Form 10-K.
CEO Direct Reports	Typically October	<ul style="list-style-type: none"> – Committee receives and discusses CEO direct reports' performance report and compensation.
CEO Direct Report ("DR") 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 market total direct compensation). – 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.

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.

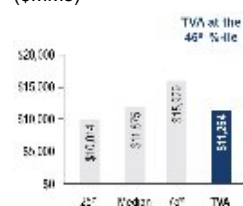
Use of Market Data and Benchmarking

TVA generally determines target total direct compensation for executives based on the relevant labor market. After compiling market compensation for the positions at the beginning of 2020, the Committee, with assistance from FW Cook, used the information to:

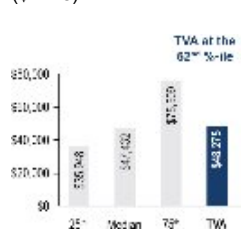
- Assess target compensation level and incentive opportunity competitiveness; and
- Determine appropriate target compensation levels and incentive opportunities to maintain the desired degree of market competitiveness taking into consideration other factors such as experience, skill set, performance, 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 TVA Board's compensation consultant recommends a peer group for approval by the Committee. For 2020 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 2019 Willis Towers Watson Energy Services Executive Compensation Database consisting of (i) 27 investor-owned utilities with revenues greater than or equal to \$3.0 billion plus (ii) four additional government entities. 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 investor-owned utilities. 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 2020, the Committee reviewed peer group data, which is shown below. At that time, TVA was centrally-positioned within the current peer group: the primary financial metrics, revenue and assets, are positioned near the median, while secondary metrics are balanced, with generating capacity above the 75th percentile, customers near the 75th percentile, and employee count near the 25th percentile.

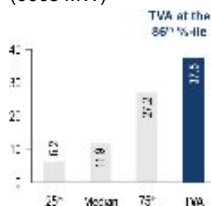
TVA REVENUE VS PEERS⁽¹⁾
(\$MMs)



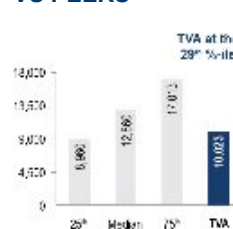
TVA ASSETS VS PEERS⁽²⁾
(\$MMs)



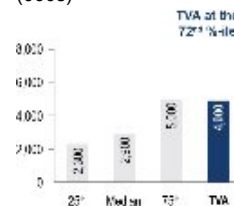
GEN CAPACITY VS PEERS⁽³⁾
(000s MW)



TVA EMPLOYEE COUNT VS PEERS⁽⁴⁾



TVA CUSTOMER COUNT VS PEERS⁽⁵⁾
(000s)



Notes

- Based on data from the consecutive four quarters ending June 30, 2019 (data source S&P's Capital IQ)
- Based on data from the consecutive four quarters ending June 30, 2019 (data source S&P's Capital IQ)
- Based on preceding fiscal year end as of October 2019 (data source S&P's Capital IQ)
- Estimated as of October 2019 (data source SNL Energy)
- As of October 2019 (data source SNL Energy)

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 2020:

Company	Investor Owned Utilities with Revenue Greater than or Equal to \$3.0 Billion Which Participated in 2019 Willis Towers Watson Energy Services Survey	Government Entities Which Participated in 2019 Willis Towers Watson Energy Services Survey	Proxy Peer Group of Investor Owned Utilities
AES Corp.	■		■
Alliant Energy	■		
Ameren	■		■
American Electric Power Co., Inc.	■		■
CenterPoint Energy, Inc.	■		■
CMS Energy Corp.	■		■
Consolidated Edison	■		■
Dominion Energy	■		■
DTE Energy Co.	■		■
Duke Energy Corp.	■		■
Edison International	■		■
Energy Northwest		■	
Entergy Corp.	■		■
Eversource Energy	■		■
Exelon Corp.	■		■
FirstEnergy Corp.	■		■
JEA		■	
NextEra Energy, Inc.	■		■
NiSource	■		■
NRG Energy			■
Omaha Public Power		■	
Pacific Gas and Electric Co.	■		■
Pinnacle West Capital	■		
PPL Corp.	■		■
Public Service Enterprise Group Inc.	■		■
Salt River Project		■	
Sempra Energy	■		■
Southern Company	■		■
Vistra Energy	■		■
WEC Energy	■		
Xcel Energy	■		■

Assessment of Risk

TVA's Enterprise Risk Management Organization, in coordination with other members of TVA's management, including Human Resources and Total Rewards, conducts an annual assessment of enterprise level risks which includes considering risks arising from TVA's compensation policies and practices, in order to identify any risks that are reasonably likely to have a material adverse effect on the organization and its achievement of its strategic goals and objectives.





Based on the results of this assessment, no risks were identified with the compensation policies and practices that are reasonably likely to have a material adverse effect on TVA's achievement of its strategic goals and objectives.

2020 Executive Compensation Program Components

Total Direct Compensation

In setting executive compensation each year, the Committee focuses on Total Direct Compensation ("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 Executive Annual Incentive Plan ("EAIP"), Long-Term Performance ("LTP") award, and Long-Term Retention ("LTR") award.

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 towards 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 2020 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 Total Direct Compensation	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 determined by reference to median (50th percentile) for similar positions at other companies in TVA's peer group or above the median (50th to 75th percentile) for positions affected by market scarcity, recruitment and retention issues, and 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) 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"> 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. LTP awards are granted annually 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 approximately 70 to 80 percent of each executive's total long-term incentive opportunity to be in the form of performance-based awards LTR awards may be granted annually and 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 or disability if earlier on a pro-rated basis. 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 total direct compensation. The Committee's policy is for approximately 20 to 30 percent of each executive's total long-term incentive opportunity be retention-oriented.
Long-Term Retention Award (LTR) 	Incentivizes retention by providing retention-based grants that are tied to a three-year vesting schedule	

Setting Competitive Compensation Amounts and Opportunities Relevant to Labor Market

Salary

Annual salary is determined by reference to median (50th percentile) for similar positions at other companies in TVA's peer group. Reference above the median (50th to 75th percentile) may be used for positions affected by market scarcity, recruitment and retention issues, and other business reasons. Salary levels are typically reviewed annually to consider changes in benchmark salaries and/or exceptional individual merit performances.

Incentive Opportunities

The 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 reference to the 50th percentile of the relevant labor market, and (ii) result in approximately 70 to 80 percent of each executive's total long-term incentive opportunity in the form of performance-based awards and approximately 20 to 30 percent of each executive's total long-term incentive opportunity in the form of retention awards.

Long-term incentive awards are intended to provide a similar pay component as equity-based compensation at peer investor-owned utilities. 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 appreciation. As a result, TVA's long-term incentives are not necessarily intended to match market pay levels.

Target annual incentive opportunities increase with position 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 total direct compensation.

Non-Direct Compensation Elements

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.

In order to recruit high-quality talent, TVA may offer recruitment and sign-on bonuses as well as relocation assistance and reimbursement. In 2020, Mr. Lyash received the second of three annual installments of a recruitment and relocation incentive that was part of his employment offer. This incentive, which was intended in part to compensate Mr. Lyash for forfeited

compensation from his prior employer, vests and is payable as long as Mr. Lyash remains employed by TVA on the applicable vesting dates. The second and largest installment was paid to Mr. Lyash on September 30, 2020, in the amount of \$1,092,000.

Mr. Rausch earned \$350,000 in 2020 pursuant to the Performance Incentive Arrangement award opportunity that was granted to him in connection with his employment agreement in 2018. The award opportunity was granted in order to compensate Mr. Rausch for incentive awards forfeited upon joining TVA but were payable subject to the CEO's evaluation of Mr. Rausch's performance. In 2020, Mr. Rausch also earned the second and final \$100,000 payment of a recruitment and relocation incentive that was a part of his employment offer. More details regarding these payments are set forth in Mr. Rausch's compensation scorecard under "2020 Pay Decisions – 2020 NEO Pay Decisions and Compensation Scorecards" below.

2020 Performance Goals and Performance Achievement

A significant portion of each NEO's compensation is based on company performance and influenced by individual performance achievements. As a result, a majority of NEO compensation is at-risk, providing incentive for the executive to achieve superior performance for TVA and for the businesses, communities, and residents it serves, both in the short term and in the years to come.

Incentive compensation is provided to NEOs under the Executive Annual Incentive Plan ("EAIP") and the Long-Term Incentive Plan ("LTIP"). Each incentive award is described below.

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 Winning Performance Team Incentive Plan ("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 2020, each NEO's annual incentive payment was calculated as follows:

EAIP
Amount

=

Annual
Salary

×

Annual Target
Incentive
Opportunity

×

Percent of
Opportunity
Achieved
(0% to 150%)

×

Corporate
Multiplier
(0 to 1.00)

×

Individual
Performance
Multiplier
(0% to 150%)

Each component of this calculation is discussed below (except for annual salary, which is discussed above).

Annual Target Incentive Opportunity

The TVA Board and Mr. Lyash evaluated the appropriateness of the EAIP award opportunities for the CEO and other NEOs, respectively, and made no changes for 2020. Accordingly, target EAIP award opportunities of the NEOs for 2020 were as follows:

Named Executive Officers		2020 Target Annual Incentive Opportunity ⁽¹⁾
Mr. Lyash		150 %
Mr. Thomas		80 %
Mr. Skaggs		80 %
Ms. Quirk		70 %
Mr. Rausch		70 %

Note
⁽¹⁾ Represents a percent of each NEO's salary.

2020 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 2020 WPTIP and EAIP metrics and goals were set out in an organizational scorecard ("TVA Enterprise Scorecard") applicable to all employees. The 2020 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.

2020 WPTIP/EAIP METRICS



The 2020 WPTIP/EAIP metrics are described in detail below.

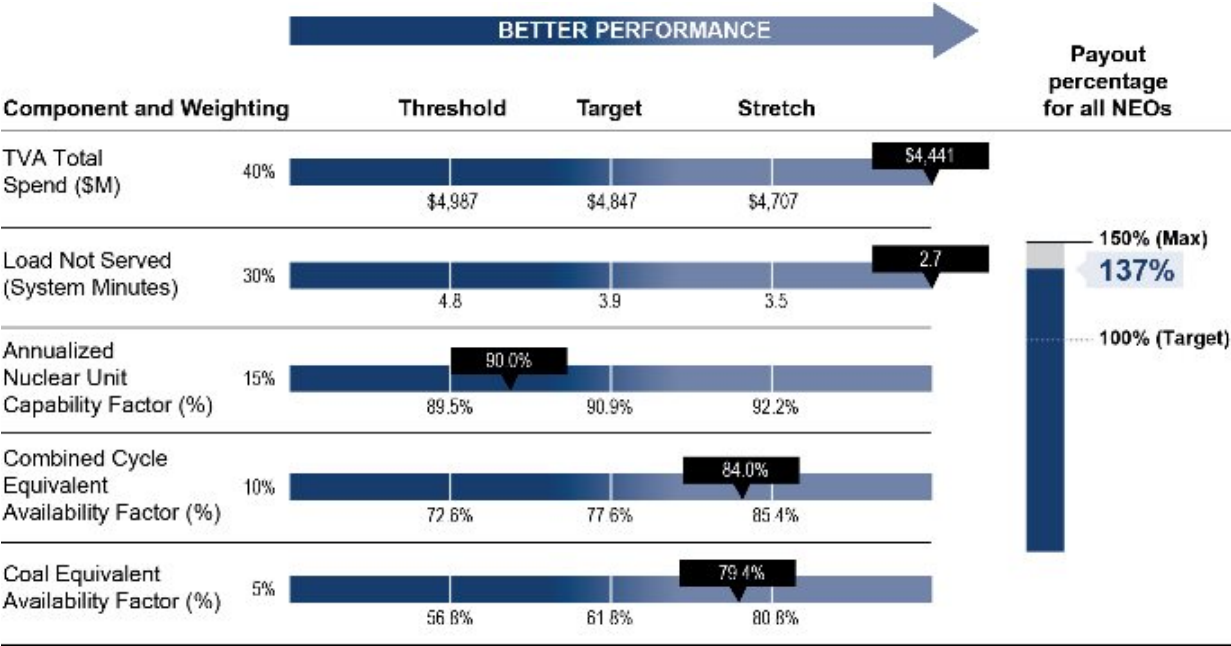
	TVA Total Spending What this measures: TVA's ability to keep costs low Total Non-Fuel Operating and Maintenance, Capital, Non-Fuel Inventory, and cloud Implementation expenses for corporate and operational Strategic Business Unit organizations (excludes Board of Directors).	Why Is This Metric Used? Supports 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 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? An automatic customer interruption with a duration of one minute or greater is tracked as a LNS event. We manage this critical indicator to reduce the impact of customer outages.
	Nuclear Unit Capability Factor What this measures: Nuclear plant availability Nuclear Unit Capability Factor is the ratio of available energy generation, which excludes events outside of management control, over a given period of time to the reference energy generation over the same time period.	Why Is This Metric Used? Monitors progress in attaining 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 a generating unit was 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 combined cycle generating 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.

2020 Executive Annual Incentive Plan Results

The performance results on the 2020 TVA Enterprise Scorecard are set forth below. Performance resulted in a 137 percent payout (on a scale from 0 percent – 150 percent payout).

TVA'S 2020 EAIP PERFORMANCE



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 2020 Winning Performance/EAIP program. The corporate multiplier ranges between 0 and 1.0x and can be used only for purposes of reducing the amount of the award. For 2020, the TVA Board determined that the corporate multiplier should be 1.0x based on the following:

- Industry-leading safety performance
- Continued strong fiscal responsibility, including reducing debt to the lowest level in three decades and achieving long-range TFO goal three years ahead of plan
- Restored service safely and efficiently after two major tornadoes and averted major flooding during third straight year of historic rainfall totals
- Strengthened customer relationships, including 93 percent of LPCs signing 20-year Partnership Agreements with TVA and \$163 million in savings returned to local power company partners through a wholesale bill credit
- Achieved outstanding results despite unprecedented challenges associated with the COVID-19 pandemic

Why does the TVA Board use a multiplier?

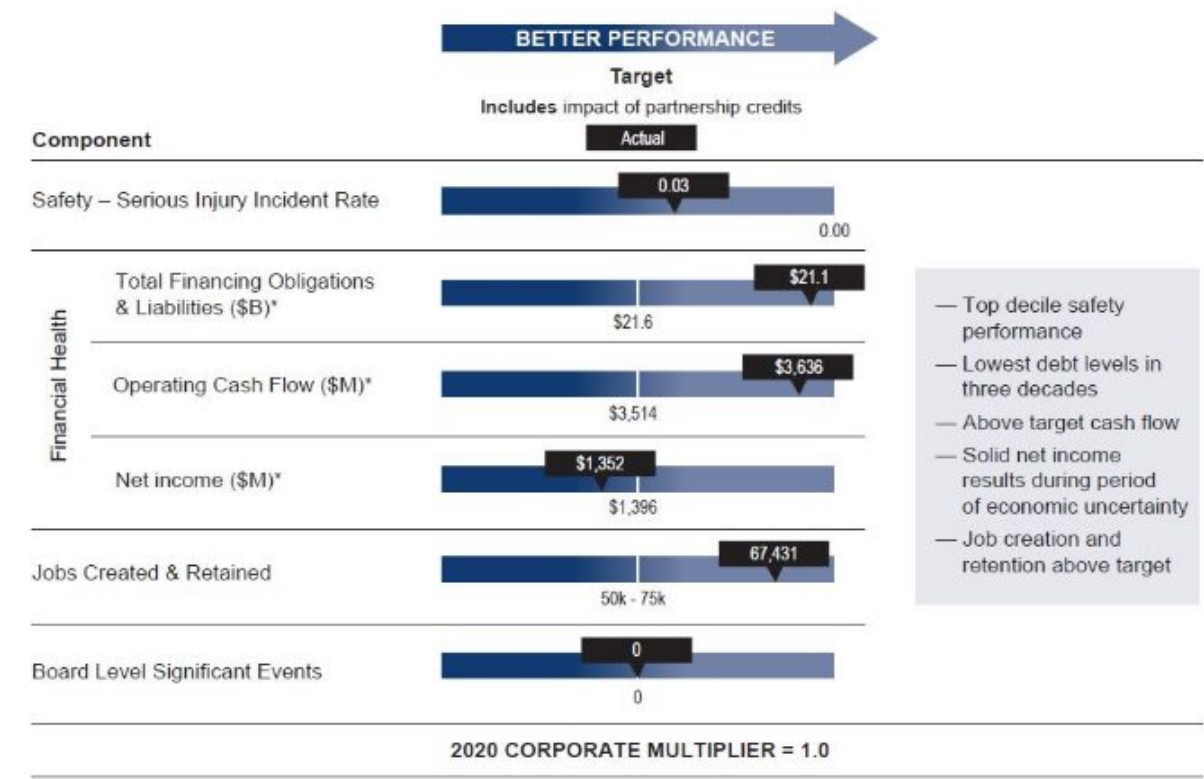
The multiplier allows the TVA Board to qualitatively assess the organization's performance, emphasizing the importance of safety, financial health, reputation and economic development.

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)	All statutory debt and other financing obligations.	TVA's TFOs are driven by its business plan and reflects the application of 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.	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	Net earnings derived by adjusting revenues for the cost of doing business.	Standard accounting measure that provides a view of TVA's financial performance 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.

Based on the performance of the 2020 corporate multiplier measures, the TVA Board determined to apply a 1.0x multiplier, or no reduction to the calculated Winning Performance/EAIP payout.

CORPORATE MULTIPLIER MEASURES (0.0 – 1.0x MULTIPLIER)



Note
(1) Includes impact of partnership credits. Partnership credits are wholesale bill credits provided to local power company customers who are party to 20-year Partnership Agreements with TVA. For more information see Item 1, Business — Rates.

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 2020, 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
Accountability and Driving Results	Adaptability	Business Acumen	Effective Communication
	Building Organizational Talent	Leveraging Diversity	

The 2020 individual multipliers and award payouts to the NEOs under the 2020 EAIP are described under each executive's compensation scorecard under "2020 Pay Decisions - 2020 NEO Pay Decisions and Compensation Scorecards" below and reported in the "Non-Equity Incentive Plan Compensation" column in the Summary Compensation Table.

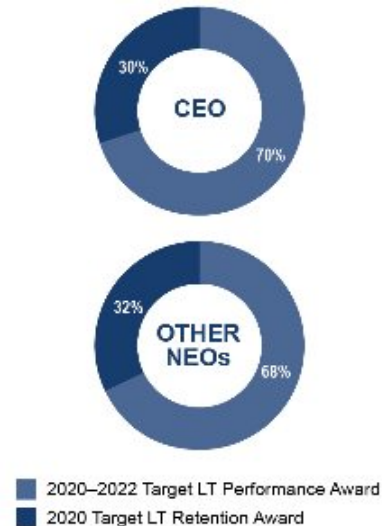
Long-Term Incentive Compensation

Certain executives in critical positions, including the NEOs, participate in the company's long-term compensation plans. These individuals make decisions that significantly influence the development and execution of TVA's long-term strategic objectives. As such, awards under TVA's Long-Term Incentive Plan 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 cliff vesting feature of the long-term performance awards and through long-term retention awards.

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
- Long-term performance 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
- Long-term retention awards vest in one-third increments over three years, contingent upon continued employment on each vesting date

LONG-TERM INCENTIVE AWARDS



The TVA Board and Mr. Lyash evaluated the appropriateness of the long-term incentive award opportunities for the CEO and other NEOs, respectively. For 2020, the value of both the long-term performance award and the long-term retention awards were increased from 2019 levels for each NEO so that Total Direct Compensation moved closer to market median, following a review of benchmarking and individual performance and reflective of increased tenure. Accordingly, target long-term incentive award opportunities of the NEOs for 2020 were as follows:

Named Executive Officers	2020-2022 LTP ⁽¹⁾	Value at target	% Increase from 2019-2021 LTP target value	2020 LTR ⁽¹⁾	Value at target	% Increase from 2019 LTR award value
Mr. Lyash	221.3 % \$	2,341,000	15.7 % ⁽²⁾	95.8 % \$	1,014,000	N/A ⁽³⁾
Mr. Thomas	147.0 % \$	980,000	11.4 %	63.0 % \$	420,000	10.5 %
Mr. Skaggs	149.2 % \$	990,000	1.0 %	64.7 % \$	429,000	2.1 %
Ms. Quirk	124.7 % \$	695,000	1.5 %	53.3 % \$	297,000	2.4 %
Mr. Rausch	93.4 % \$	500,000	23.7 %	61.6 % \$	330,000	90.5 %

Notes

⁽¹⁾ Represents a percent of each NEO's salary.

⁽²⁾ Since Mr. Lyash joined TVA in 2019, the second performance year under the 2019-2021 LTP, his payout under that award will be prorated to reflect his service for two-thirds of the performance period.

⁽³⁾ Mr. Lyash did not receive a LTR award in 2019.

Long-Term Performance Awards

TVA's executive compensation program provides for an annual grant of a long-term performance award with a three-year performance period. During 2020, there were three overlapping LTP awards:

2018–2020 LTP Award	Granted October 1, 2017	Vested September 30, 2020
2019–2021 LTP Award	Granted October 1, 2018	Vesting September 30, 2021
2020–2022 LTP Award	Granted October 1, 2019	Vesting September 30, 2022

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. 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. Linear interpolation is used for results between threshold and stretch goals. The TVA Board can use its discretion to adjust the final payout for each NEO's LTP award based on the evaluation of the NEO's individual achievements, peer group comparisons, and performance over the performance cycle.

LTP
Incentive
Amount

=

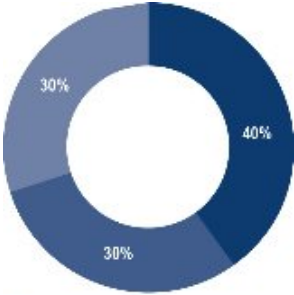
Target
Value

×

Percent of Opportunity
Achieved
(0% to 150%)

For the three-year performance period ended September 30, 2020, the TVA Board previously approved three overall long-term incentive measures of TVA performance to be applied to all participants in the LTIP. The 2018–2020 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.

2018-2020 LTP
PERFORMANCE
METRICS



- Non-Fuel Delivered Cost of Power
- Load Not Served
- External Measures

The 2018–2020 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 performance measure is a financial measure. The Non-Fuel Delivered Cost of Power measure is equal to the sum of (i) non-fuel operating and maintenance ("O&M") expense, (ii) base capital expense, (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 O&M 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?

An automatic customer interruption with a duration of one minute or greater is tracked as a Load Not Served ("LNS") event. TVA manages this critical indicator to reduce the impact of customer outages.

External Measures

What this measures: External perception and reputational events



- **External Nuclear Performance Indicators Index** – Weighted combination of key nuclear performance indicators based on standard nuclear industry definitions for station performance.
- **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 ("DSC") focused on better understanding customer loyalty and related performance drivers.
- **Media Tone** – Measures the percent of positive and balanced media coverage out of total TVA news coverage.

Why Is This Metric Used?

Targets for these measures represent incremental improvement in external perceptions of TVA's performance and brand.

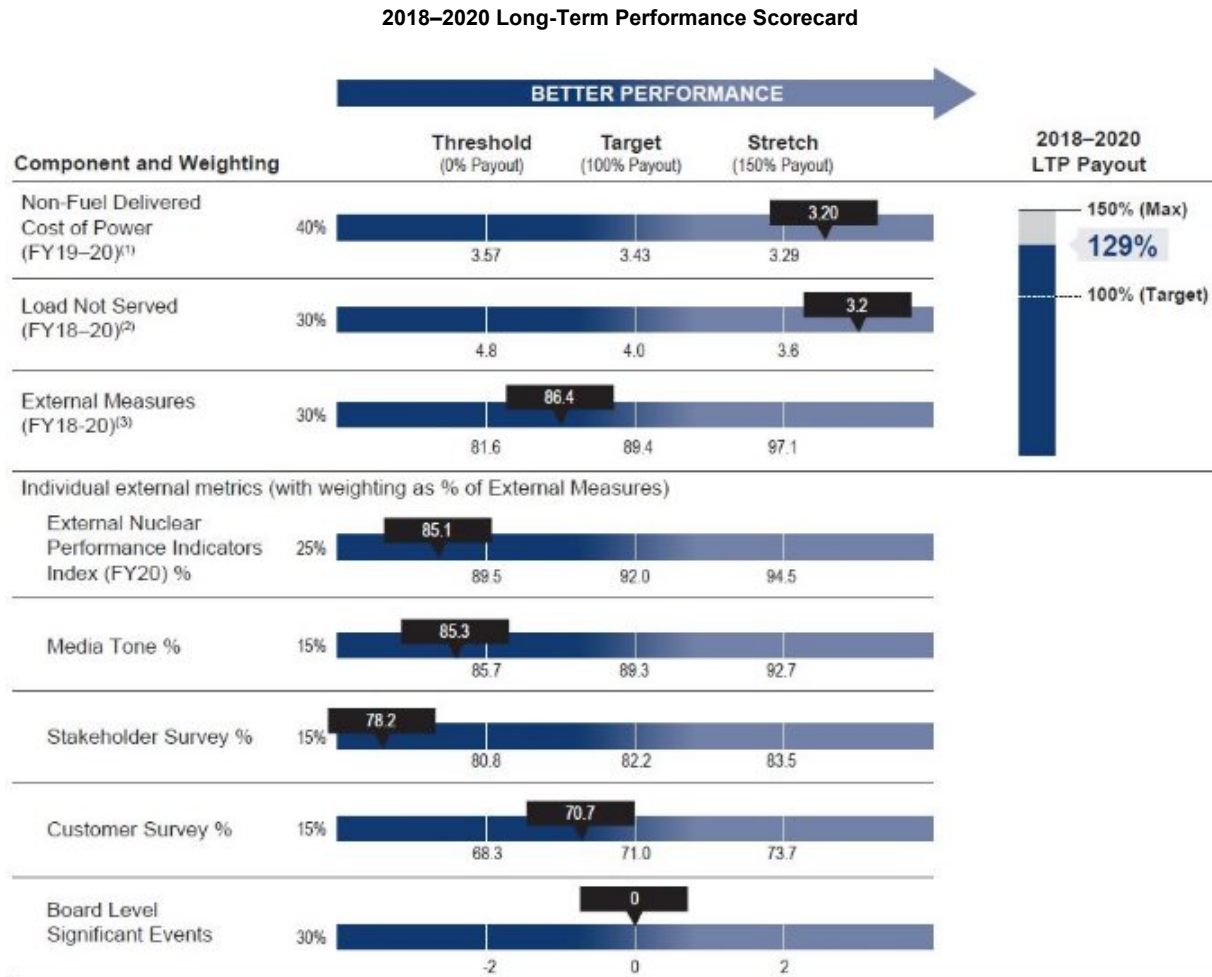
Consistent with its public power mission, TVA's long-term performance metrics include the results of surveys that assess the external reputation and perception of TVA and TVA's effectiveness in carrying out its mission and strategic objectives. These metrics reflect TVA's focus on meeting or exceeding 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 achievability. 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.

2018–2020 LTP Award Performance Results

The performance results on the 2020 TVA Enterprise Scorecard are set forth below. Performance resulted in a payout of 129 percent of target opportunity.



Notes

- (1) On August 22, 2018, the TVA Board approved replacing the Wholesale Rate Excluding Fuel measure with Non-Fuel Delivered Cost of Power for the 2018–2020 performance cycle because the Wholesale Rate Excluding Fuel measure has not historically reflected TVA's financial performance. For the 2018–2020 LTIP performance cycle, the Non-Fuel Delivered Cost of Power measure was calculated using the average of 2019 and 2020 results.
- (2) For the 2018–2020 LTIP performance cycle, the Load Not Served measure was calculated using an average of the 2018, 2019, and 2020 results. The target Load Not Served measure is the average of the rates for 2018, 2019 and 2020 that were set forth in the approved business plans for 2016, 2017, and 2018, respectively.
- (3) For the 2018–2020 LTIP performance cycle, the External Measures metrics were calculated using an average of the 2018, 2019, and 2020 results (except for the External Nuclear Performance Indicators measure, which was based on 2020 results).

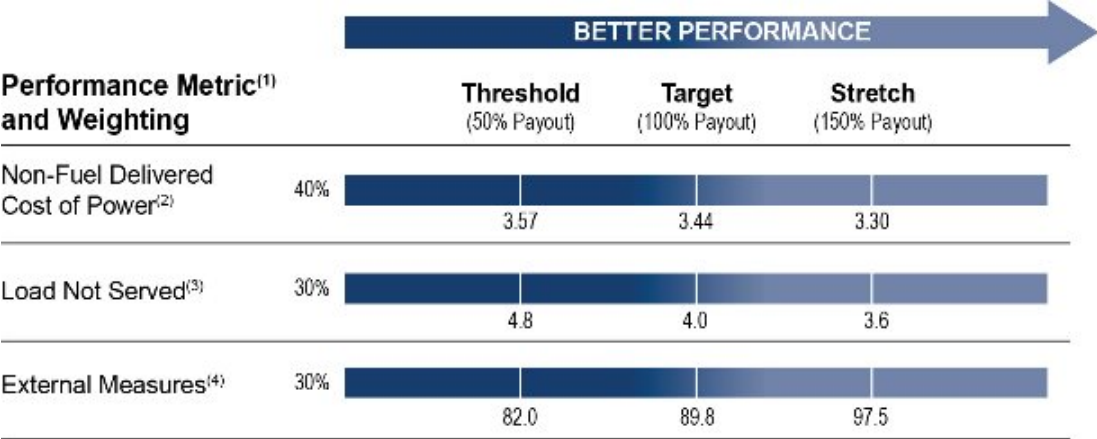
In reviewing the 2018–2020 performance period, the TVA Board considered strong performance in several areas, including key areas where performance exceeded target expectations:

- P TVA's debt is at the lowest level in three decades; TVA paid down \$1.4 billion in debt in 2020
- P Achieved and surpassed strategic goal of reducing debt to \$21.8 billion by 2023
- P Sustained \$800 million in annual operating costs savings
- P TVA's financial position is the strongest it has been in decades and is setting a path to keep base rates stable for the next decade
- P Strong transmission system reliability performance

However, in light of several external measures that failed to meet threshold targets, the TVA Board determined that on balance 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 2018–2020 LTP Award are described under each executive's compensation scorecard under "2020 Pay Decisions – 2020 NEO Pay Decisions and Compensation Scorecards" below and reported in the Summary Compensation Table under "Non-Equity Incentive Plan Compensation."

2019–2021 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, 2021 (awards to be paid in November 2021):



Notes

⁽¹⁾ The metrics have the same definition as for the 2018–2020 LTP awards.

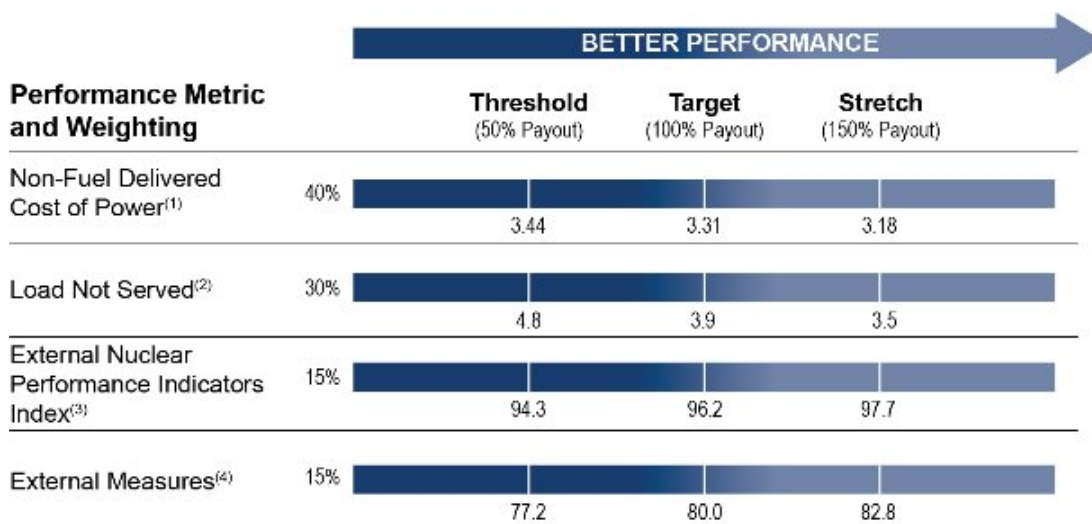
⁽²⁾ For the 2019–2021 LTIP performance cycle, the Non-Fuel Delivered Cost of Power measure will be calculated using an average of the 2019, 2020, and 2021 results.

⁽³⁾ For the 2019 – 2021 LTIP performance cycle, the Load Not Served measure will be calculated using an average of the 2019, 2020, and 2021 results.

⁽⁴⁾ For the 2019 – 2021 LTIP performance cycle, the External Measures metrics will be calculated using an average of the 2019, 2020, and 2021 results (except for the External Nuclear Performance Indicators measure, which will be based on 2021 results).

2020–2022 Outstanding LTP Performance Cycle

In October 2019, the TVA Board approved the following overall LTP measures of TVA performance for all participants for the three-year cycle ending September 30, 2022 (awards to be paid in November 2022):



Notes

⁽¹⁾ For the 2020 - 2022 LTIP performance cycle, the Non-Fuel Delivered Cost of Power measure will be calculated using an average of the results for each of 2020, 2021, and 2022.

⁽²⁾ For the 2020 - 2022 LTIP performance cycle, the Load Not Served measure will be calculated using an average of the results for each of 2020, 2021, and 2022.

⁽³⁾ For the 2020 - 2022 LTIP performance cycle, the External Nuclear Performance Indicators measure will be calculated based on 2022 results.

⁽⁴⁾ For the 2020 - 2022 LTIP performance cycle, the External Measures metrics will be calculated using an average of results for each of 2020, 2021, and 2022.

Non-Fuel Delivered Cost of Power and Load Not Served have the same definition as for the 2018–2020 LTP awards. External Nuclear Performance Indicator Index was kept a measure but is no longer a component of External Measures. Additionally, Board Level Significant Events has been removed as a metric under External Measures since the Long-Term Incentive Plan program design gives the TVA Board discretion in its review of the results and determination of payout. The remaining External Measures for the 2020–2022 LTP awards are the same as those for the 2018–2020 LTP awards. The External Measures for the 2020–2022 LTP awards, together with their weighting and targets, are as follows:



Long-Term Retention Awards

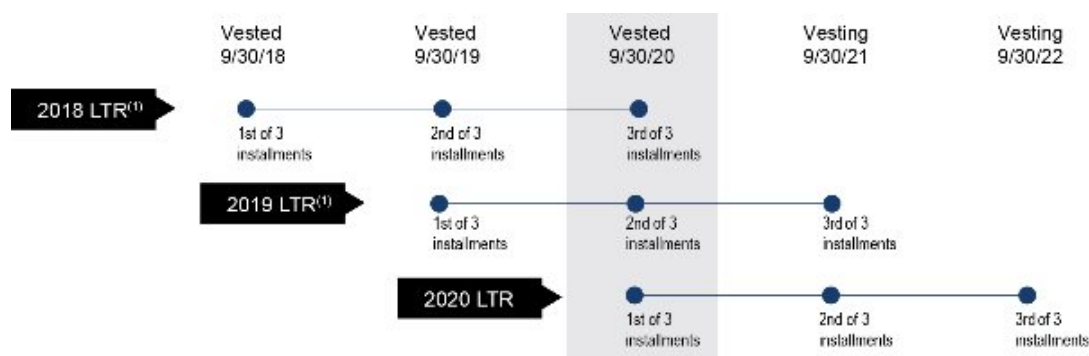
As a corporate agency of the U.S., TVA does not have equity securities that it can use to provide stock awards, options, or other equity-based awards as compensation for its employees. The purpose of the retention awards under the LTIP is to provide a retention incentive similar to restricted stock or 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 total direct compensation. 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.

2020 Long-Term Retention Award Grant

Following the market assessment conducted by FW Cook, effective October 1, 2019, TVA granted LTR awards to the NEOs. These awards vest in three equal tranches on September 30, 2020, September 30, 2021, and September 30, 2022. The amounts of these awards are set forth under "Long-Term Incentive Compensation" above.

2020 Vesting of Outstanding Retention Awards

In 2020, three LTR awards were outstanding for each NEO, other than the CEO for whom only the 2020 LTR was outstanding. Each of these awards vested one-third on September 30, 2020. The vesting schedule for the three LTR awards outstanding in 2020 is set forth below. LTR awards that vested in 2020 are described under "2020 NEO Pay Decisions and Compensation Scorecards" below and are also reported in the Summary Compensation Table under "Non-Equity Incentive Plan Compensation."



Note

(1) Mr. Lyash did not receive a 2018 LTR grant or 2019 LTR grant.

2020 Pay Decisions

2020 CEO Pay Decisions Overview

CEO PAY EARNED IN 2020

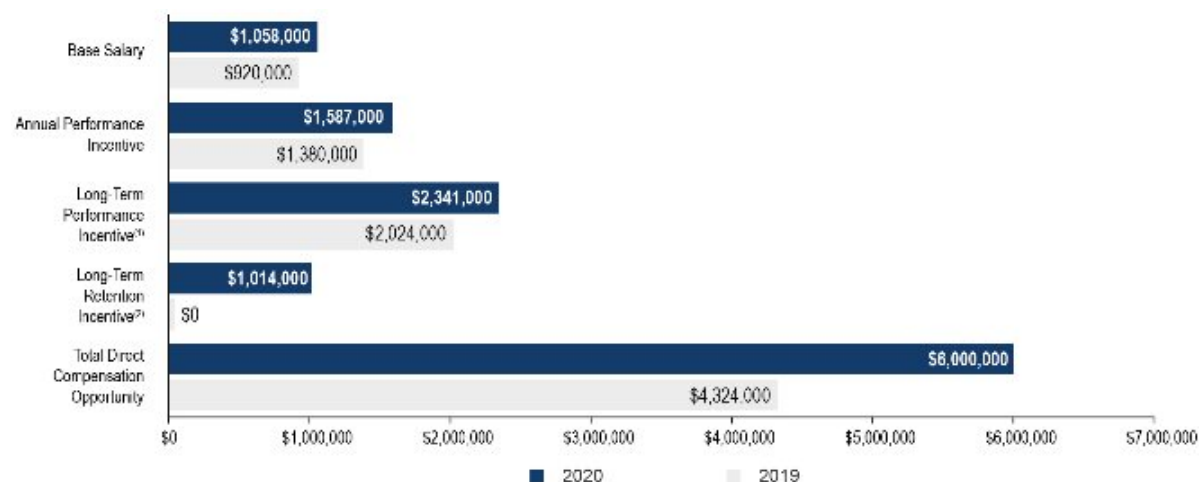
Base Salary	\$	1,058,000	
Annual Performance Incentive under Executive Annual Incentive Plan	\$	2,391,609	137 percent of target enterprise performance achieved Reflects Individual Performance Multiplier of 1.10x
Long-Term Retention Incentive	\$	338,000	2020 tranche of 2020 LTR award

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).

2020 CEO Total Direct Compensation Opportunity

The Total Direct Compensation opportunity granted to Mr. Lyash in 2020 is illustrated below. Based on a review of 2020 compensation peer data, Mr. Lyash's increasing tenure with TVA, and his performance, the Committee increased each component of Mr. Lyash's TDC over 2019 levels.

CEO 2020 TARGET TOTAL DIRECT COMPENSATION OPPORTUNITY

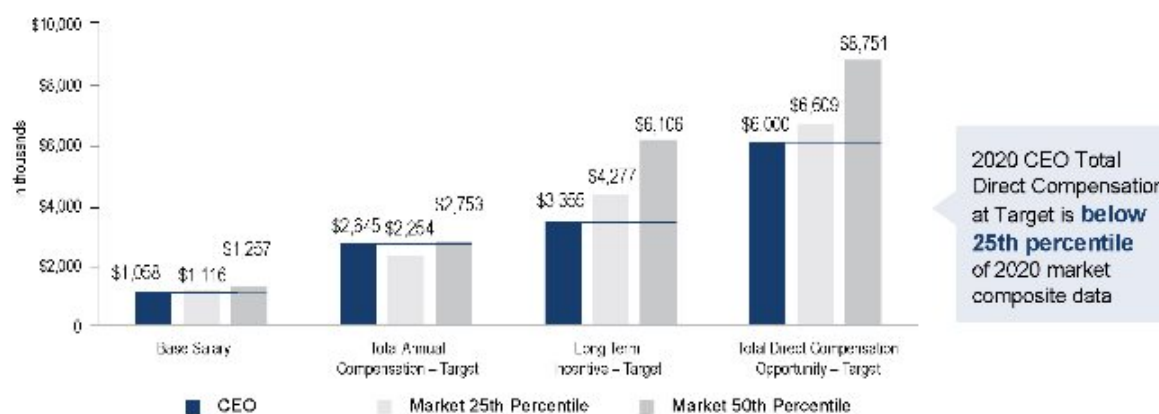


Notes

- (1) Mr. Lyash did not receive a LTP grant in 2019 since he joined TVA in April 2019 and LTP awards at that time were only granted effective October 1. Amount shown for 2019 represents a 2019 – 2021 LTP award that he was granted effective October 1, 2019, under which his payout will be prorated two-thirds to reflect his service during two of the three performance years.
- (2) Mr. Lyash did not receive a LTR grant in 2019.

Although the TVA Board moved Mr. Lyash's pay closer to the median in 2020, its compensation decisions resulted in positioning his total direct compensation at target below the 25th percentile of the 2020 market composite data.

2020 CEO TARGET TOTAL DIRECT COMPENSATION OPPORTUNITY BELOW MARKET⁽¹⁾



Note

- (1) Target market assessment effective October 2019 and included market composite of WTW database and proxy peer group.

2020 CEO Total Direct Compensation Earned

The Total Direct Compensation that Mr. Lyash received for 2020 reflected company and individual performance that exceeded targets. Mr. Lyash was not eligible to receive any payments under any LTP award in 2020; his first LTP award, the 2019–2021 LTP award, vests September 30, 2021; payout under this award will be prorated two-thirds to reflect his service during two of the three performance years.

CEO 2020 TOTAL DIRECT COMPENSATION EARNED



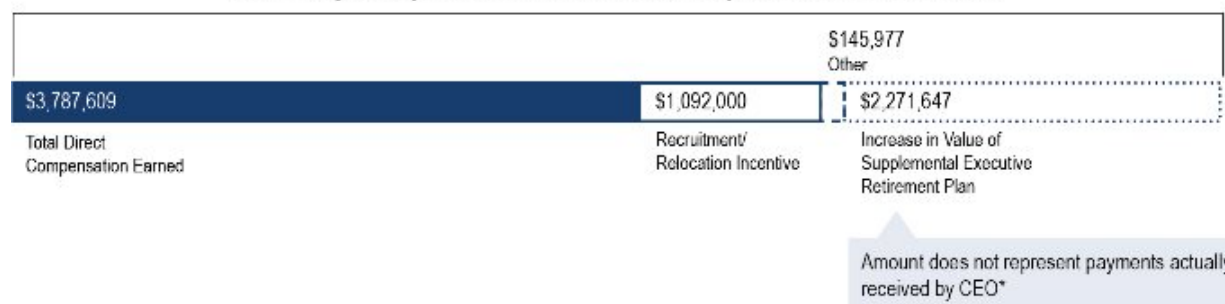
The award that Mr. Lyash received reflected an Individual Performance Multiplier of 1.10x. The Committee and TVA Board were extremely pleased with Mr. Lyash's performance, which they believe would typically warrant a maximum Individual Performance Multiplier of 1.50x. However, given the factors described in more detail in Mr. Lyash's scorecard under "2020 NEO Pay Decisions and Compensation Scorecards," the Committee and TVA Board exercised their discretion to reduce the multiplier to 1.10x.

In addition to Total Direct Compensation Earned (as shown in the table above), Mr. Lyash was paid \$1,092,000 in 2020 as the second tranche of a recruitment and relocation incentive under his employment offer letter. This incentive was intended to compensate him for amounts he forfeited from his previous employer in order to join TVA, as well as to provide some measure of substitute compensation in light of his not being eligible to receive any LTP incentive payments until September 2021.

Why Total Compensation Earned Differs From Compensation Reported

2020 CEO TOTAL COMPENSATION COMPONENTS

Summary Compensation Table Total Compensation = \$7,297,233



- Amounts are estimates of the pension/SERP benefits earned for service during the prior year, determined using assumptions consistent with those used in the financial statements in this Annual Report, set forth in Note 21 - *Benefit Plans*.

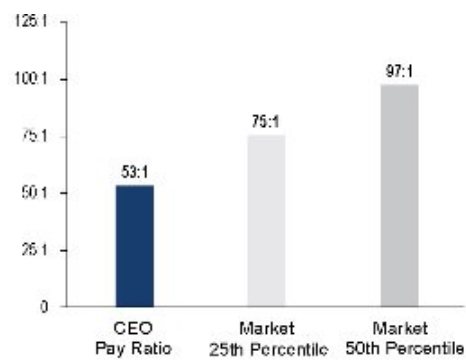
Unlike the amounts reported in the Summary Compensation Table, Mr. Lyash's Total Direct Compensation Earned represents the annual pay decisions by the Committee that specifically reflect its assessment of the company's performance and individual performance and reward the employee for satisfaction of 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 Total Direct Compensation 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 Total Direct Compensation Earned renders a more accurate and up-to-date reflection of its assessment of performance.

2020 CEO Pay Ratio Lowest Among Peers

As reflected above, TVA's CEO target Total Direct Compensation is low compared to its 2020 compensation peer group on an absolute basis but is also low compared to its peers in the context of organizational pay ratios. As discussed fully under "CEO Pay Ratio Disclosure", the pay ratio of the total compensation for Mr. Lyash to the median TVA employee was approximately 53 to 1 for 2020. Based on TVA's 2020 pay ratio and the pay ratio disclosed in its peers' most recent public

disclosures, TVA has the lowest margin between CEO and median employee compensation. Peers used are those shown under Proxy Peer Group of Investor Owned Utilities in the "List of Compensation Peer Companies."

2020 CEO PAY RATIO VS. PEERS



2020 NEO Pay Decisions and Compensation Scorecards

The following pages show each NEO's 2020 Total Direct Compensation earned, 2020 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.

JEFFREY J. LYASH

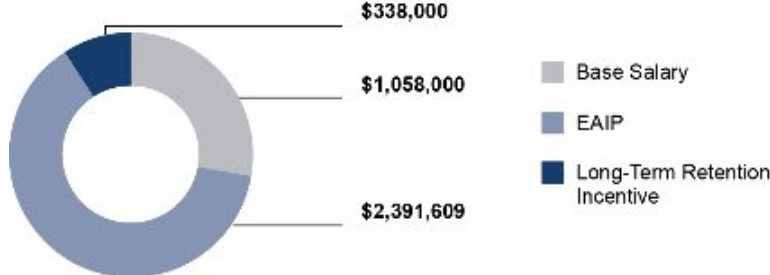
President and CEO
Joined TVA April 2019

2020 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- TVA debt was reduced to the lowest level in 30 years and to the level committed to OMB three years ahead of plan significantly lowering interest expenditures.
- The reliability of the transmission system and of the nuclear, gas, coal, and hydroelectric generation fleets all improved. This strong fleet performance reduced fuel and purchased power costs while continuing to reduce TVA's environmental footprint.
- Operating and Maintenance costs were also lowered, helping to offset the revenue reduction caused by the global pandemic.
- The aggregate impact of these achievements was that TVA not only held rates flat but returned \$163 million to LPCs participating in the long-term Partnership Agreement during 2020.
- These achievements also enabled TVA to deliver a wide range of pandemic support programs to LPCs, businesses, and communities that lessened their burden and helped businesses across the Tennessee Valley recover.
- The performance achieved in 2020 is expected to help keep rates flat again next year and allow an additional Pandemic Relief Credit of \$200 million in 2021.
- This performance places TVA base rates plus fuel at their lowest level in over a decade. In the public power model, the benefits of this performance do not accrue to shareholders; rather, they flow directly to the people TVA serves and now more than ever at the time they need it most.
- Mr. Lyash's highest rated competencies were adaptability, effective communication, business acumen, accountability and driving for results, and leveraging diversity.

2020 TOTAL DIRECT COMPENSATION EARNED

\$3,787,609



Base Salary. Mr. Lyash's salary was increased 15 percent to \$1,058,000 for 2020, reflecting outstanding performance and positioning to a more competitive base salary. This amount is below the 25th percentile of the 2020 compensation peer group median.

EAIP Payment Earned. Based on Mr. Lyash's superior performance and overall rating of 5 out of 5, TVA's guidelines for applying an individual performance multiplier to annual incentive awards would have provided the highest individual performance multiplier of 1.50x to his 2020 EAIP award. Consideration of three issues were included in making the final decision. These are the execution of the ongoing Information Technology transition initiative and the use of H1-B Visa workers in that process, progress in resolving TVA's supplier relationship with Memphis Light, Gas & Water, and nuclear fleet progress in improving performance. Also, considered was Mr. Lyash's strength of demonstrated recovery in all three areas of concern. After taking these into consideration, and applying discretion, Mr. Lyash's individual performance multiplier was reduced from 1.50x to 1.10x. Based on TVA's guidelines, a 1.10x is at the bottom of the range for a 5 performance rating and in the middle of the range for a 4 rating.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.00)	X	Individual Performance Multiplier (0% to 125%)	=	EAIP Payout
\$1,058,000		150%		137%		1.00		110%		\$2,391,609

Long-Term Incentives Earned

Long-Term Performance Award Earned. Mr. Lyash did not participate in the 2018–2020 LTP program, and thus did not receive any LTP payout in 2020.

Long-Term Retention Award Earned. Mr. Lyash earned \$338,000 in 2020 as the first tranche of his 2020 LTR program award of \$1,014,000. The 2020 LTR award vests ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2020–2022 Long-Term Performance Award Opportunity. Effective October 1, 2019, Mr. Lyash was granted a 2020–2022 LTP program award with a target opportunity of \$2,341,000, which will vest on September 30, 2022. Actual payout will depend on performance against targets at the end of the three-year performance period.

2020 Long-Term Retention Award Opportunity. Effective October 1, 2019, Mr. Lyash was granted a 2020 LTR program award of \$1,014,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2020 as described above.

Other Compensation

Recruitment and Relocation Incentive. Mr. Lyash was paid \$1,092,000 in 2020 as the second tranche of a recruitment and relocation incentive under his employment offer letter. This incentive was intended to compensate him for amounts he forfeited from his previous employer in order to join TVA, as well as to provide some measure of substitute compensation in light of his not being eligible to earn any long-term performance incentive payments until September 2021.

JOHN M. THOMAS, III

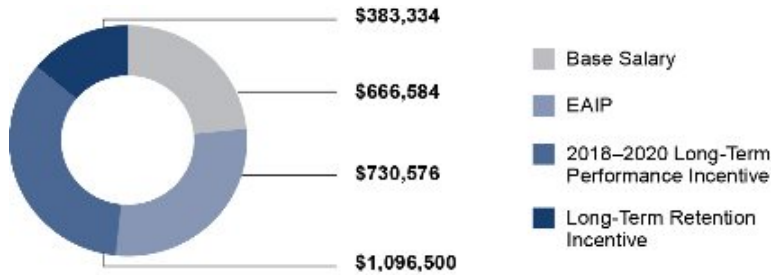
Executive Vice President and Chief Financial Officer
Joined TVA November 2005

2020 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- Executed CFO function at exceptionally high level and assumed leadership responsibility for technology and innovation units in 2020
- Responded swiftly to significant revenue loss presented by the COVID-19 pandemic by working across the organization to reduce O&M expense and adjust capital spending
- Effectively managed TVA liquidity, access to debt markets and liability management activities to maintain TVA's strong financial position and lower interest expense
- Executed major bond issuance with TVA attaining the lowest interest rate in its history
- Led efforts whereby TVA reduced debt to lowest level in 30 years – target debt level reduction achieved three years ahead of plan
- Successfully implemented the Long-Term Partnership Agreements, which returned \$163 million to participating LPCs in 2020
- Developed and championed additional COVID-19 pandemic-related financial support response in the form of \$1.0 billion in LPC credit support, direct fund matching to communities through the Community Care Fund, and business support through the Back-to-Business Credit program
- Established innovation agenda through which TVA has implemented an aggressive and innovative solar program that has resulted in substantial expansion of TVA's solar portfolio without adversely impacting rates

2020 TOTAL DIRECT COMPENSATION EARNED

\$2,876,994



Base Salary. Mr. Thomas' salary was increased three percent to \$666,584 for 2020, reflecting outstanding performance and positioning to maintain a competitive base salary.

EAIP Payment Earned. Organizational performance under the TVA EAIP Scorecard exceeded target for all but one measure, resulting in a 137 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the challenges presented by COVID-19. As a result, the TVA Board approved a 1.0x Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 1.0x for Mr. Thomas for 2020. Based on Mr. Thomas' strong performance and overall rating of 4 out of 5, TVA's guidelines for applying an individual performance multiplier to annual incentive awards would have provided for an individual performance multiplier of up to 1.2x to his 2020 EAIP award. Consideration of the execution of the ongoing Information Technology transition initiative and the use of H1-B Visa workers in that process led the CEO to approve a 1.0x multiplier for Mr. Thomas. Based on TVA's guidelines, a 1.0x is at the bottom of the range for a 4 performance rating.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.00)	X	Individual Performance Multiplier (0% to 125%)	=	EAIP Payout
\$666,584		80%		137%		1.00		100%		\$730,576

Long-Term Incentives Earned

Long-Term Performance Awards Earned. Organizational performance under the 2018–2020 LTP program was stronger than expected in key operational measures, resulting in significantly lower than expected Non-Fuel Delivered Cost of Power and Load Not Served. However, several external measures failed to meet threshold targets. In light of improvements in other key performance areas, such as financial health, the TVA Board determined that the 129 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*
\$850,000		129%		\$1,096,500

Long-Term Retention Awards Earned. Mr. Thomas earned \$383,334 in 2020 upon the vesting of the 2020 tranches of his 2018, 2019, and 2020 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

2020–2022 Long-Term Performance Award Opportunity. Effective October 1, 2019, Mr. Thomas was granted a 2020–2022 LTP program award with a target opportunity of \$980,000, which will vest on September 30, 2022. The actual payout of the award will depend on performance against targets at the end of the three-year performance period.

2020 Long-Term Retention Award Opportunity. Effective October 1, 2019, Mr. Thomas was granted a 2020 LTR program award of \$420,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2020 as described above.

MICHAEL D. SKAGGS

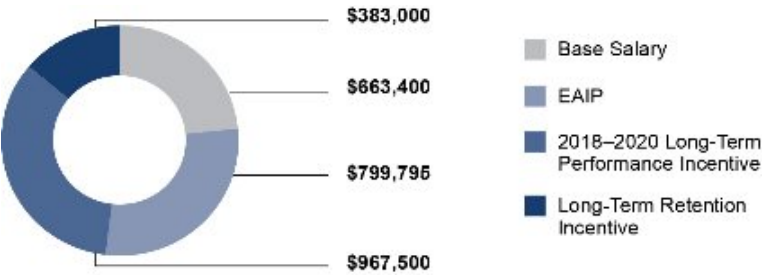
Executive Vice President and Chief Operating Officer
Joined TVA February 1994

2020 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- First and foremost, led the operational teams to the best industrial safety performance in TVA history, with Serious Injury Rate improving to industry top decile and OSHA Injury Rate improving to industry top decile
- Led improvement efforts for critical support functions of supply chain, environmental programs, and security in 2020
- Led significant improvement of non-nuclear generation fleet performance in 2020, exceeding aggressive goals and contributing to lower fuel costs and considerable savings to customers
- Continuously improved transmission reliability in 2020, setting industry performance standards, and resulting in more reliable and higher-quality power delivery to industrial customers, LPCs, and communities
- Executed the Grid 2023 program, which is focused on building the integrated energy system of the future, on schedule and on budget

2020 TOTAL DIRECT COMPENSATION EARNED

\$2,813,695



Base Salary. Mr. Skaggs's salary was increased seven percent to \$663,400 for 2020, reflecting outstanding performance and positioning to maintain a competitive base salary.

EAIP Payment Earned. Organizational performance under the TVA EAIP Scorecard exceeded target for all but one measure, resulting in a 137 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the challenges presented by COVID-19. As a result, the TVA Board approved a 1.0x Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 1.10x for Mr. Skaggs for 2020 given his exemplary performance, including those considerations noted under 2020 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.00)	X	Individual Performance Multiplier (0% to 125%)	=	EAIP Payout
\$663,400		80%		137%		1.00		110%		\$799,795

Long-Term Incentives Earned

Long-Term Performance Awards Earned. Organizational performance under the 2018–2020 LTP program was stronger than expected in key operational measures, resulting in significantly lower than expected Non-Fuel Delivered Cost of Power and Load Not Served. However, several external measures failed to meet threshold targets. In light of improvements in other key performance areas, such as safety, the TVA Board determined that the 129 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*
\$750,000		129%		\$967,500

Long-Term Retention Awards Earned. Mr. Skaggs earned \$383,000 in 2020 upon the vesting of the 2020 tranches of his 2018, 2019, and 2020 LTR program awards, respectively. The LTR program awards vest ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2020–2022 Long-Term Performance Award Opportunity. Effective October 1, 2019, Mr. Skaggs was granted a 2020–2022 LTP program award with a target opportunity of \$990,000 which will vest on September 30, 2022. Actual payout will depend on performance against targets at the end of the three-year performance period.

2020 Long-Term Retention Award Opportunity. Effective October 1, 2019, Mr. Skaggs was granted a 2020 LTR program award of \$429,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2020 as described above.

SHERRY A. QUIRK

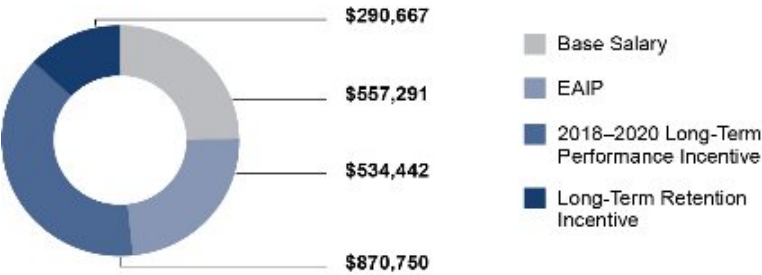
Executive Vice President and
General Counsel
Joined TVA February 2015

2020 INDIVIDUAL PERFORMANCE
HIGHLIGHTS

- Effectively led the activities of the Office of the General Counsel ("OGC") across multiple areas of law, including nuclear, regulatory, commercial, environmental, litigation, employment, natural resources, and others
- Served a critical role as an insightful and prudent advisor to the Enterprise Leadership Team and to the TVA Board
- Supported the TVA Board in developing and implementing a number of changes intended to strengthen the company's governance and improve transparency
- Led OGC's critical role in the development of the Long-Term Partnership Proposal and Flexibility Program that was overwhelmingly adopted by local power companies
- Collaboratively restructured the legal department to align with the enterprise's focus of allocation of resources to risks
- Counseled enterprise through a variety of novel legal challenges
- Played key role in developing the basis and structure of the portfolio of COVID-19 pandemic-related programs delivered across the TVA service area
- Made a positive impact on the TVA workforce with actions to strengthen the TVA Ethics Program and TVA Diversity and Inclusion Program
- Led the OGC creation and execution of the OGC pro-bono legal support initiative which launched in Memphis, Tennessee and is already positively impacting lives

2020 TOTAL DIRECT COMPENSATION EARNED

\$2,253,150



Base Salary. Ms. Quirk's salary was increased three percent to \$557,291 for 2020, reflecting strong performance and positioning to maintain a competitive base salary.

EAIP Payment Earned. Organizational performance under the TVA EAIP Scorecard exceeded target for all but one measure, resulting in a 137 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the challenges presented by COVID-19. As a result, the TVA Board approved a 1.0x Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 1.0x for Ms. Quirk for 2020 given her strong performance, including those considerations noted under 2020 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.00)	X	Individual Performance Multiplier (0% to 125%)	=	EAIP Payout
\$557,291		70%		137%		1.00		100%		\$534,442

Long-Term Incentives Earned

Long-Term Performance Award Payments Earned. Organizational performance under the 2018-2020 LTP program was stronger than expected in key operational measures, resulting in significantly lower than expected Non-Fuel Delivered Cost of Power and Load Not Served. However, several external measures failed to meet threshold targets. In light of improvements in other key performance areas, such as safety, the TVA Board determined that the 129 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*
\$675,000		129%		\$870,750

Long-Term Retention Award Payments Earned. Ms. Quirk earned \$290,667 in 2020 upon the vesting of the 2020 tranches of her 2018, 2019, and 2020 LTR program awards, respectively. The LTR program awards vest ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2020-2022 Long-Term Performance Award Opportunity. Effective October 1, 2019, Ms. Quirk was granted a 2020-2022 LTP program award with a target opportunity of \$695,000, which will vest on September 30, 2022. Actual payout will depend on performance against targets at the end of the three-year performance period.

2020 Long-Term Retention Award Opportunity. Effective October 1, 2019, Ms. Quirk was granted a 2020 LTR program award of \$297,000 that vests ratably over a three-year period, subject to continued employment on each vesting date. The first tranche was earned in 2020 as described above.

TIMOTHY S. RAUSCH

Executive Vice President and Chief Nuclear Officer (effective November 13, 2020; formerly Senior Vice President and Chief Nuclear Officer)
Joined TVA October 2018

2020 INDIVIDUAL PERFORMANCE HIGHLIGHTS

- Led strong TVA nuclear fleet progress towards best-in-class operation
- Developed and implemented Nuclear Excellence Plan, resulting in stronger nuclear fleet performance
- Led Extended Power Uprate program at Browns Ferry Nuclear plant that increased cost effective power output by 14 percent and received nuclear industry recognition for project excellence
 - Browns Ferry Nuclear Unit 1 completed the longest continuous operating run in its history
- Led four major nuclear plant refueling outages involving thousands of workers, with three completed under budget and two completed on schedule despite challenges presented by the COVID-19 pandemic
 - Sequoyah Nuclear Plant, Unit 2, completed its outage in 23 days, which is top quartile performance and contributed to lower fuel costs
- Led the organization in achieving the industry's first Early Site Permit for Small Modular Reactors, which is a critical milestone in the development of this future zero carbon generating resource

2020 TOTAL DIRECT COMPENSATION EARNED

\$1,216,990



Base Salary. Mr. Rausch's salary was increased three percent to \$535,600 for 2020, reflecting strong performance and positioning to maintain a competitive base salary.

EAIP Payment Earned. Organizational performance under the TVA EAIP Scorecard exceeded target for all but one measure, resulting in a 137 percent payout percentage. Company performance under the TVA Corporate Multiplier measures was strong for nearly all measures despite the challenges presented by COVID-19. As a result, the TVA Board approved a 1.0x Corporate Multiplier.

The CEO approved an Individual Performance Multiplier of 1.0x for Mr. Rausch for 2020 given his strong performance, including those considerations noted under 2020 Individual Performance Highlights.

Annual Salary	X	Annual Target Incentive Opportunity	X	Percent of Opportunity Achieved (0% to 150%)	X	Corporate Multiplier (0 to 1.00)	X	Individual Performance Multiplier (0% to 125%)	=	EAIP Payout
\$535,600		70%		137%		1.00		100%		\$513,640

Long-Term Incentives Earned

Long-Term Retention Award Payments Earned. Mr. Rausch earned \$167,750 in 2020 upon the vesting of the 2020 tranches of his 2019 and 2020 LTR program award. The LTR program award vests ratably over a three-year period, subject to continued employment on each vesting date.

Long-Term Incentive Opportunities Granted

2020–2022 Long-Term Performance Award Opportunity. Effective October 1, 2019, Mr. Rausch was granted a 2020–2022 LTP program award with a target opportunity of \$500,000, which will vest on September 30, 2022. Actual payout will depend on performance against targets at the end of the three-year performance period.

2020 Long-Term Retention Award Opportunity. Effective October 1, 2019, Mr. Rausch was granted a 2020 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 2020 as described above.

Other Compensation

Performance Incentive Arrangement. Mr. Rausch earned \$350,000 in 2020 pursuant to the Performance Incentive Arrangement ("PIA") award opportunity that was granted to him in connection with his employment agreement in 2018. The award opportunity was granted in order to compensate Mr. Rausch for incentive awards forfeited upon joining TVA but were payable subject to the CEO's evaluation of Mr. Rausch's performance. Given his strong performance, including those considerations noted under 2020 Individual Performance Highlights, Mr. Rausch received his maximum opportunity under the PIA award.

Recruitment and Relocation Incentive. Mr. Rausch was paid \$100,000 in 2020 as the second and final tranche of a recruitment and relocation incentive under his employment offer letter.

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 2020 was \$7,297,233.
- For 2020, the median employee's annual total compensation was \$136,920.

Based on this information, the pay ratio of the total compensation for the CEO position to the median employee was approximately 53 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, 2020, as the date on which to identify its median employee. On September 30, 2020, TVA's employee population (including full-time, part-time, and temporary employees) consisted of 9,942 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, 2019 to September 30, 2020. 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 2020 as though that compensation were being calculated for purposes of the Summary Compensation Table, resulting in annual total compensation of \$136,920.

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.

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 2020 (and 2019 and 2018, 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	2020	\$ 1,058,000	\$ —	\$ 2,729,609	\$ 2,271,647	\$ 1,237,977	\$ 7,297,233
President and Chief Executive Officer	2019	445,846	380,000	861,969 ⁽⁵⁾	5,970,873 ⁽⁶⁾	504,835	8,163,523
John M. Thomas, III	2020	\$ 666,584	\$ —	\$ 2,210,410	\$ 980,220	\$ 21,000	\$ 3,878,214
Executive Vice President	2019	648,208	52,500	1,804,797 ⁽⁷⁾	1,076,752 ⁽⁸⁾	20,625	3,602,882
and Chief Financial Officer	2018	629,023	—	1,692,318 ⁽⁹⁾	173,723 ⁽¹⁰⁾	20,250	2,515,314
Michael D. Skaggs	2020	\$ 663,400	\$ —	\$ 2,150,295	\$ 1,609,999	\$ 12,600	\$ 4,436,294
Executive Vice President	2019	614,692	52,500	1,716,194 ⁽¹¹⁾	2,017,130 ⁽¹²⁾	12,375	4,412,891
and Chief Operating Officer	2018	520,951	—	1,422,133 ⁽¹³⁾	320,678 ⁽¹⁴⁾	12,150	2,275,912
Sherry A. Quirk	2020	\$ 557,291	\$ —	\$ 1,695,859	\$ 360,648	\$ 25,200	\$ 2,638,998
Executive Vice President	2019	540,751	47,250	1,441,756 ⁽¹⁵⁾	401,540 ⁽¹⁶⁾	24,750	2,456,047
and General Counsel	2018	511,254	—	1,288,900 ⁽¹⁷⁾	207,166 ⁽¹⁸⁾	24,300	2,031,620
Timothy S. Rausch	2020	\$ 535,600	\$ —	\$ 1,031,390	\$ 106,428	\$ 159,794	\$ 1,833,212
Executive Vice President and Chief Nuclear Officer	2019	502,000	—	713,750 ⁽¹⁹⁾	72,784 ⁽²⁰⁾	255,735	1,544,269

⁽¹⁾ The 2020 data is outlined in the table below.

BONUS

	Jeffrey J. Lyash	John M. Thomas, III	Michael D. Skaggs	Sherry A. Quirk	Timothy S. Rausch
LTP Scorecard Adjustment	\$ —	\$ —	\$ —	\$ —	\$ —
Sign-on Bonus	—	—	—	—	—
Total	\$ —	\$ —	\$ —	\$ —	\$ —

⁽²⁾ The 2020 data is outlined in the table below.

NON-EQUITY INCENTIVE PLAN COMPENSATION

	Jeffrey J. Lyash	John M. Thomas, III	Michael D. Skaggs	Sherry A. Quirk	Timothy S. Rausch
EAIP	\$ 2,391,609	\$ 730,576	\$ 799,795	\$ 534,442	\$ 513,640
LTP	—	1,096,500	967,500	870,750	—
LTR 2018-03 ^(A)	—	116,667	100,000	95,000	—
LTR 2019-02 ^(B)	—	126,667	140,000	96,667	57,750
LTR 2020-01 ^(C)	338,000	140,000	143,000	99,000	110,000
Performance Incentive Arrangement ("PIA") ^(D)	—	—	—	—	350,000
Total	\$ 2,729,609	\$ 2,210,410	\$ 2,150,295	\$ 1,695,859	\$ 1,031,390

Notes

^(A) LTR grant representing the third tranche of the LTR award effective October 1, 2017.

^(B) LTR grant representing the second tranche of the LTR award effective October 1, 2018.

^(C) LTR grant representing the first tranche of the LTR award effective October 1, 2019.

^(D) Represents the maximum amount payable for the second payment of the PIA.

(3) The 2020 data is outlined in the table below.

CHANGE IN PENSION VALUE AND NONQUALIFIED DEFERRED COMPENSATION EARNINGS

	Jeffrey J. Lyash		John M. Thomas, III		Michael D. Skaggs		Sherry A. Quirk		Timothy S. Rausch	
Increase under TVARS Plans	\$	—	\$	34,401	\$	55,129	\$	—	\$	—
Increase under SERP		2,271,647		945,819		1,554,870		360,648		106,428
Total	\$	2,271,647	\$	980,220	\$	1,609,999	\$	360,648	\$	106,428

(4) The 2020 data is outlined in the table below.

ALL OTHER COMPENSATION

	Jeffrey J. Lyash		John M. Thomas, III		Michael D. Skaggs		Sherry A. Quirk		Timothy S. Rausch	
401(k) Matching Contribution	\$	12,600	\$	12,600	\$	12,600	\$	12,600	\$	12,600
Non-Elective 401(k) Contribution		12,600		8,400		—		12,600		12,600
Recruitment/Relocation Incentive		1,092,000		—		—		—		100,000
Relocation Benefits		120,777		—		—		—		34,594
Total	\$	1,237,977	\$	21,000	\$	12,600	\$	25,200	\$	159,794

(5) Represents \$861,969 awarded under the EAIP.

(6) Reflects increase of \$5,970,873 under the SERP.

(7) Represents \$660,630 awarded under the EAIP, \$817,500 awarded under the LTIP, and 326,667 awarded under the LTR.

(8) Reflects increases of \$60,304 under the Cash Balance Pension and \$1,016,448 under the SERP.

(9) Represents \$653,452 awarded under the EAIP, \$772,200 awarded under the LTIP, and \$266,666 awarded under the LTR.

(10) Reflects increases of \$27,604 under the Cash Balance Pension and \$146,119 under the SERP.

(11) Represents \$575,360 awarded under the EAIP, \$817,500 awarded under the LTP, and \$323,334 awarded under the LTR.

(12) Reflects increases of \$91,600 under the Cash Balance Pension and \$1,925,530 under the SERP.

(13) Represents \$540,800 awarded under the EAIP, \$648,000 awarded under the LTIP, and \$233,333 awarded under the LTR.

(14) Represents increases of \$49,607 under the Cash Balance Pension and \$271,071 under the SERP.

(15) Represents \$439,340 awarded under the EAIP, \$735,750 awarded under the LTP, and \$266,666 awarded under the LTR.

(16) Reflects increases of \$401,540 under the SERP.

(17) Represents \$464,100 awarded under the EAIP, \$604,800 awarded under the LTIP, and \$220,000 awarded under the LTR.

(18) Reflects an increase of \$207,166 under the SERP.

(19) Represents \$406,000 awarded under the EAIP, \$57,750 awarded under the LTR, and \$250,000 awarded under a Performance Incentive Arrangement.

(20) Reflects an increase of \$72,784 under the SERP.

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, LTR, and PIA that vested as of September 30, 2020, will be paid in cash during the first quarter of 2021.

GRANTS OF PLAN-BASED AWARDS TABLE

as of September 30, 2020

		Estimated Possible Payouts Under Non-Equity Incentive Plan Awards ⁽¹⁾			Estimated Future Payouts Under Non-Equity Incentive Plan Awards ⁽¹⁾			Performance Period Ending/Vesting Date
		Current Year			Future Years			
		Threshold ⁽²⁾	Target ⁽²⁾	Maximum ⁽²⁾	Threshold ⁽²⁾	Target ⁽²⁾	Maximum ⁽²⁾	
Name	Plan							
Jeffrey J. Lyash	EAIP ⁽³⁾	\$ 793,500	\$ 1,587,000	\$ 2,380,500				9/30/2020
	LTR 2020-01 ⁽⁵⁾		338,000	338,000				9/30/2020
	LTP 2019 ⁽⁶⁾			—	\$ 1,012,000	\$ 2,024,000	\$ 3,036,000	9/30/2021
	LTR 2020-02 ⁽⁵⁾			—		338,000	338,000	9/30/2021
	LTP 2020 ⁽⁷⁾				1,170,500	2,341,000	3,511,500	9/30/2022
	LTR 2020-03 ⁽⁵⁾					338,000	338,000	9/30/2022
John M. Thomas, III	EAIP ⁽³⁾	\$ 266,634	\$ 533,267	\$ 799,901				9/30/2020
	LTP 2018 ⁽⁴⁾	425,000	850,000	1,275,000				9/30/2020
	LTR 2018-03 ⁽⁵⁾		116,667	116,667				9/30/2020
	LTR 2019-02 ⁽⁵⁾		126,667	126,667				9/30/2020
	LTR 2020-01 ⁽⁵⁾		140,000	140,000				9/30/2020
	LTP 2019 ⁽⁶⁾				\$ 440,000	\$ 880,000	\$ 1,320,000	9/30/2021
	LTR 2019-03 ⁽⁵⁾					126,667	126,667	9/30/2021
	LTR 2020-02 ⁽⁵⁾					140,000	140,000	9/30/2021
	LTP 2020 ⁽⁷⁾				490,000	980,000	1,470,000	9/30/2022
	LTR 2020-03 ⁽⁵⁾					140,000	140,000	9/30/2022
Michael D. Skaggs	EAIP ⁽³⁾	\$ 265,360	\$ 530,720	\$ 796,080				9/30/2020
	LTP 2018 ⁽⁴⁾	375,000	750,000	1,125,000				9/30/2020
	LTR 2018-03 ⁽⁵⁾		100,000	100,000				9/30/2020
	LTR 2019-02 ⁽⁵⁾		140,000	140,000				9/30/2020
	LTR 2020-01 ⁽⁵⁾		143,000	143,000				9/30/2020
	LTP 2019 ⁽⁶⁾				\$ 490,000	\$ 980,000	\$ 1,470,000	9/30/2021
	LTR 2019-03 ⁽⁵⁾					140,000	140,000	9/30/2021
	LTR 2020-02 ⁽⁵⁾					143,000	143,000	9/30/2021
	LTP 2020 ⁽⁷⁾				495,000	990,000	1,485,000	9/30/2022
	LTR 2020-03 ⁽⁵⁾					143,000	143,000	9/30/2022
Sherry A. Quirk	EAIP ⁽³⁾	\$ 195,052	\$ 390,104	\$ 585,156				9/30/2020
	LTP 2018 ⁽⁴⁾	337,500	675,000	1,012,500				9/30/2020
	LTR 2018-03 ⁽⁵⁾		95,000	95,000				9/30/2020
	LTR 2019-02 ⁽⁵⁾		96,667	96,667				9/30/2020
	LTR 2020-01 ⁽⁵⁾		99,000	99,000				9/30/2020
	LTP 2019 ⁽⁶⁾				\$ 342,500	\$ 685,000	\$ 1,027,500	9/30/2021
	LTR 2019-03 ⁽⁵⁾					96,667	96,667	9/30/2021
	LTR 2020-02 ⁽⁵⁾					99,000	99,000	9/30/2021
	LTP 2020 ⁽⁷⁾				347,500	695,000	1,042,500	9/30/2022
	LTR 2020-03 ⁽⁵⁾					99,000	99,000	9/30/2022
Timothy S. Rausch	EAIP ⁽³⁾	\$ 187,460	\$ 374,920	\$ 562,380				9/30/2020
	PIA 2020 ⁽⁸⁾			350,000				9/30/2020
	LTR 2019-02 ⁽⁵⁾		57,750	57,750				9/30/2020

LTR 2020-01	⁽⁵⁾	110,000	110,000					9/30/2020
LTP 2019	⁽⁶⁾			\$ 202,125	\$ 404,250	\$ 606,375		9/30/2021
LTR 2019-03	⁽⁵⁾				57,750	57,750		9/30/2021
LTR 2020-02	⁽⁵⁾				110,000	110,000		9/30/2021
LTP 2020	⁽⁷⁾			250,000	500,000	750,000		9/30/2022
LTR 2020-03	⁽⁵⁾				110,000	110,000		9/30/2022

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 are 50 percent, 100 percent, and 150 percent.
- (3) Target incentive opportunities as a percentage of salaries were as follows: Mr. Lyash 150 percent; Mr. Thomas, 80 percent; Mr. Skaggs, 80 percent; Ms. Quirk, 70 percent; and Mr. Rausch 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 2020 are reported for each of the NEOs under the "Non-Equity Incentive Plan Compensation" column in the Summary Compensation Table. See *Compensation Discussion and Analysis* for a discussion of how each award was determined.
- (4) LTP awards were granted October 1, 2017, and vested September 30, 2020. 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 2020 are reported for each of the NEOs under the "Non-Equity Incentive Plan Compensation" column in the Summary Compensation Table.
- (6) Mr. Lyash's LTP award was granted October 1, 2019, and will vest September 30, 2021. All other LTP awards were granted October 1, 2018, and will vest September 30, 2021. 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) LTP awards were granted October 1, 2019, and will vest September 30, 2022. 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.
- (8) Reflects the maximum award Mr. Rausch was eligible to receive under a PIA. The actual award to be paid to Mr. Rausch is reported in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table.

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, 2020, 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 21 — *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 ⁽⁴⁾	\$ —
	SERP Tier 1	11.417 ⁽²⁾	\$ 8,242,520	—
John M. Thomas, III	TVARS	14.833	411,949	—
	SERP Tier 1	14.833	4,634,859	—
Michael D. Skaggs	TVARS	26.583	772,678	—
	SERP Tier 1	24.000 ⁽³⁾	7,893,997	—
Sherry A. Quirk	TVARS	N/A	N/A ⁽⁴⁾	—
	SERP Tier 1	5.583	1,110,246	—
Timothy S. Rausch	TVARS	N/A	N/A ⁽⁴⁾	—
	SERP Tier 2	1.917	179,212	—

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, 2020, Mr. Lyash had 1.417 years of service. The Present Value of the Accumulated SERP benefit with 6.417 years of credited service is \$4,558,306. The Present Value of the Accumulated SERP benefit with 11.417 years of credited service is \$8,242,520.

⁽³⁾ Mr. Skaggs has reached the 24 year service cap allowed under the SERP.

⁽⁴⁾ Mr. Lyash, Ms. Quirk, and Mr. Rausch 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 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 2020 was six percent. The 401(k) plan matching contribution is \$0.75 on every dollar contributed by the employee up to 4.5 percent of eligible compensation. Mr. Skaggs is 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 2020 was 4.75 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 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 2020 was 4.75 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. 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. 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 4.5 percent of eligible compensation. Mr. Lyash, Mr. Rausch, and Ms. Quirk are in this group.

Cash Balance Pension. For NEOs who are eligible for retirement benefits under the pension plan, which includes Mr. Thomas and Mr. Skaggs, 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 2020 could not exceed \$280,000 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. 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 2020 could not exceed \$280,000 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 2020 and already reported in the Summary Compensation Table, but rather the amounts of compensation earned by the NEOs in 2020 or prior years that were or have been deferred.

NONQUALIFIED DEFERRED COMPENSATION TABLE

Name	Executive Contributions in 2020	Registrant Contributions in 2020	Aggregate Earnings in 2020	Aggregate Withdrawals/Distributions	Aggregate Balance at September 30, 2020
Jeffrey J. Lyash	\$ —	\$ —	\$ —	\$ —	\$ —
John M. Thomas, III	—	—	—	—	—
Michael D. Skaggs	—	—	358,568 ⁽¹⁾	—	5,347,029 ⁽²⁾
Sherry A. Quirk	—	—	—	—	—
Timothy S. Rausch	—	—	—	—	—

Notes

⁽¹⁾ Includes vested earnings. Because none of the amounts are above market or preferential earnings under SEC rules, none of these amounts are included in the Summary Compensation Table.

⁽²⁾ Includes vested contributions and earnings. \$600,000 of this amount has been reported in the Summary Compensation Table as compensation for a prior fiscal year.

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.

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, 2020, 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	Retirement	Termination without Cause	Termination with Cause	Death	Disability
Severance Agreement ⁽¹⁾	\$ —	\$ —	\$ 2,645,000	\$ —	\$ —	\$ —
SERP ⁽²⁾	3,483,046	3,483,046	4,558,306	3,483,046	4,558,306 ⁽³⁾	4,558,306
EAIP	2,391,609	2,391,609	2,391,609	2,391,609	2,391,609	2,391,609
Recruitment/Relocation Incentive ⁽⁴⁾	1,092,000	1,092,000	1,092,000	1,092,000	1,092,000	1,092,000
LTR	338,000	338,000	338,000	338,000	619,667 ⁽⁵⁾	619,667 ⁽⁶⁾
LTP	—	1,792,333 ⁽⁷⁾	—	—	1,792,333 ⁽⁸⁾	1,792,333 ⁽⁹⁾
Deferred Compensation	—	—	—	—	—	—
Total Value of Potential Payments	\$ 7,304,655	\$ 9,096,988	\$ 11,024,915	\$ 7,304,655	\$ 10,453,915	\$ 10,453,915

Notes

- ⁽¹⁾ In February 2019, TVA entered into an arrangement with Mr. Lyash that provides a lump-sum payment equal to one year's annual salary and one year's executive annual incentive based on 100 percent target payout in the event TVA terminates his employment without cause. For purposes of this provision, termination without cause includes constructive termination which will be deemed to occur if Mr. Lyash terminates his employment because he is asked to take a new position with TVA with a material reduction in level of authority, duties, compensation, and benefits. This provision will not apply, and no lump-sum payment will be made, in the event Mr. Lyash voluntarily terminates his employment or voluntarily retires, or his employment is terminated "for cause" as defined in the agreement.
- ⁽²⁾ 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.
- ⁽³⁾ 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.
- ⁽⁴⁾ Mr. Lyash received a Recruitment/Relocation Incentive of \$1,784,000 upon employment, and \$1,092,000 of this amount vested on September 30, 2020.
- ⁽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⁾ 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, 2021 and September 30, 2022.
- ⁽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	Retirement	Termination without Cause	Termination with Cause	Death	Disability
Severance Agreement ⁽¹⁾	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
SERP	4,634,859 ⁽²⁾⁽³⁾⁽⁴⁾	4,634,859 ⁽²⁾⁽³⁾⁽⁴⁾	4,634,859 ⁽²⁾⁽³⁾⁽⁴⁾	4,634,859 ⁽²⁾⁽³⁾⁽⁴⁾	4,634,859 ⁽²⁾⁽⁵⁾	4,634,859 ⁽²⁾⁽³⁾
EAIP	730,576	730,576	730,576	730,576	730,576	730,576
LTR	383,334	383,334	383,334	383,334	563,334 ⁽⁶⁾	563,334 ⁽⁷⁾
LTP	1,096,500	2,009,833 ⁽⁸⁾	1,096,500	1,096,500	2,009,833 ⁽⁹⁾	2,009,833 ⁽¹⁰⁾
Deferred Compensation	—	—	—	—	—	—
Total Value of Potential Payments	\$ 6,845,269	\$ 7,758,602	\$ 6,845,269	\$ 6,845,269	\$ 7,938,602	\$ 7,938,602

Notes

- (1) Mr. Thomas does not have a severance agreement with TVA.
- (2) Represents the present value of the accumulated benefit.
- (3) Actual benefit would be paid in five annual installments beginning at age 55.
- (4) Assumes that the TVA Board or its delegate determines that the termination is an approved termination under SERP. See *Retirement and Pension Plans — Supplemental Executive Retirement Plan* above for a discussion of approved and unapproved terminations under SERP.
- (5) 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.
- (6) 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.
- (7) 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.
- (8) 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, 2021 and September 30, 2022.
- (9) 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.
- (10) 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.

Michael D. Skaggs	Resignation	Retirement	Termination without Cause	Termination with Cause	Death	Disability
Severance Agreement ⁽¹⁾	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
SERP	7,893,997 ⁽²⁾⁽³⁾⁽⁴⁾	7,893,997 ⁽²⁾⁽³⁾⁽⁴⁾	7,893,997 ⁽²⁾⁽³⁾⁽⁴⁾	7,893,997 ⁽²⁾⁽³⁾⁽⁴⁾	7,893,997 ⁽²⁾⁽⁵⁾	7,893,997 ⁽²⁾⁽³⁾
EAIP	799,795	799,795	799,795	799,795	799,795	799,795
LTR	383,000	383,000	383,000	383,000	572,167 ⁽⁶⁾	572,167 ⁽⁷⁾
LTP	967,500	1,950,833 ⁽⁸⁾	967,500	967,500	1,950,833 ⁽⁹⁾	1,950,833 ⁽¹⁰⁾
Deferred Compensation ⁽¹¹⁾	5,347,029	5,347,029	5,347,029	5,347,029	5,347,029	5,347,029
Total Value of Potential Payments	\$ 15,391,321	\$ 16,374,654	\$ 15,391,321	\$ 15,391,321	\$ 16,563,821	\$ 16,563,821

Notes

⁽¹⁾ Mr. Skaggs does not have a severance agreement with TVA.

⁽²⁾ Represents the present value of the accumulated benefit.

⁽³⁾ Actual benefit would be paid in ten annual installments beginning on the date of Mr. Skaggs's separation from service.

⁽⁴⁾ Assumes that the TVA Board or its delegate determines that the termination is an approved termination under SERP. See *Retirement and Pension Plans — Supplemental Executive Retirement Plan* above for a discussion of approved and unapproved terminations under SERP.

⁽⁵⁾ 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.

⁽⁶⁾ 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.

⁽⁷⁾ 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.

⁽⁸⁾ 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, 2021 and September 30, 2022.

⁽⁹⁾ 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.

⁽¹⁰⁾ 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.

⁽¹¹⁾ Amounts that Mr. Skaggs earned in past years but elected to defer, which are payable pursuant to elections he made and applicable IRS rules.

Sherry A. Quirk	Resignation	Retirement	Termination without Cause	Termination with Cause	Death	Disability
Severance Agreement ⁽¹⁾	\$ —	\$ —	\$ 557,291	\$ —	\$ —	\$ —
SERP	1,110,246 ⁽²⁾⁽³⁾⁽⁴⁾	1,110,246 ⁽²⁾⁽³⁾⁽⁴⁾	1,110,246 ⁽²⁾⁽³⁾⁽⁴⁾	1,110,246 ⁽²⁾⁽³⁾⁽⁴⁾	1,110,246 ⁽²⁾⁽⁵⁾	1,110,246 ⁽²⁾⁽³⁾
EAIP	534,442	534,442	534,442	534,442	534,442	534,442
LTR	290,667	290,667	290,667	290,667	421,501 ⁽⁷⁾	421,501 ⁽⁸⁾
LTP	870,750	1,559,083 ⁽⁶⁾	870,750	870,750	1,559,083 ⁽⁹⁾	1,559,083 ⁽¹⁰⁾
Deferred Compensation	—	—	—	—	—	—
Total Value of Potential Payments	\$ 2,806,105	\$ 3,494,438	\$ 3,363,396	\$ 2,806,105	\$ 3,625,272	\$ 3,625,272

Notes

- ⁽¹⁾ In December 2014, TVA entered into an arrangement with Ms. Quirk that provides a lump-sum payment equal to one year's annual salary in the event TVA terminates her employment without cause.
- ⁽²⁾ Represents the present value of the accumulated benefit.
- ⁽³⁾ Actual benefit would be paid in ten annual installments beginning on the date of Ms. Quirk's separation from service.
- ⁽⁴⁾ Assumes that the TVA Board or its delegate determines that the termination is an approved termination under SERP. See *Retirement and Pension Plans — Supplemental Executive Retirement Plan* above for a discussion of approved and unapproved terminations under SERP.
- ⁽⁵⁾ 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.
- ⁽⁶⁾ 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, 2021 and September 30, 2022.
- ⁽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 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.
- ⁽¹⁰⁾ 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	Retirement	Termination without Cause	Termination with Cause	Death	Disability
Severance Agreement ⁽¹⁾	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
SERP	— ⁽²⁾	— ⁽²⁾	— ⁽²⁾	— ⁽²⁾	179,212 ⁽³⁾ ⁽⁴⁾	179,212 ⁽³⁾
EAIP	513,640	513,640	513,640	513,640	513,640	513,640
LTR	167,750	167,750	167,750	167,750	288,291 ⁽⁶⁾	288,291 ⁽⁷⁾
LTP	—	436,167 ⁽⁵⁾	—	—	436,167 ⁽⁸⁾	436,167 ⁽⁹⁾
Deferred Compensation	—	—	—	—	—	—
Total Value of Potential Payments	\$ 681,390	\$ 1,117,557	\$ 681,390	\$ 681,390	\$ 1,417,310	\$ 1,417,310

Notes

⁽¹⁾ Mr. Rausch does not have a severance agreement with TVA.

⁽²⁾ The five-year vesting requirement has not been met.

⁽³⁾ Represents the present value of the accumulated benefit.

⁽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 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, 2021 and September 30, 2022.

⁽⁶⁾ 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.

⁽⁷⁾ 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.

⁽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.

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 16, 2020, 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 5, 2020, the annual stipend for TVA directors was increased from \$52,702 to \$54,072 per year unless (1) the director chairs a TVA Board committee, in which case the stipend was increased from \$53,745 to \$55,142 per year, or (2) the director is the Chair of the TVA Board, in which case the stipend was increased from \$58,650 to \$60,175 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 16, 2020, are listed below:

TVA BOARD ANNUAL STIPENDS

Name	Annual Stipend
John L. Ryder	\$ 60,175
Kenneth E. Allen	55,142
A. D. Frazier	55,142
William Kilbride	55,142
Jeff W. Smith	55,142

The following table provides information on the compensation received by TVA's directors during 2020:

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
John L. Ryder	\$ 55,964	—	—	—	—	\$ 2,239	\$ 58,203
Kenneth E. Allen	55,020	—	—	—	—	550	55,570
A. D. Frazier	55,021	—	—	—	—	2,751	57,772
William B. Kilbride	53,864	—	—	—	—	539	54,403
Jeff W. Smith	55,308	—	—	—	—	2,489	57,797

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 Performance Committee of the TVA Board currently consists of the following two directors: Kenneth Allen and A.D. Frazier.

No member of this Committee was at any time during 2020 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 Performance Committee during 2020.

Compensation Committee Report

The People and Performance 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 PERFORMANCE COMMITTEE

Kenneth Allen, 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 ("DOE"). See Item 1, Business and Note 23 — *Related Parties*.

TVA also has access to a financing arrangement with the 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, 2020. This credit facility has a maturity date of September 30, 2021, 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 13 — *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 18 — *Proprietary Capital — Appropriation Investment*.

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, 2020 and 2019.

Principal Accountant Fees and Services
(in actual dollars)

Year	Principal Accountant	Audit Fees ⁽¹⁾	Audit-Related Fees	Tax Fees	All Other Fees ⁽²⁾	Total
2020	Ernst & Young LLP	\$ 3,007,830	\$ —	\$ —	\$ 5,930	\$ 3,013,760
2019	Ernst & Young LLP	2,839,049	—	—	7,020	2,846,069

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 and the 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 2020 and 2019 federal consolidated financial statements of which TVA is a component; Bond offering and other financing comfort letters; and accounting consultations related to TVA's adoption of the new revenue recognition and lease accounting standards.

(2) All other fees reflect accounting and financial reporting research software license costs.

The TVA Board has an Audit, Risk, and Regulation 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 2020 and 2019 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 2020 and 2019.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents have been filed as part of this 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	Amended and Restated September Maturity Credit Agreement Dated as of September 28, 2018, 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, Canadian Imperial Bank of Commerce, New York Branch, First Tennessee Bank National Association, 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 October 3, 2018, File No. 000-52313)
10.2	Amended and Restated June Maturity Credit Agreement Dated as of June 13, 2018, Among Tennessee Valley Authority, as the Borrower, Royal Bank of Canada, as Administrative Agent, Letter of Credit Issuer, and a Lender, Barclays Bank PLC, BNP Paribas, Branch Banking and Trust Company, Mizuho Bank Ltd, Regions Bank, SunTrust Bank, and Wells Fargo Bank, National Association (Incorporated by reference to Exhibit 10.1 to TVA's Current Report on Form 8-K filed on June 18, 2018, 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)

10.7	<u>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, HomeTrust 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)</u>
10.8	<u>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)</u>
10.9	<u>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)</u>
10.10	<u>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)</u>
10.11	<u>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)</u>
10.12	<u>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)</u>
10.13	<u>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)</u>
10.14	<u>Commitment Agreement Among Memphis Light, Gas and Water Division, the City of Memphis, Tennessee, and TVA Dated as of November 19, 2003 (Incorporated by reference to Exhibit 10.5 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.15	<u>Power Contract Supplement No. 95 Among Memphis Light, Gas and Water Division, the City of Memphis, Tennessee, and TVA Dated as of November 19, 2003 (Incorporated by reference to Exhibit 10.6 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.16	<u>Void Walk Away Agreement Among Memphis Light, Gas and Water Division, the City of Memphis, Tennessee, and TVA Dated as of November 20, 2003 (Incorporated by reference to Exhibit 10.7 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.17	<u>Power Contract Supplement No. 96 Among Memphis Light, Gas and Water Division, the City of Memphis, Tennessee, and TVA Dated as of November 20, 2003 (Incorporated by reference to Exhibit 10.8 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.18	<u>Overview of TVA's September 26, 2003, Lease and Leaseback of Control, Monitoring, and Data Analysis Network with Respect to TVA's Transmission System in Tennessee, Kentucky, Georgia, and Mississippi (Incorporated by reference to Exhibit 10.9 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.19*	<u>Participation Agreement Dated as of September 22, 2003, Among (1) TVA, (2) NVG Network I Statutory Trust, (3) Wells Fargo Delaware Trust Company, Not in Its Individual Capacity, Except to the Extent Expressly Provided in the Participation Agreement, But as Owner Trustee, (4) Wachovia Mortgage Corporation, (5) Wilmington Trust Company, Not in Its Individual Capacity, Except to the Extent Expressly Provided in the Participation Agreement, But as Lease Indenture Trustee, and (6) Wilmington Trust Company, Not in Its Individual Capacity, Except to the Extent Expressly Provided in the Participation Agreement, But as Pass Through Trustee (Incorporated by reference to Exhibit 10.10 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.20*	<u>Network Lease Agreement Dated as of September 26, 2003, Between NVG Network I Statutory Trust, as Owner Lessor, and TVA, as Lessee (Incorporated by reference to Exhibit 10.11 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>

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10.21*	<u>Head Lease Agreement Dated as of September 26, 2003, Between TVA, as Head Lessor, and NVG Network I Statutory Trust, as Head Lessee (Incorporated by reference to Exhibit 10.12 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.22*	<u>Leasehold Security Agreement Dated as of September 26, 2003, Made by NVG Network I Statutory Trust to TVA (Incorporated by reference to Exhibit 10.13 to TVA's Annual Report on Form 10-K for the year ended September 30, 2006, File No. 000-52313)</u>
10.23	<u>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)</u>
10.24	<u>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)</u>
10.25*	<u>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)</u>
10.26	<u>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)</u>
10.27	<u>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)</u>
10.28*	<u>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)</u>
10.29*	<u>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)</u>
10.30†	<u>Amended and Restated TVA Compensation Plan Approved by the TVA Board on August 22, 2019 (Incorporated by reference to Exhibit 10.1 to TVA's Current Report on Form 8-K filed on August 28, 2019, File No. 000-52313)</u>
10.31†	<u>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)</u>
10.32†	<u>Amended and Restated Executive Annual Incentive Plan Effective as of October 1, 2015 (Incorporated by reference to Exhibit 10.1 to TVA's Current Report on Form 8-K filed on October 1, 2015, File No. 000-52313)</u>
10.33†	<u>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)</u>
10.34†	<u>Amended and Restated Long-Term Incentive Plan Dated as of November 12, 2020</u>
10.35†	<u>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)</u>
10.36†	<u>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)</u>
10.37†	<u>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)</u>
10.38†	<u>Offer Letter to Sherry A. Quirk Accepted as of December 29, 2014 (Incorporated by reference to Exhibit 10.40 to TVA's Annual Report on Form 10-K for the year ended September 30, 2017, File No. 000-52313)</u>

10.39†	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)
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	TVA XBRL Instance Document
101.SCH	TVA XBRL Taxonomy Extension Schema
101.CAL	TVA XBRL Taxonomy Extension Calculation Linkbase
101.DEF	TVA XBRL Taxonomy Extension Definition Linkbase
101.LAB	TVA XBRL Taxonomy Extension Label Linkbase
101.PRE	TVA XBRL Taxonomy Extension Presentation Linkbase
† 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 16, 2020

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.

Signature	Title	Date
<u>/s/ Jeffrey J. Lyash</u> Jeffrey J. Lyash	President and Chief Executive Officer (Principal Executive Officer)	November 16, 2020
<u>/s/ John M. Thomas, III</u> John M. Thomas, III	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	November 16, 2020
<u>/s/ Diane Wear</u> Diane Wear	Vice President and Controller (Principal Accounting Officer)	November 16, 2020
<u>/s/ John Ryder</u> John Ryder	Chair	November 16, 2020
<u>/s/ Kenneth E. Allen</u> Kenneth E. Allen	Director	November 16, 2020
<u>/s/ A. D. Frazier</u> A. D. Frazier	Director	November 16, 2020
<u>/s/ Jeff W. Smith</u> Jeff W. Smith	Director	November 16, 2020
<u>/s/ William B. Kilbride</u> William B. Kilbride	Director	November 16, 2020

TENNESSEE VALLEY AUTHORITY



LONG-TERM INCENTIVE PLAN

Amended and Restated – November 12, 2020

Prepared by: _____
Tina Wallace, VP Total Rewards Date

Validation Date: 11/12/2020
Review Frequency: 5 years
Validated By: Stephen Gaby

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1. PURPOSE AND SCOPE

- 1.1 **Establishment.** The Tennessee Valley Authority (“TVA”) hereby amends and restates in its entirety its long-term incentive plan which shall be known as the Long-Term Incentive Plan (“Plan”). This Plan supports TVA’s compensation philosophy, which is designed to attract, retain, and engage employees needed to accomplish TVA’s broad mission.
- 1.2 **Purpose.** The purpose of the Plan is to provide a targeted level of total long-term compensation that is comprised of both (1) a variable, at-risk performance-based component (the “Performance Component”) and (2) a retention component (the “Retention Component”). The Plan is designed to provide a competitive level of total compensation to eligible participants (each, a “Participant”).

Participants may be selected for enrollment in one or both components of the Plan. For a Participant who is enrolled in both components, the Performance Component will typically be targeted at 70 percent to 80

percent of the Participant's total targeted long-term compensation. The remaining 20 percent to 30 percent will be provided under the Retention Component.

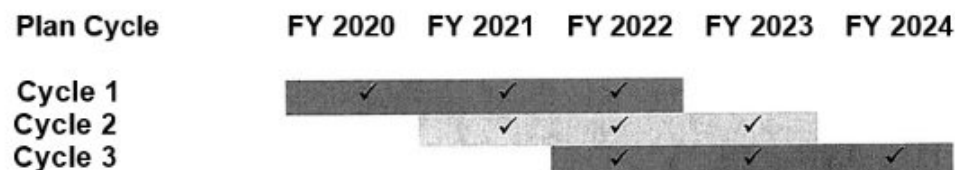
- 1.2.1 **Performance Component.** The Performance Component is designed to provide Participants with time-vested incentive opportunities based on successful achievement of established financial and/or operational goals measured over a three-year period.
- 1.2.2 **Retention Component.** The Retention Component is designed to provide Participants with time-based incentive opportunities designed to encourage them to remain with TVA. This component is intended to provide retention incentives to Participants similar to the retention incentive provided by restricted stock or restricted stock units in publicly-traded companies.

2. DEFINITIONS

Wherever used herein, the following terms have the meanings set forth below, unless a different meaning is clearly required by the context:

- 2.1 "Beneficiary" means the Participant's surviving spouse, unless the Participant designates one or more persons or entities to be the Participant's Beneficiary. The Participant may make, change, or revoke a Beneficiary designation at any time before his or her death without the consent of the Participant's spouse or anyone the Participant previously named as a Beneficiary, and the Participant may designate primary and secondary Beneficiaries. A Beneficiary designation must comply with procedures established by the Plan Administrator (as defined below) and must be received by the Plan Administrator before the Participant's death. If the Participant dies without a valid Beneficiary designation (as determined by the Plan Administrator) and has no surviving spouse, the Beneficiary shall be the Participant's estate.
 - 2.2 "Disability" means that the Participant has any medically determinable physical or mental impairment resulting in the Participant's inability to perform the duties of his or her position or any substantially similar position that can be expected to result in death or can be expected to last for a continuous period of not less than six months. Disability shall be determined by the Plan Administrator, in his or her sole discretion.
 - 2.3 "Long-Term Performance Incentive Award" means the amount earned under the Performance Component after determining achievement of the performance goals.
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- 2.4 “Long-Term Performance Incentive Grant” means the amount granted to a Participant under the Performance Component.
- 2.5 “Long-Term Performance Incentive Opportunity” means the award opportunity under the Performance Component expressed as a percentage of the Participant’s base salary.
- 2.6 “Long-Term Retention Incentive Grant” means the amount granted to a Participant under the Retention Component.
- 2.7 “Percent of Opportunity Achieved” means the percent of the Long Term Performance Incentive Opportunity achieved with respect to a Participant based on achieved level of performance compared to the established Performance Measures and Performance Goals over the Performance Cycle.
- 2.8 “Performance Cycle” means a period of three consecutive TVA fiscal years. A new Performance Cycle begins at the start of each TVA fiscal year (October 1). An example showing how the three year cycles overlap is illustrated below:



- 2.9 “Performance Goals” means the long-term strategic goals established for each Performance Measure used to determine awards under the Performance Component.
- 2.10 “Performance Measures” means the specific metrics used to measure performance under the Performance Component.
- 2.11 “Retention Cycle” means a period of three consecutive TVA fiscal years. A new Retention Cycle begins at the start of each TVA fiscal year and typically includes three one-year vesting periods.
- 2.12 “Retirement” and like phrases mean an employee has met one of the following criteria to terminate employment with a reason of Retired: (i) the employee has reached the age of 55 with at least 10 years of full-time TVA service, (ii) the employee has reached the age of 60 with at least five years of full-time TVA service, or (iii) the employee is in the Civil Service Retirement System or Federal Employees Retirement System and is
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eligible for an immediate retirement benefit upon termination as outlined in the applicable plan.

- 2.13 “Section 409A” means Internal Revenue Code Section 409A and the regulations and other binding guidance thereunder.
- 2.14 “Separation from Service” and like phrases have the meaning set forth in 26 C.F.R. §1.409A-1(h) as such provision may be amended from time to time.

3. PARTICIPATION

The TVA Board of Directors (the “Board”) or its designee(s) (collectively, the “Authorized Parties”) shall approve individual employees as Participants. Each Participant approved for participation shall be enrolled in the Performance Component, the Retention Component, or both. Participation is generally 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 (“Key Positions”).

Eligibility based on the Plan guidelines does not entitle an individual to receive an award under the Plan. An employee’s eligibility and participation in one year does not guarantee eligibility or participation for any subsequent year. No other long-term incentive may be provided that is inconsistent with the Plan.

3.1 **Performance Component.** Effective October 1, 2015, eligibility to participate in the Performance Component shall be limited to officers and employees serving in Key Positions within the Officer/Executive pay band. Individuals serving in Key Positions within the Management & Specialist pay band may be eligible for participation in the Performance Component under limited circumstances and with approval by the Chief Executive Officer (“CEO”).

3.2 **Retention Component.** Eligibility to participate in the Retention Component shall be limited to:

- Officers and employees serving in Key Positions within the Officer/Executive pay band; and
- Employees serving in Manager and Specialist (M&S) positions that:
 - are at or above TVA Pay Grade 12 **and**
 - report no more than two levels below a Vice President
 - or**
 - are approved by the CEO.

Participation in the Plan, as well as the terms of each award granted under the Plan, is at the discretion of the Authorized Parties based on, among other things, recruiting needs and review of benchmark data.

4. PERFORMANCE MEASURES AND GOALS

The Board establishes both Performance Measures and Performance Goals. Performance Measures focus primarily on the achievement of TVA's long-term financial and/or operational goals, and Performance Goals are established for each Performance Measure. Performance Measures and Performance Goals typically cover the three-year period of the Performance Cycle. The Board will establish Performance Measures and Performance Goals in writing within the first 90 days of the Performance Cycle, provided that their outcome is substantially uncertain at the time such Performance Measures and Performance Goals are established. Performance Measures and Performance Goals will not change after the first 90 days of the Performance Cycle.

5. DETERMINATION OF GRANTS AND AWARDS

5.1 *Grant Frequency.*

- 5.1.1 Long-Term Performance Incentive Grants will typically be made annually as of the first day of each Performance Cycle. Long-Term Retention Incentive Grants will typically be granted annually as of the first day of each fiscal year. Grants must be formally approved by an Authorized Party prior to being communicated to Participants. Approval will generally be part of the compensation review. Formal communication of approved grants shall be provided to Participants as soon as practicable after approval.
- 5.1.2 If, after the first day of a Performance Cycle or Retention Cycle, an individual is hired and becomes eligible/approved to participate in the Performance Component or Retention Component or is promoted or transferred into a position that is covered by the Performance Component or Retention Component (or would provide for an increase in the grant amount), the employee may, unless the Plan Administrator determines otherwise, become a Participant with respect to each Performance Cycle and Retention Cycle then in effect, provided that such participation shall be on a pro-rated basis.

- 5.2 ***Calculation of Grants and Awards.*** Grants represent the right of a Participant to receive a cash award, subject to vesting, in the amount determined by an Authorized Party, as set forth below.

- 5.2.1 ***Performance Component.*** Long-Term Performance Incentive Grants are based on a Participant's base salary and Long-Term Performance Incentive Opportunity on the grant date, and are calculated as follows:
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$$\text{Long-Term Performance Incentive Grant} = \text{Base Salary at Grant Date} \times \text{Long-Term Performance Incentive Opportunity at Grant Date}$$

Long-Term Performance Incentive Awards are based on achieved level of performance compared to the established Performance Measures and Performance Goals over the Performance Cycle and are calculated as follows:

$$\text{Long-Term Performance Incentive Award} = \text{Base Salary at Grant Date} \times \text{Long-Term Performance Incentive Opportunity at Grant Date} \times \text{Percent of Opportunity Achieved}$$

For each Participant, the maximum Long-Term Performance Incentive Award allowed under the Plan is 150 percent of the Long-Term Performance Incentive Opportunity unless a different maximum is approved by an Authorized Party. The final Long-Term Performance Incentive Award may be adjusted by the Board based on the evaluation of the Participant's individual achievements, peer group comparisons, and performance results over the Performance Cycle.

5.2.2 **Retention Component.** Long-Term Retention Incentive Awards will be fixed on the date of grant.

5.3 **Vesting.** A Participant will vest in his or her award as set forth below.

5.3.1 **Performance Component.** Except as provided in Section 5.4, Participants will become fully vested in their Long-Term Performance Incentive Awards if they remain employed through the end of the Performance Cycle. Long-Term Performance Incentive Grants will be made as of October 1 or as soon as practicable following the date that an employee becomes eligible/approved during a fiscal year or is hired, promoted, or transferred into a position that is covered by the Performance Component and will vest three years later on September 30 unless a proration has occurred, provided that the Participant remains employed through that date. For example, a Long-Term Performance Incentive Grant made for the Performance Cycle beginning on October 1, 2020, to a Participant who was enrolled in the Plan on such date, will become fully vested on September 30, 2023.

5.3.2 **Retention Component.** The Retention Component shall have a vesting period covering three fiscal years. Long-Term Retention Incentive Awards will be granted on October 1 or as soon as practicable following the date that an employee becomes eligible/approved during a fiscal year or is hired, promoted or transferred into a position that is covered by the Retention Component and will become 1/3 vested on each subsequent September 30 unless a proration has occurred, provided the Participant remains employed through that date. For example, a Long-Term Retention Incentive Award of \$75,000 granted on October 1, 2020, to a Participant who was enrolled in the Plan on such date, will vest as follows: \$25,000 on September 30, 2021; \$25,000 on September 30, 2022; and \$25,000 on September 30, 2023.

5.4 Awards Payable for Termination Prior to Vesting. Except as otherwise determined by an Authorized Party or provided in the subsections below, if a Participant's employment with TVA terminates for any reason, the unvested portion of any award shall be completely forfeited on the date of such termination of the Participant's employment.

5.4.1 **Death.** If a Participant dies while employed, the Beneficiary shall be entitled to the sum of (1) any Long-Term Performance Incentive Awards that have already vested at the time of the Participant's death and have not yet been paid to the Participant, (2) any Long-Term Performance Incentive Awards that have not vested at the time of the Participant's death and that cover a Performance Cycle for which the Participant has received a Long-Term Performance Incentive Grant, provided that the amount of any such Long-Term Performance Incentive Award (a) will be calculated assuming that the Percent of Opportunity Achieved is 100 percent and (b) will be prorated based on the number of whole months the Participant was participating in the Plan during the applicable Performance Cycle, (3) any portion of a Long Term Retention Incentive Award that has already vested at the time of the Participant's death and has not yet been paid, and (4) a prorated portion of any Long-Term Retention Incentive Grant that has not vested at the time of the Participant's Separation from Service provided that the Long-Term Retention Incentive Award for each vesting period within a Retention Cycle 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 (such sum being hereinafter referred to as the “Beneficiary Award”). The Beneficiary Award shall be paid to the Beneficiary in accordance with Section 6.3 or Section 7.3, as applicable.

- 5.4.2 **Disability.** If a Participant Separates from Service due to a Disability, the Participant shall be entitled to the sum of (1) any Long-Term Performance Incentive Awards that have already vested at the time the Participant Separates from Service due to a Disability and have not yet been paid to the Participant, (2) any Long-Term Performance Incentive Awards that have not vested at the time of the Participant’s Separation from Service due to a Disability and that cover a Performance Cycle for which the Participant has received a Long-Term Performance Incentive Grant, provided that the amount of any such Long-Term Performance Incentive Award (a) will be calculated assuming that the Percent of Opportunity Achieved is 100 percent and (b) will be prorated based on the number of whole months the Participant was employed by TVA during the applicable Performance Cycle, (3) any portion of a Long-Term Retention Incentive Award that has already vested at the time that the Participant Separates from Service due to a Disability and has not yet been paid, and (4) a prorated portion of any Long-Term Retention Incentive Grant that has not-vested at the time of the Participant’s Separation from Service provided that the Long-Term Retention Incentive Award for each vesting period within a Retention Cycle 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 (such sum being hereinafter referred to as the “Disability Award”). The Disability Award shall be paid to such Participant in accordance with Section 6.4 below.
- 5.4.3 **Retirement.** If a Participant Separates from Service after October 1, 2018, due to a Retirement, the Participant shall be entitled to the sum of (1) any Long-Term Performance Incentive Grant that has already vested at the time the Participant Separates from Service and has not yet been paid (the “Initial Performance Award”), (2) a prorated portion of any Long-Term Performance Incentive Grant that has not vested at the time of the Participant’s Separation from Service, provided that the amount of any such Long-Term Performance Incentive Award (i) is calculated using the actual
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Percent of Opportunity Achieved and (ii) is prorated based on the number of whole months the Participant is employed by TVA during the applicable Performance Cycle (such amount being hereafter referred to as the "Prorated Performance Award"), (3) any portion of a Long Term Retention Incentive Grant that has already vested at the time the Participant Separates from Service and has not yet been paid (the "Initial Retention Award"), and (4) a prorated portion of any Long-Term Retention Incentive Grant that has not vested at the time of the Participant's Separation from Service provided that the amount of any such Long-Term Retention Incentive Award for each vesting period within the Retention Cycle is prorated based on the number of whole months the Participant was employed by TVA during such vesting period (such amount being hereafter referred to as the "Prorated Retention Award"). The Initial Performance Award, the Prorated Performance Award, the Initial Retention Award, and the Prorated Retention Award will be paid to such Participant in accordance with Section 6.5 below.

6. PAYMENT OF AWARDS

Each award shall be paid in cash after deducting the amount of applicable federal, state, and local withholding taxes of any kind required by law to be withheld by TVA or any amounts due to be paid to TVA. All awards will be approved by an Authorized Party prior to payment. The awards will be paid as follows:

- 6.1 **Performance Component.** Except in the case of death, Disability, or Retirement or in the case of deferral, Long-Term Performance Incentive Awards will be paid in a lump sum within two months of the end of each Performance Cycle.
 - 6.2 **Retention Component.** Except in the case of death, Disability, or Retirement, Long-Term Retention Incentive Awards will be paid in a lump sum within two months of vesting. For example, a Long-Term Retention Incentive Award of \$75,000 granted on October 1, 2020, will be paid as follows to the extent the Participant remains employed as of the applicable vesting date: \$25,000 within two months after September 30, 2021; \$25,000 within two months after September 30, 2022; and \$25,000 within two months after September 30, 2023.
 - 6.3 **Death.** The Beneficiary Award 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.
 - 6.4 **Disability.** The Disability Award will be paid as soon as administratively practicable but in no event later than the last day of the second full
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calendar month following the Participant's Separation from Service due to Disability.

- 6.5 **Retirement.** The Initial Performance Award and the Prorated Performance Award will be paid in a lump sum within two months of the end of the applicable Performance Cycle; the Initial Retention Award will be paid in a lump sum within two months of vesting; and the Prorated Retention Award will be paid in a lump sum within two months of the end of the fiscal year during which the Participant Separates from Service due to Retirement.

7. DEFERRAL ELECTION OPTION

Participants are not eligible to defer the payment of Long-Term Retention Incentive Awards. If permitted by the Plan Administrator, Participants may defer the payment of Long-Term Performance Incentive Awards in accordance with the rules set forth below.

- 7.1 Eligibility for Deferral for Existing Employees.** Employees and Participants who are eligible to participate in the Performance Component before the Performance Measures and Performance Goals for a Performance Cycle have been established may defer Long-Term Performance Incentive Awards under the following conditions:

- 7.1.1 Subject to Section 7.2.1, the deferral election must be made before the first day of the Performance Cycle;
- 7.1.2 The deferral election is irrevocable as of the date set forth in Section 7.1.1 above;
- 7.1.3 The deferral must be made with respect to 25 percent increments of the actual Long-Term Performance Incentive Award;
- 7.1.4 Before the deferral election becomes irrevocable, the Participant must elect to have deferred amounts paid out in accordance with the options set forth in TVA's Deferred Compensation Plan; and
- 7.1.5 The Participant performs services at TVA continuously from the date the Performance Measures and Performance Goals are established through the date the deferral election is made.

- 7.2 Eligibility for Deferral for New Hires.** Participants who are hired by TVA after the Performance Measures and Performance Goals for a Performance Cycle have been established and who have not at any time previously been eligible to participate in the Plan or in any other plan required to be aggregated and treated with the Plan as a single plan under Section 409A may defer their Long-Term Performance Incentive Awards under the following conditions:
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- 7.2.1 The deferral election must be made within 30 days after the date the Participant becomes eligible to participate in the Plan and will be effective with respect to participation in the Performance Component as of the next October 1;
- 7.2.2 The deferral election is irrevocable as of the date set forth in Section 7.2.1 above;
- 7.2.3 The deferral must be made with respect to 25 percent increments of the actual Long-Term Performance Incentive Award;
- 7.2.4 The deferral election applies only with respect to compensation paid for services to be performed after the election is made; and
- 7.2.5 Before the deferral election becomes irrevocable, the Participant must elect to have deferred amounts paid out in accordance with the options set forth in TVA's Deferred Compensation Plan.

8. PLAN ADMINISTRATION

- 8.1 ***Authority of Plan Administrator.*** The Plan shall be administered by the CEO or the designee of the CEO (the "Plan Administrator") unless otherwise delegated by the Board. For the avoidance of doubt, when the CEO is a Participant, the Plan Administrator shall be the Board or its designee. Subject to the express provisions of the Plan, the Plan Administrator shall have the power, authority, and sole and exclusive discretion to construe, interpret, and administer the Plan, including without limitation the power and authority to make factual determinations relating to, and correct mistakes in, awards and to take such other action in the administration and operation of the Plan as the Plan Administrator deems appropriate under the circumstances, including but not limited to the following:
 - 8.1.1 The Plan Administrator may, from time to time, prescribe forms and procedures for carrying out the purposes and provisions of the Plan;
 - 8.1.2 The Plan Administrator shall have the authority to prescribe the terms of any communications made under the Plan and to interpret and construe the Plan, any rules and regulations under the Plan, and the terms and conditions of any award, and answer all questions arising under the Plan, including questions on the proper construction and interpretation of the Plan;
 - 8.1.3 The Plan Administrator may (1) notify each Participant that he or she has been selected as a Participant and (2) obtain from each
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Participant such agreements and powers and designations of Beneficiaries as the Plan Administrator shall reasonably deem necessary for the administration of the Plan; and

8.1.4 To the extent permitted by law, the Plan Administrator may at any time delegate such powers and duties to one or more other executives or managers, whether ministerial or discretionary, as the Plan Administrator may deem appropriate, including but not limited to authorizing the Plan Administrator's delegate to execute documents on the Plan Administrator's behalf.

8.2 **Determinations by Plan Administrator.** All decisions, determinations, and interpretations by the Plan Administrator regarding the Plan, any rules and regulations under the Plan, and the terms and conditions of or operation of any Plan award shall be final and binding on all Participants, Beneficiaries, heirs, assigns, or other persons holding or claiming rights under the Plan or any award.

9. AMENDMENT OR TERMINATION OF THE PLAN

The Board may at any time amend or terminate the Plan without the consent of any Participant, Beneficiary, or other person; provided that, no amendment or termination of the Plan may adversely affect, other than as specified in the Plan, any right acquired by any Participant or any Beneficiary under an award vested before the effective date of such amendment or termination. Upon termination of the Plan, distribution of vested awards shall be made to Participants and Beneficiaries in the manner and at the time described in Sections 6 and 7, unless an Authorized Party determines in his or her sole discretion that all such amounts shall be distributed upon termination of the Plan, in accordance with Section 409A to the extent applicable. TVA and the Plan Administrator, after such amendment or termination, shall continue to have full administrative powers to take any and all action contemplated by the Plan which is necessary or desirable and to make payment of any outstanding awards earned by Participants in accordance with the terms of the Plan.

10. GENERAL PROVISIONS

10.1 **TVA Compensation Plan.** Approvals regarding awards granted under the Plan for each Participant, and the amount of actual awards, will be made in accordance with the TVA Compensation Plan and the delegations thereunder.

10.2 **Non-Transferability of Rights and Interests.** Neither a Participant nor a Beneficiary may alienate, assign, transfer, or otherwise encumber his or her rights and interests under the Plan, nor may such interest or right to receive a distribution be taken, either voluntarily or involuntarily, for the

satisfaction of the debts of, or other obligations or claims against, such person, and any attempt to do so shall be null and void.

- 10.3 **Source of Payments.** All awards shall be payable out of TVA's general assets. Each Participant's or Beneficiary's claim, if any, for the payment of an award shall not be superior to that of any general and unsecured creditor of TVA. Nothing contained in the Plan and no action taken pursuant to the provisions of the Plan shall create or be construed to create a trust of any kind or a fiduciary relationship between TVA and any Participant, Beneficiary, or other person. If an error or omission is discovered in any of the determinations, the Plan Administrator, in his or her sole discretion, shall cause an appropriate equitable adjustment to be made in order to remedy such error or omission.
- 10.4 **Severability.** In the event that any provision or portion of the Plan shall be determined to be invalid or unenforceable for any reason, the remaining provisions and portions of the Plan shall be unaffected thereby and shall remain in full force and effect to the fullest extent permitted by law.
- 10.5 **Limitation of Rights.** Nothing in the Plan shall be construed to give any employee any right to be selected as a Participant or to receive an award or to be granted an award other than as is provided in this document. Nothing in the Plan or any grant or award issued pursuant to the Plan shall be construed to limit in any way the right of TVA to terminate a Participant's employment at any time, without regard to the effect of such termination on any rights such Participant would otherwise have under the Plan, or give any right to a Participant to remain employed by TVA in any particular position or capacity or at any particular rate of remuneration. During the lifetime of the Participant, only the Participant (or the Participant's legal representative) may exercise the rights and receive the benefits of any award.
- 10.6 **Titles.** The titles of the articles and sections herein are included for convenience of reference only and shall not be construed as part of the Plan or have any effect upon the meaning of the provisions hereof. Unless the context requires otherwise, the singular shall include the plural and the masculine shall include the feminine. Words such as "herein," "hereafter," "hereof," and "hereunder" shall refer to this instrument as a whole and not merely to the subdivision in which such words appear.
- 10.7 **Governing Law.** TVA is a corporate agency and instrumentality of the United States, and the Plan shall be governed by and construed under federal law. In the event federal law does not provide a rule of decision for any matter or issue under the Plan, the law of the State of Tennessee shall apply, without taking into account conflict of law principles. By participating in the Plan, each Participant agrees that the jurisdiction for any action with
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respect to the Plan shall lie in the United States District Court for the Eastern District of Tennessee. Any such action must commence no later than the date an award is paid or was to be paid, as applicable.

10.8 Authorized Representatives. Whenever TVA under the terms of the Plan is permitted or required to do or to perform any act or matter or thing, it shall be done and performed by a duly authorized representative of TVA.

10.9 Compliance with Section 409A. At all times, to the extent Section 409A applies to amounts deferred under the Plan, (a) the Plan shall be operated in accordance with the requirements of Section 409A; (b) any action that may be taken (and, to the extent possible, any action actually taken) by an Authorized Party and the Participants or their Beneficiaries shall not be taken (or shall be void and without effect), if such action violates the requirements of Section 409A; (c) any provision in the Plan that is determined to violate the requirements of Section 409A shall be void and without effect; and (d) any provision that is required by Section 409A to appear in the Plan that is not expressly set forth shall be deemed to be set forth herein, and the Plan shall be administered in all respects as if such provision were expressly set forth herein.

Except for the payment of the Prorated Performance Award and the Prorated Retention Award, the payment of awards under the Performance Component (to the extent no deferral election is made) and the Retention Component are intended to be interpreted, operated, and administered in a manner consistent with the short-term deferral exemption from Section 409A. TVA may at any time amend the Plan with respect to Section 409A but is not required to do so. No provision of the Plan is intended or shall be interpreted to create any right with respect to the tax treatment of the amounts paid hereunder, and TVA shall not, under any circumstances, have any liability to a Participant or Beneficiary for any taxes, penalties, or interest due on amounts paid or payable under the Plan, including taxes, penalties, or interest imposed under Section 409A.

10.10 Tax Withholding. TVA is authorized to withhold from any Award taxes due or potentially payable in connection with any transactions involving the Plan, and to take any other actions TVA may deem advisable to allow TVA to satisfy obligations for the payment of withholding taxes and other tax obligations related to any Award.

IN WITNESS WHEREOF, this instrument has been executed this 12th day of November, 2020.

Tennessee Valley Authority

By: /s/ Jeffrey J. Lyash

Jeffrey J. Lyash

President and Chief Executive Officer

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

I, Jeffrey J. Lyash, certify that:

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

Date: November 16, 2020

/s/ Jeffrey J. Lyash

Jeffrey J. Lyash

President and Chief Executive Officer

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

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

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

Date: November 16, 2020

/s/ John M. Thomas, III

John M. Thomas, III

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

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

In connection with the Annual Report on Form 10-K of the Tennessee Valley Authority (the "Company") for the year ended September 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jeffrey J. Lyash, President and Chief Executive Officer of the Company, certify, for the purposes of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) the Report fully complies with the requirements of section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Jeffrey J. Lyash

Jeffrey J. Lyash

President and Chief Executive Officer

November 16, 2020

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

In connection with the Annual Report on Form 10-K of the Tennessee Valley Authority (the "Company") for the year ended September 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, John M. Thomas, III, Executive Vice President and Chief Financial Officer of the Company, certify, for the purposes of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) the Report fully complies with the requirements of section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ John M. Thomas, III

John M. Thomas, III

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

November 16, 2020
