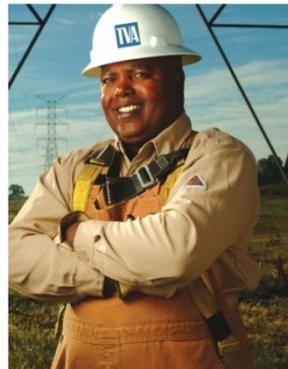
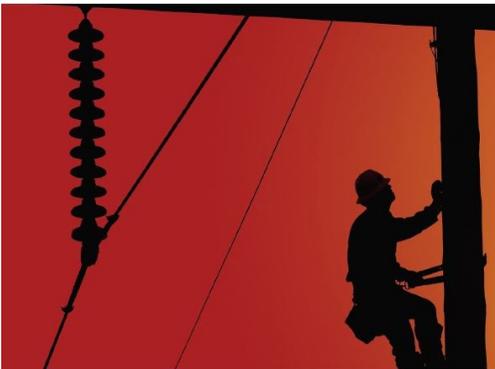


FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report



For the Fiscal Year Ending
September 30, 2023

Submitted to Office of Management and Budget
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Table of Contents

INTRODUCTION.....	4
BUDGET OVERVIEW	15
BUSINESS PLAN	18
MANAGEMENT INITIATIVES	23
OVERSIGHT AND GOVERNANCE.....	31
STRATEGIC PRIORITIES, STRATEGIC OBJECTIVES, AND PERFORMANCE GOALS.....	35
OTHER INFORMATION.....	54
APPENDIX A.....	55
APPENDIX B.....	57

Introduction

TVA's Mission

The Tennessee Valley Authority (“TVA”) was built for the people, created by Congress in 1933 and charged with a unique mission of service – to improve the quality of life in a seven-state region through the integrated management of the region’s resources. As it helped lift the Tennessee Valley out of the Great Depression, TVA built dams for flood control, provided low-cost power and navigation for commercial shipping, restored depleted lands, and raised the standard of living across the region. As times have changed, TVA has changed with them by updating and refining its work to accomplish its mission of providing affordable energy, economic development, environmental stewardship, integrated river system management, and technological innovation. While TVA's mission has remained constant since its inception, the environment in which TVA operates continues to evolve. The business and economic environment has become more challenging while the demand for power has been affected by increased energy efficiency and demand response. TVA continues to focus on efforts designed to bring sustainable prosperity to the Tennessee Valley, including the development of electric vehicle and solar technologies. This forward-thinking approach allows TVA to embrace new technologies which helps serve ratepayers at a low cost while improving the quality of life for Valley residents and businesses.

Strategic Commitments

TVA has a history which is cemented in a commitment to service to the people of the Tennessee Valley. This commitment to service originated with TVA's inception and continues to this day. As part of TVA's ongoing commitments, the organization must continue to focus on serving the Valley in a manner which satisfies the ongoing challenges of providing clean, reliable energy at rates as low as are feasible.

Realizing these challenges, on May 6, 2021, the TVA Board approved a resolution endorsing TVA's Strategic Intent and Guiding Principles, which outlines TVA's intent to align its people, operational, and innovation efforts to business strategies that provide reliable, resilient, low-cost, and clean energy to the region. Included in this resolution are the following ongoing commitments:

- TVA is committed to being a leader in carbon-free energy
- TVA is committed to continued investments in our increasingly clean, diverse energy portfolio
- TVA is committed to being a leader in innovation and decarbonization solutions
- TVA is committed to serving the Valley communities
- TVA is committed to inclusion with diversity
- TVA is committed to financial strength and stability

For additional detail regarding TVA's Strategic Commitments, please see the complete Strategic Intent and Guiding Principles document is available on TVA's website for more information (link available on page 54 of this document).

Strategic Priorities

To continue its mission of service, TVA adopted new strategic priorities in the fourth quarter of fiscal year (“FY”) 2020 that set the stage for strategic planning and performance measures in 2021 and beyond. The strategic priorities of People Advantage, Operational Excellence, Financial Strength, Powerful Partnerships, and Igniting Innovation demonstrate TVA's commitment to its mission of service and response to the evolving business and economic environment.



**People
Advantage**



**Operational
Excellence**



**Financial
Strength**



**Powerful
Partnerships**



**Igniting
Innovation**

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

People Advantage

One of TVA's primary strengths is its diverse and talented workforce. Creating a culture that emphasizes safety, diversity, and inclusion is vital to maximizing the potential of TVA's workforce while serving the people of the Tennessee Valley. TVA's objective is to amplify the energy, passion, and creativity within each TVA employee.

In calendar year ("CY") 2020, to further demonstrate TVA's commitment to build and expand upon its relationship with employees, the organization extended its project labor agreements with the Building and Trade Unions by 10 years, through CY 2031. Typical extensions are five years, and this historic 10-year extension further strengthens TVA's partnership with the Building and Trade Unions. Additionally, in 2021, TVA achieved national recognition as a top 10 employer for veteran employment with the Military Friendly® Employer designation, a recognition TVA has achieved for the sixth consecutive year. Veterans represent nearly 20% of TVA's workforce, and TVA actively recruits veterans to help serve the Valley. Moreover, to emphasize a commitment to equity, inclusion, and diversity, TVA created an enterprise Inclusion with Diversity Council in 2021 which is designed to advise, champion, and oversee all inclusion and diversity strategies and actions across TVA while promoting fairness and impartiality across the organization. This council reports directly to TVA's leadership team, demonstrating a commitment to achieve TVA's goals around equity, inclusion, and diversity. TVA continues to work to provide an environment which values the safety of all employees, while encouraging both creativity and passion to better serve the Valley.

Operational Excellence

TVA's operational objectives include building on TVA's best-in-class reputation for reliable service and competitively priced power. This includes maintaining the reliability of TVA's power system. In order to consistently serve all individuals and businesses across the Valley, TVA requires a power system that is robust enough to withstand weather events while limiting any impacts arising from system outages. One aspect of how TVA expects to accomplish this objective is to focus on improved performance from TVA's nuclear fleet. TVA's objective is to achieve top quartile performance with respect to its nuclear fleet by the end of 2022 and lead the nation in fleet performance by the end of 2025. Focusing on operational excellence will allow TVA to continue to reliably serve the Valley's energy needs, operate in a manner with increasingly less carbon emissions, and mitigate operational risks for the people of the Tennessee Valley.

Financial Strength

TVA's financial strength is a vital element of its performance as it allows the organization to continue to invest in the future while keeping energy rates as low as feasible. TVA's objectives are to continue to keep energy rates competitive and stable with appropriate debt levels that allow the organization to invest in its assets as needed. Additionally, the ability of the organization to control costs helps provide adequate cash flows while maintaining low and stable rates for TVA's customers.

Powerful Partnerships

TVA's priority of creating powerful partnerships includes promoting progress through the shared success of TVA's customers and stakeholders. TVA actively seeks to build relationships as a community leader and partner that is trusted by those whom TVA serves. TVA has consistently partnered with those in the Valley to promote the region as an attractive area for both economic investment and job creation. Additionally, TVA is actively seeking to build on its relationships with the local power companies ("LPCs") TVA serves. As of December 31, 2021, 146 of the 153 LPCs TVA serves had signed long-term partnership contracts with TVA, further strengthening the relationship between TVA and the people of the Tennessee Valley.

Igniting Innovation

Pursuing innovative solutions to further advance the organization's capabilities is another important priority TVA is seeking to better serve the Tennessee Valley. This includes promoting and encouraging new and creative ideas that may help with respect to improving system reliability, reducing carbon emissions, and lowering costs as TVA seeks to capitalize on new technologies in an industry that is constantly evolving.

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Power Program

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. 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 non-power, mission-related activities as well as for its stewardship activities through 1999. TVA has not received any appropriations from Congress for any activities since that time, and now funds stewardship program activities primarily with power revenues, with the remainder funded with user fees and other forms of revenues derived in connection with those activities.

Prior to 1959, TVA had received total power system appropriations of approximately \$1.4 billion ("Power Program Appropriation Investment"). 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. With the 2014 payment, TVA fulfilled its requirement under the 1959 amendment to repay \$1.0 billion of the Power Program Appropriation Investment. As of September 2021, TVA has repaid \$1.2 billion, including repayments made prior to 1959, along with interest of \$2.6 billion, for total payments of \$3.8 billion. 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 amount of the return on the Power Program Appropriation Investment is based on the Power Program Appropriation Investment balance at the beginning of each fiscal year and the computed average interest rate payable by the U.S. Treasury on its total marketable public obligations at the same date.

TVA now funds all its operations primarily from the sale of electricity and power system financings. TVA's power system financings consist primarily of the sale of debt securities and secondarily of alternative forms of financing, such as lease arrangements.

TVA is primarily a wholesaler of energy. It sells electricity to local power company customers which then resell power to their customers at retail rates. TVA's LPCs consist of (1) municipalities and other local government entities ("municipalities") and (2) customer-owned entities ("cooperatives"). These municipalities and cooperatives operate public power electric systems whose primary purpose is not to make a profit but to supply electricity to the general public or the cooperative's members. TVA also sells power directly to certain end-use customers, primarily large commercial and industrial loads and federal agencies, including military installations, with loads larger than 5,000 kilowatts ("kW"). 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 certain electric systems. In FY 2023, TVA expects sales of approximately 158 billion kilowatt-hours ("kWh") of electricity. Power generating facilities operated by TVA at September 30, 2021, included 29 conventional hydroelectric sites, one pumped-storage hydroelectric site, five coal-fired sites, three nuclear sites, 17 natural gas and/or oil-fired sites, one diesel generator site, and 13 solar installations.

As of September 30, 2021, TVA's nuclear units had a combined summer net capability of 8,275 megawatts ("MW"). These nuclear units generated 48 percent of the power from TVA-operated facilities, which excludes purchased power, during FY 2021. TVA's system also includes 101 generators powered by natural gas and/or oil with a total summer net capability of 12,183 MW. These generators can be quickly started and are vital for meeting peak electricity demands. These generators provided 24 percent of the power from TVA-operated facilities in FY 2021. TVA's five coal-fired sites accounted for 6,580 MW of summer net capability at September 30, 2021, and generated about 16 percent of the power from TVA-operated facilities in FY 2021. TVA-owned hydroelectric units had a combined summer net capability of 5,385 MW at September 30, 2021, and generated about 12 percent of the power from TVA-operated facilities in FY 2021.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Integrated Resource Plan

TVA's Integrated Resource Plan ("IRP") is a long-term plan that provides direction on how TVA can best meet future demand for power. It shapes how TVA will provide low-cost, clean, reliable electricity; support environmental stewardship; and foster economic development in the Tennessee Valley for the next 20 years.

TVA's 2015 IRP identified distributed energy resources ("DER") as a growing trend in the utility industry and designed a mechanism where energy efficiency could be chosen as a resource. In order to maintain a focus on low-cost, clean, and reliable electricity, TVA updated its IRP in 2019 to adapt to changing market conditions. Completion of this process was collaborative with customers while including opportunities for stakeholder engagement through public meetings, webinars, the IRP working group, and work with the Regional Energy Resource Council ("RERC"). The IRP working group and RERC consist of representatives from LPCs, direct-served customers, non-governmental organizations, state and local governments, and academia. Stakeholders and the public provided invaluable input that helped shape the 2019 IRP.

The 2019 IRP demonstrates that TVA will continue to provide low-cost, reliable, and clean electricity into the future and that resource additions will build on TVA's existing diverse asset portfolio. The 2019 IRP provides guideline ranges for potential resource additions or retirements over the next 20 years, with results indicating the following:

- There is a need for new capacity in all scenarios to replace expiring or retiring capacity.
- Solar expansion plays a substantial role in all future scenarios.
- Gas, storage, and demand response additions provide reliability and/or flexibility to TVA's system.
- No baseload resources (designed to operate around the clock) are added, highlighting the need for operational flexibility in the resource portfolio.
- Coal retirements may occur in certain futures.
- Energy efficiency levels depend on market depth and cost-competitiveness.
- Wind generation could play a role if it becomes cost-competitive.
- In all cases, TVA will continue to provide for economic growth in the Tennessee Valley.

Recognizing that a variety of future scenarios are possible and each strategy has positive aspects, all IRP results were included in the recommended power supply mix to ensure flexibility to respond as the future unfolds. Per the National Environmental Policy Act ("NEPA"), TVA also prepared an Environmental Impact Statement ("EIS") to analyze potential impacts on the environment, economy, and population in the Tennessee Valley.

Results of the 2019 IRP indicate that the following near-term actions would provide benefits across multiple futures:

- Add solar based on economics and to meet customer demand.
- Enhance system flexibility to integrate renewables and distributed resources.
- Evaluate demonstration battery storage projects to gain operational experience.
- Pursue option for license renewal for TVA's nuclear fleet.
- Evaluate engineering end-of-life dates for aging fossil units to inform long-term planning.
- Conduct market potential study for energy efficiency and demand response.
- Collaborate with states and local stakeholders to address low-income energy efficiency across the Valley.
- Collaboratively deploy initiatives to stimulate the local electric vehicle market.
- Support development of Distribution Resource Planning for integration into TVA's planning process.

The 2019 IRP, EIS, and recommended power supply mix were approved by the TVA Board of Directors ("Board" or "TVA Board") in August 2019. TVA will monitor key signposts that will guide decisions in the longer term. Portfolio shifts will be driven by changing market conditions, evolving regulations, and technology advancements. Additionally, TVA's Board directed the initiation of an update to the IRP no later than 2024 and earlier if future developments make it appropriate. The IRP process typically takes approximately 18 months to complete, and TVA currently expects to begin the next IRP in the FY 2023 – FY 2024 timeframe.

In an ever-changing world, TVA will continue to serve the people of the Tennessee Valley by providing low-cost, reliable, and clean power in an environmentally responsible manner while promoting economic development across the region.

Decarbonization Plans

TVA is an industry leader in developing innovative and cost-effective technologies that will decarbonize the economy and achieve aspirations of a net-zero carbon energy future. Based on TVA’s progress in diversifying the power system and the status of the organization’s existing power system assets, TVA is working to achieve significant carbon reductions in the decades to come without compromising the low rates and high reliability that sustain the customers and communities of the Valley.

Given TVA’s expectations for the pace of transformational innovation and cost competitive technological advances, TVA intends to follow the trajectory below (indicating reductions of mass carbon emissions compared to 2005 levels) as the organization aspires to achieve net-zero carbon emissions by 2050:



- Delivered 63% reductions in carbon emissions including the retirement of 8,600 megawatts of coal generation (including the Bull Run announced retirement) and the addition of 1,600 megawatts of carbon-free nuclear generation.
- Executing a plan to 70% reductions in carbon emissions by FY 2030, including adding 5,000 megawatts of solar capacity by FY 2030 (2,300 megawatts committed by FY 2023), further reducing TVA’s reliance on coal as additional plants approach end-of-life, and investing in TVA’s carbon-free nuclear and hydroelectric fleet.
- Developing a path to ~80% reductions by FY 2035, primarily by leveraging existing, cost-effective technologies, expanding TVA’s renewable portfolio to include an additional 5,000 megawatts by FY 2035, evaluating coal plants as they reach end-of life, and investing in research and development of technologies such as small modular reactors, longer-duration storage, and carbon capture.
- Aspiration to net-zero emissions by FY 2050, which would require the development of new, cost-effective technologies such as affordable, scalable nuclear technologies.

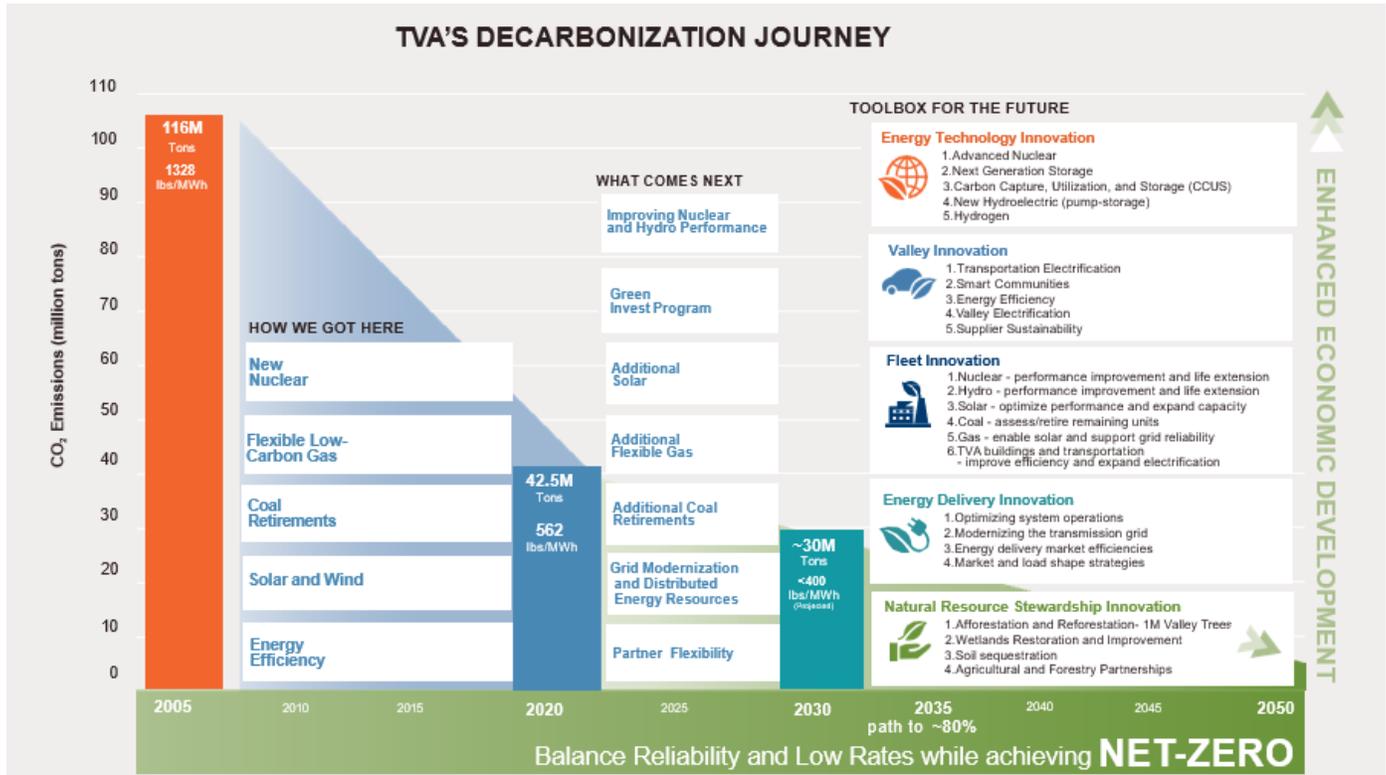
TVA currently expects to add solar energy expansion of 10,000 megawatts by FY 2035, as stated above, while also evaluating the retirement of all remaining coal-fired units by FY 2035 to help preserve TVA’s position as a leader in carbon reductions and to contribute to the decarbonization efforts of the Administration.

TVA’s current planning assumptions further include the adoption of new natural gas technologies to enable solar expansion and support additional coal retirements while helping to maintain both system reliability and resiliency. TVA is committed to working with its partners in the Tennessee Valley and elsewhere to accelerate the clean energy economy in keeping with TVA’s mission of service.

Over the last three fiscal years (FY 2019 – FY 2021), 15% of TVA’s total power supply has come from renewable generation sources. In 2018, 14% of TVA’s net generation came from renewable resources, which ranks TVA second overall and in the top quartile among investor-owned utility peers located in and around the southeastern region of the United States. In accordance with TVA’s 2019 IRP, solar expansion is expected to play a substantial role and increase the percentage of renewable generation on our system going forward as TVA seeks to continue to transition our operating fleet to a more diverse and clean energy mix.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

The chart below represents TVA's decarbonization journey, outlining how TVA has achieved 63% reductions in CO₂ emissions to date and the plans of the organization going forward.



As TVA works to achieve the aspiration for net-zero carbon, the organization acknowledges that reaching this goal will rely on the successful development and deployment of new technologies. TVA is investing in research and development with peers to achieve utility scale testing and development of these new technologies, and TVA is working to partner with the Department of Energy and others to lead the nation in deployment.

Internally, TVA continues to explore other ways that the organization can accelerate its emissions reductions journey, while maintaining safe, reliable, and low-cost power for our LPCs and the communities TVA serves, consistent with a primary objective of the TVA Act to keep rates as low as feasible and the statutory directive to use least-cost planning principles for the TVA system.

Renewable Energy and Emerging Technologies

TVA's renewable energy portfolio includes both TVA-owned assets and renewable energy purchases. TVA owns 13 solar sites with a total net summer capability of approximately 1 MW. Power purchase agreements for committed and operating renewable energy, solar, biomass, and wind, have a combined capacity greater than 4,100 MW. TVA tracks its renewable energy commitments and claims, in part, through the management of renewable energy certificates ("RECs"). TVA offers Green Programs in partnership with LPCs, which makes it easy for end-use consumers to purchase RECs for their personal sustainability goals. 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 also acquires RECs from renewable purchased power.

Consumer desire for energy choice is, among other things, 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 economic, 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 distributed and renewable energy markets, technologies, and programs evolve. TVA will continue 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 reinforce local control, provide customers choices, and provide end-use consumers the flexibility they desire.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

In 2018, TVA developed the framework that led to a new program called Green Invest. The program leverages long-term agreements to build new, large-scale renewable energy installations in the Valley through a competitive bid process. The Green Invest framework was initially created through TVA's work with Facebook and Google, beginning in 2018, to identify new renewable energy for the data centers locating in the region. The Green Invest model has resulted in more than 2,200 MW of contracted utility-scale renewable energy and \$2.98 billion in solar investments, as of November 30, 2021.

On June 22, 2020, TVA made available "Generation Flexibility" to all LPCs who have entered into the long-term partnership agreement ("LTPA") with TVA. As part of the agreement, participating LPCs will have the option for flexible generation capacity up to approximately five percent of average total hourly energy sales over TVA fiscal years 2015 through 2019 (or 1 MW, whichever is greater). Additionally, participating LPCs will have the option to transmit this locally generated energy on their own distribution system for their customers' use.

TVA has encouraged the development of solar, wind, biomass, and low-impact hydroelectric generation systems across the Tennessee Valley through current and historical programs. As of November 30, 2021, the combined in-Valley participation for all such renewable solutions was 717 MW of installed operating capacity through both TVA-owned sites and purchased power agreements with nearly 2,183 MW of additional committed capacity. Additionally, TVA contracts for approximately 1,215 MW of operating wind capacity from outside the Tennessee Valley via purchased power agreements.

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

Onsite energy management technologies and the proliferation of companies interested in providing services to support and aggregate the impacts of such systems provide another 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.

Designing and Implementing Energy Programs and Services

TVA is partnering with LPCs, businesses, and consumers to develop and execute energy programs and services that make life better for the people of the Valley. These products and services are typically offered to consumers and businesses in partnership with LPCs, and are generally designed to provide energy efficiency, demand response, electrification, or innovation objectives. These offerings also help TVA and the LPCs position themselves as the trusted energy advisors, innovators, and energy providers of choice as the utility industry enters an era of greater competition and choices of energy supply.

The TVA EnergyRight® offerings continue to engage residential and business consumers across the Valley through services promoting the wise use of energy including residential, commercial, industrial, and power systems initiatives. Current TVA EnergyRight® resources that are being implemented include the following:

- **Energy Efficiency** – Offer services that make consumers and businesses more productive and comfortable, lower customer costs, and position LPCs and TVA as trusted energy providers.
- **Smart Electric Technologies (Electrification)** – Promote smart electric technologies, like electric vehicles, space heating, ultraviolet germicidal irradiation, and industrial processes, to make energy consumers more productive and sustainable while generating efficient load and revenue.
- **Demand Response** – Demand Response provides more than 1,660 MW of economical capacity while lowering effective rates for participating customers. This sustainable resource provides flexibility to lower TVA's peak demand when called upon and offsets the need for additional generation. Participants also gain valuable insight into their energy usage.
- **Innovation** – Develop offerings that support TVA's Innovation Transformative Initiatives when they are ready to be deployed commercially.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

To spur the energy efficiency market, TVA initiated an updated wave of energy efficiency efforts in 2007 and steadily grew the program to contribute about 1.5% of sales by 2019. The evaluation, measurement, and verification of TVA programs showed that these efforts were effective in spurring the market and more consumers in the Valley were now choosing more efficient options for their electricity needs without needing an incentive. Since FY 2019, the net contribution to reducing electricity needs in the Valley has remained relatively steady. Earlier energy efficiency impacts have declined as customers replace lighting, appliances, and HVAC with more efficient technology now required by current codes and standards. As this shift has occurred, TVA continues to offer a broad suite of energy efficiency programs to our customers and has shifted the emphasis for incentives to those with the greatest energy burden.

TVA has become more targeted with energy efficiency efforts in recent years. While TVA continues to partner with LPCs to offer energy efficiency education and advice for all market sectors, TVA currently places more emphasis on forming partnerships and catalyzing investment in programs that help consumers and organizations that have been left behind by market-driven efforts to help them reduce their energy burden.

The following includes a summary of TVA's current energy efficiency programs:

- **EnergyRight® Residential (Low Income)** – Partnership between TVA, LPCs, and other funding partners to provide no cost energy upgrades to income-qualified Valley residents. TVA also supports, and helps administer, federal weatherization assistance and low-income home energy assistance programs. Examples of certain specific EnergyRight® Residential (Low Income) programs include the following:
 - Home Uplift – Provides home energy upgrades at no cost, including upgrades to air sealing, insulation, duct systems, HVAC systems, lighting, refrigerators, water heating, windows, and/or doors, to low-income homeowners to help them save on energy costs. The program is funded by TVA along with matching funds provided by LPC's, corporations, agencies, etc.
 - Home Energy Workshops – An education and engagement program that provides low cost/no cost energy tips and techniques for various audiences.
 - Weatherization Assistance Program (“WAP”) – A partnership between TVA and Tennessee's WAP which helps support weatherization of the homes of low-income elderly and disabled adults and families. Weatherization upgrade activities include insulation, storm windows, caulking, and other related activities to reduce home energy costs and increase home energy efficiency.
- **EnergyRight® Residential** – Programs for Valley residents and builders that encourage technologies that meet or exceed base codes and standards. Services include access to a quality contractor network, financing options, energy education, and more.
- **EnergyRight® Business and Industry** – Programs for Valley businesses that encourage technologies and upgrades that save energy. These include offerings targeted at schools and underserved communities, as well as online energy-saving tools, strategic energy management training, and incentives for targeted technologies.

Additionally, between 2013 and 2018, TVA invested \$240 million into energy efficiency programs as part of a Federal Facilities Compliance Agreement (“FFCA”) between TVA and the Environmental Protection Agency (“EPA”). These programs included Voltage Optimization, Smart Energy Communities, Whole Home Efficiency Upgrades, Commercial Custom and Prescriptive Efficiency Upgrades, and Industrial Custom and Prescriptive Efficiency Upgrades.

TVA's Federal Energy Services Program also helps federal facilities in the Valley meet energy mandates (e.g., climate, resiliency, efficiency, renewables, and electric vehicles) and improve aging infrastructure, allowing them to focus on their primary missions. TVA also administers an internal energy management program that creates energy savings at TVA buildings.

In addition to TVA's energy program offerings, LPCs often partner with their local communities to make a difference in the areas in which they serve. Some examples of how LPCs support their communities include: bill pay assistance, high bill audits, loan options, charitable programs, and energy education offerings.

TVA continues to research and support products and services that benefit residents and businesses across the Valley in the wise use of energy, increase efficient load, and manage peaks, as each of these efforts is consistent with TVA's mission of service and keeping rates as low as feasible.

TVA's Environmental Management System

Sustainability is at the heart of TVA's strategy and work. To support the organization's Environmental Stewardship mission, TVA focuses on a number of sustainability priorities including providing reliable, affordable, and increasingly clean energy, engaging in proactive stewardship of the Tennessee River System and public lands, and supporting sustainable economic growth.

TVA began an Environmental Management System Roadmap initiative in FY2019 that lays out a three-year action plan to drive environmental performance improvements throughout the company. In 2020, TVA implemented several actions and processes as part of a robust performance improvement program:

2020 Emissions reduced from historic peaks

97.4%

Reduction in nitrogen oxide (NO_x) below CY 1995 levels through CY 2020 from TVA owned and operated generation

99.2%

Reduction in sulfur dioxide (SO₂) below CY 1977 levels through CY 2020 from TVA owned and operated generation

63%

Reduction in total carbon dioxide (CO₂) below CY 2005 levels through CY 2020 from TVA owned and operated generation, and purchased power

- Developed additional carbon reduction strategies, including a carbon accounting framework for LPCs to measure and report their carbon footprint.
- Improved integration of environmental objectives into TVA's business planning process by documenting environmental initiatives within each operational business unit.
- Established internal environmental audit program improvements to better evaluate environmental performance.
- Improved internal process of tracking and communicating environmental performance information.

TVA aspires to both achieve net-zero carbon emissions and to support broader national efforts to decarbonize the economy, and is collaborating to develop the robust roadmap and technologies to achieve it.

As the organization works toward deep carbon reductions, we will continue to monitor and take steps to mitigate risks along the way. Changing weather patterns, extreme weather conditions and other events such as flooding, droughts, wildfires and snow or ice storms can impact our system in terms of system operability, customer demand, and the health of regional economies.

TVA improves regional air quality through emission controls on existing generation and through adopting cleaner energy options. From 1970 to 2020, TVA has spent approximately \$6.8 billion on clean air controls to reduce emissions from its power plants.

Natural Resource Stewardship

TVA's natural resource stewardship work makes life in the Valley better, and it is a key part of TVA's mission of service. TVA serves the people of the TVA region through the integrated management of the Tennessee River System and public lands, including approximately 11,000 miles of shoreline, 650,000 surface acres of reservoir water, and 293,000 acres of reservoir lands.

TVA accomplishes its mission and supports the objectives of the TVA Environmental Policy through implementation of its natural resource 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. TVA assists water-based community development with technical support, land agreements, and permitting, using planning, clear regulations, meaningful guidelines, and consistent enforcement.

Additional guidance for carrying out many of TVA's essential stewardship responsibilities is provided in TVA's Natural Resource Plan ("NRP"). Building on the natural resource stewardship strategy, the NRP provides a flexible approach for long-term planning that will help TVA be better equipped to prioritize funding plans, create efficiencies in business planning and stewardship project implementation, and align with TVA's mission. The plan is publicly available on TVA's website.

Transmission System

TVA's transmission system is a critical link in moving electricity throughout the eastern United States. In carrying out its responsibility for grid reliability in the TVA service area, TVA has operated with 99.999 percent reliability over the past 22 years in delivering electricity to customers. 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 157 billion kWh of electricity to TVA customers in FY 2021. TVA continues to invest in transmission assets to strengthen system reliability and incorporate new technology that provides a clearer picture of grid conditions over a wider area at any given time.

TVA's transmission system interconnects with systems of surrounding utilities and consisted primarily of the following assets as of September 30, 2021:

- Approximately 2,500 circuit miles of 500 kilovolt, 11,900 circuit miles of 161 kilovolt, 2,000 circuit miles of other voltage transmission lines, and 4,048 miles of fiber;
- 522 transmission substations, power switchyards, and switching stations; and
- 1,325 customer connection points (customer, generation, and interconnection).

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, 2021, TVA had spent \$151 million on installation of the fiber optic lines and expects to spend an additional \$149 million.

Additionally, a new system operations center has been approved for \$289 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 the third quarter of 2023 and fully operational in 2025. As of September 30, 2021, TVA had spent approximately \$92 million on the project and expects to spend an additional \$197 million. The new energy management system has been approved for \$90 million. As the current energy management system is nearing the end of its life cycle, this project will replace the existing analog system with a digital system which will also network the new control center with existing locations to enable better remote visibility and control. The system is expected to be complete in 2026. As of September 30, 2021, TVA had spent approximately \$37 million on the project and expects to spend an additional \$53 million.

In October 2021, the TVA Board approved a project to build transmission infrastructure in the West Tennessee region and make improvements in the area transmission system in order to increase reliability in the area; support the needs of the long-term asset strategy; add transmission capacity for additional economic development opportunities and future growth and create capacity for future solar interconnections. TVA expects to spend \$142 million on this transmission project.

Tennessee River System

The Tennessee River System is made up of approximately 42,000 miles of rivers, streams, and tributaries, including the 652-mile-long Tennessee River, and 49 dams and 14 navigation locks. It is a vital part of the nation's inland waterway system, transporting more than 50 million tons of cargo annually. In addition to supporting commercial navigation, TVA's integrated management of the river system supports recreation, public and industrial water supply needs, aquatic habitat protection, flood risk reduction, hydroelectric power production, and cooling water for TVA's generation units. The watersheds of the Tennessee River and its 16 tributaries encompass more than 41,000 square miles across 125 counties in portions of seven states.

Economic Development

Since its creation in 1933, TVA has promoted the development of the Tennessee Valley region. Economic development is a core component of the mission of TVA, along with energy production and environmental stewardship. TVA works with LPCs, regional, state and local agencies, and communities to showcase the advantages available to businesses locating or expanding in TVA's service area. TVA's primary economic development goals are to recruit major business operations to the Tennessee Valley, encourage the location and expansion of companies that create good paying jobs, and prepare communities in the Tennessee Valley for economic growth. TVA seeks to meet these goals through a combination of initiatives and partnerships designed to provide program support, technical services, industry expertise, financial assistance, and site-selection assistance to new and existing businesses. TVA's economic development efforts helped recruit or expand nearly 300 companies into the TVA service area during FY 2021. These companies announced capital investments of over \$8.8 billion and the expected creation and/or retention of approximately 80,900 jobs, a record year for job announcements in the Valley.

Technology Innovation

TVA makes annual investments in science and technology innovation, assisting the agency in meeting business and operational challenges. TVA addresses gaps in energy storage, electrification (decarbonization), advanced clean generation, and grid integration and modernization by focusing on the following transformative initiatives: Advanced Nuclear Solutions, Storage Integration, Electric Vehicle Evolution, Connected Communities, and Grid Transformation. TVA also continues to support the optimization of its generation and delivery assets by focusing on emerging and technological advances, grid edge technologies, and DER. TVA's goal is to determine how technologies can be used to improve/sustain reliability, reduce costs, lower emissions to the environment, and position TVA for a sustainable future.

TVA seeks to leverage research and development activities and investments through partnerships with LPCs, the Electric Power Research Institute ("EPRI"), the Department of Energy which include the Oak Ridge National Laboratory ("ORNL") and other national labs, research consortiums, peer utilities, universities, and vendors, and through participation in professional societies.

Commitment to the Future

TVA is a leader in public power, a model built on trust and partnerships with the people TVA serves. This model continues to deliver reliable electricity for approximately 10 million people at the lowest feasible rates. It enables effective, integrated resource management and environmental stewardship in parts of seven southeastern states. TVA promotes alliances with others that help attract and retain jobs and investments that support economic development in the Tennessee Valley. TVA recognizes that the environment in which TVA does business continues to evolve. TVA is more flexible in its planning, is more nimble in its execution, and is also working to respond more quickly than ever to continually changing market conditions.

TVA continues to improve its operating and financial performance, including controlling operating and maintenance ("O&M") costs and adjusting capital spending based on market and regulatory conditions. One thing will not change – TVA's commitment to providing safe, clean, reliable energy at rates as low as feasible. TVA is proud to honor this commitment.

Budget Overview

Asset Portfolio

TVA, like the rest of the electric utility industry, is challenged to meet customer demand with cleaner, reliable energy resources while maintaining rates as low as feasible, per the TVA Act. This requires the continuous review of capital investments in order to meet necessary operational needs. TVA funds asset investments through power revenues, the issuance of bonds up to a limit set by Congress, and alternative financings including lease financings.

Consistent with TVA's 2019 IRP, ongoing evaluations of TVA's energy portfolio have resulted in the TVA Board's approval of three new combustion turbine peaking gas plants to support its operational fleet. These plants, approved as part of the TVA Board's approval of TVA's FY 2020 Budget and Plan, will be located in Colbert, AL, Paradise, KY, and Johnsonville, TN. The plants at Colbert, AL and Paradise, KY are expected to be placed in service by the end of CY 2023, and the plant at Johnsonville, TN is expected to be placed in service by the end of CY 2024.

TVA is also converting its wet ash and gypsum facilities to dry collection facilities. The estimated cost of its coal combustion residual ("CCR") conversion program is approximately \$3.1 billion through 2026, of which TVA had spent approximately \$2.3 billion as of September 30, 2021. This program includes costs associated with pond closures, conversion of wet to dry handling, and landfill activities. TVA will continue to undertake CCR projects past 2026, including building new landfill sections under existing permits and closing existing sections once they reach capacity. As environmental studies are performed and closure methodologies are determined, detailed project schedules and estimates will be finalized.

TVA's nuclear fleet is an important element in a diversified portfolio for the future. On October 22, 2015, the Nuclear Regulatory Commission ("NRC") issued a forty-year operating license for Watts Bar Unit 2. Watts Bar Unit 2 officially became commercially operational on October 19, 2016, after completing the final phase of testing with a total completed cost within the \$4.7 billion limit approved by the TVA Board. Also, as part of its efforts to maintain a well-balanced nuclear portfolio, TVA recently implemented an extended power uprate project at all three units of the Browns Ferry Nuclear Plant. Physical work on all units was completed in 2019. The generating capacity was validated through operation of all units for four seasons, completion of additional testing, and issuance of related engineering memos. The project had a total cost of \$457 million and increased nuclear summer net capability by approximately 353 MW.

In FY 2023, TVA estimates that it will invest about \$2.6 billion in capital projects for the power system. These investments are subject to approval in the FY 2023 budgeting process.

Stewardship Funding

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. Congress has not provided any federal appropriations to TVA to fund stewardship activities since 1999. Consequently, during 2000, TVA began paying for essential stewardship activities primarily with power revenues, and the remainder is funded with user fees and other forms of revenues derived in connection with those activities. TVA has not received federal appropriations for stewardship activities since 1999, and none are requested for FY 2023.

TVA Operating Budget
(Millions of dollars)

	2021	2022	2023
	Actuals	Estimate	Estimate
Revenue	\$ 10,503	\$ 10,421	\$ 10,674
Operating Expenses			
Fuel & Purchased Power	2,721	2,815	2,745
Operating, Maintenance, & Other	2,890	3,049	3,149
Depreciation & Amortization	1,533	2,097	2,216
Tax Equivalents	<u>514</u>	<u>514</u>	<u>512</u>
Total Operating Expenses	7,658	8,475	8,622
Operating Income	2,845	1,946	2,052
Other Income / (Expense)	13	24	19
Other Net Periodic Benefit Cost	(258)	(237)	(77)
Interest Expense, net	<u>1,088</u>	<u>1,088</u>	<u>1,102</u>
Net Income	\$ 1,512	\$ 645	\$ 892

Capital Budget & Cash Flow

(Millions of dollars)

	2021	2022	2023
	Actuals	Estimate	Estimate
Cash flows from operating activities			
Net income	\$ 1,512	\$ 645	\$ 892
Items affecting operating activities	<u>1,744</u>	<u>1,998</u>	<u>1,744</u>
Net cash provided by operating activities	3,256	2,643	2,636
Cash Used in Capital Budget			
Capital Projects			
Nuclear	(391)	(337)	(327)
Power Operations	(291)	(259)	(255)
River Operations	(148)	(152)	(119)
Transmission	(169)	(170)	(178)
Other Base Capital	<u>(147)</u>	<u>(171)</u>	<u>(231)</u>
Total Base Capital	(1,146)	(1,089)	(1,110)
Ash Remediation	(43)	(57)	(10)
Wastewater Treatment	<u>(51)</u>	<u>(77)</u>	<u>(64)</u>
Total Environmental Costs	(94)	(134)	(74)
Gas Plant Expansion Builds	(355)	(704)	(892)
Hydro	(58)	(94)	(66)
Transmission	(381)	(346)	(280)
Solar and Battery	-	(233)	(138)
Other Capacity Expansion	<u>(83)</u>	<u>(291)</u>	<u>(6)</u>
Total Capacity Expansion	(877)	(1,668)	(1,382)
Nuclear Fuel Capital	(354)	(298)	(284)
Other Investing Activities	<u>133</u>	<u>24</u>	<u>(130)</u>
Net cash used in investing activities	(2,338)	(3,165)	(2,980)
Borrowings (net of redemptions)	(636)	474	466
Other financing activities	<u>(282)</u>	<u>(152)</u>	<u>(122)</u>
Net cash provided by financing activities	(918)	322	344
Net change in cash and cash equivalents	-	(200)	-
Cash and cash equivalents at beginning of year*	500	500	300
Cash and cash equivalents at end of year**	500	300	300
Cash Payments to U.S. Treasury**	(4)	(3)	(4)
Increase/(Reduction) in Total Debt and Debt-Like Obligations	\$ (878)	\$ 403	\$ 425

* Beginning and ending cash equivalents exclude restricted cash

** For federal reporting purposes Payments to U.S. Treasury are not considered

Business Plan

TVA is governed by the nine-member TVA Board of Directors, which is responsible for approving an annual budget. The information included in this document is based on TVA's FY 2022 annual budget, which was approved by the TVA Board in August 2021. The following were considered in preparing the budget.

Borrowing Limit

TVA works to fulfill its mission of supplying low-cost and reliable energy, providing environmental stewardship, and stimulating economic development while effectively managing debt and living within its means. In achieving its mission while following sound financial principles, TVA generally uses financing to fund capital investments for new generation capacity and environmental controls.

TVA has the authority per the TVA Act to issue bonds, notes, and other evidence of indebtedness subject to a \$30 billion limit, sometimes referred to as TVA's statutory debt limit. TVA bonds are not backed by the full faith and credit of the federal government and do not count against the United States federal debt limit. Congress last raised TVA's borrowing authority in 1979. As of September 30, 2021, TVA had \$19.4 billion of bonds and notes outstanding. Bonds and notes are generally the lowest-cost form of financing available to TVA.

While the \$30 billion limit on bonds and notes has not been raised since 1979, TVA's business and operations have continued to grow along with the power needs of the Tennessee Valley. Since 1979, TVA has increased its total assets from \$13 billion to \$52 billion as of September 30, 2021. TVA's balance of total financing obligations ("TFOs"), which includes statutory debt and other financing obligations, decreased by \$0.9 billion in FY 2021. This reduction, which follows a FY 2020 reduction of \$1.4 billion, has allowed TVA to achieve its lowest debt level in over 30 years while also fulfilling TVA's commitment to reduce debt to \$21.8 billion by FY 2023, three years earlier than originally planned. TVA will continue to effectively manage its debt in a responsible manner and remain below the statutory debt limit. TVA's lower debt levels and improved financial health will facilitate TVA's use of low-cost debt financing for future investments in the power system.

TVA Retirement System

The TVA Retirement System ("TVARS") was established by the TVA Board in 1939 to provide retirement benefits for TVA employees. TVARS is a separate legal entity from TVA and is governed by its own board of directors consisting of seven members ("TVARS Board"): three elected by and from active employees who are members of TVARS, three appointed by TVA, and a seventh who is selected by the other six and is a TVA retiree. TVARS administers a defined benefit (pension) plan and a 401(k) plan, both of which are tax-qualified retirement plans under Section 401(a) of the Internal Revenue Code.

As of September 30, 2021, the pension plan had assets of \$9.1 billion compared with liabilities of \$13.3 billion and currently pays out approximately \$720 million per year in retirement benefits to approximately 23,000 retirees and beneficiaries. As of September 30, 2021, the 401(k) plan had assets of \$3.9 billion.

TVA is committed to funding the retirement benefits for current and future retirees and beneficiaries under the pension plan, and as evidence of this commitment, has worked with the TVARS Board in recent years to implement changes to improve the long-term health of the plan, including the following:

- Closing the pension plan to new employees – employees who were hired on or after July 1, 2014, receive retirement benefits under the 401(k) plan only;
- Shifting future benefit accruals for most current employees from the pension plan to the 401(k) plan based on the employees' hire date, years of service, and individual elections;
- Increasing non-elective and matching contributions to employees' 401(k) plan accounts to offset reduced accruals in the pension plan; and
- Committing to increased annual contributions to the pension plan of at least \$300 million for a period of 20 years (from FY 2017 through FY 2036) or until the plan is fully funded, whichever occurs first.

Over the last year as TVARS assets have reached an all-time high as a result of investment gains from equity markets following the shutdown of economies from the COVID-19 pandemic, TVA has worked with TVARS and their investment and actuarial consultants to model the TVARS assets and liabilities and alternative asset allocation policies in light of the current state of the markets, the forward-looking capital market assumptions, TVA's annual

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

contribution commitment, and the goal for the pension plan to be fully funded. As a result of this work, in FY 2021, TVA and the TVARS Board adopted a new asset allocation policy and de-risking strategy that will provide greater stability in the System's current asset value and reduce the System's funded status volatility while working toward the goal of fully-funded liabilities.

All retirement benefit payments continue to be made by TVARS to retirees and beneficiaries, and with the recent changes to the plans, TVA's long-term annual contributions to fund benefits, and the new TVARS asset allocation policy and investment de-risking strategy, the pension plan remains on-track to achieve 100% funded status by FY 2036.

Coal-Fired Fleet Evaluation

TVA began constructing its coal-fired plants in the 1940s, and its coal-fired units were placed in service between 1951 and 1973. Coal-fired units are in either active or retired status. TVA considers a unit to be in an active state when the unit is generating, available for service, or temporarily unavailable due to equipment failures, inspections, or repairs. All other coal-fired units are considered retired. As of September 30, 2021, TVA had five coal-fired plants consisting of 25 active units. These active units accounted for 6,580 MW of summer net capability at September 30, 2021. Since September 30, 2010, TVA has reduced its summer net capability of coal-fired units by 7,764 MW. Including the Board-approved retirement of the Bull Run Fossil Plant by 2023, about 8,600 MW, or about 60% of the coal fleet, is currently retired or approved for retirement.

TVA must continuously evaluate all generating assets to ensure an optimal energy portfolio that provides safe, clean, and reliable power while maintaining system flexibility and fiscal responsibility for the people of the Tennessee Valley. During 2019, the TVA Board approved the most recent IRP which recommended a near-term action to evaluate the engineering end-of-life for aging fossil units. Initial assessments have been performed that considered material condition, plant performance, system flexibility needs, environmental impacts, grid support, and other factors. Most of TVA's coal-fired plants are among the oldest in the nation still in operation, and TVA continues to evaluate and incorporate the costs and benefits of significant environmental and other major capital investments required at its coal-fired plants into our financial plans. With increasing amounts of solar generation expected to be utilized by TVA in the future, these coal units will continue to be required to function further outside of their intended design. Additionally, coal-fired plants have been subject to increasingly stringent regulatory requirements over the last few decades, including those under the Clean Air Act ("CAA") and the EPA's CCR Rule. TVA has committed to a programmatic approach for the evaluation of its sites where CCR is stored to meet all applicable state and federal regulations.

Based on these factors and initial assessments performed, TVA is currently evaluating the impact of retiring the balance of its coal-fired fleet by 2035. Evaluation of coal plant retirements will include environmental reviews, public input, and Board approval and will also consider alternatives for replacement capacity as needed to support a low-cost, reliable, flexible, and increasingly clean power system.

TVA is preparing a separate EIS for both Cumberland and Kingston to assess the environmental impacts associated with the potential retirement of each plant's coal-fired units and the construction and operation of facilities to replace part or all of the retired generation. Scoping for each EIS occurred in FY 2021 and included 30-day public comment periods as well as virtual public meetings. Resource impacts analysis for these proposed retirement/replacement projects is currently underway. TVA plans to release the Draft EIS for Cumberland in April 2022. Furthermore, the Draft EIS for Kingston is planned for release in late summer 2022. TVA will solicit public input on both draft documents.

In each EIS, TVA is considering a no-action alternative (i.e., continuing to operate the Plants) and the following three action alternatives: (i) retirement of the Plants and construction and operation of a combined cycle combustion turbine gas plant at the Plant sites (and, in the case of Kingston, the potential for an additional simple cycle combustion turbine gas plant); (ii) retirement of the Plants, investment in local and regional transmission in the case of Kingston, and construction and operation of simple cycle combustion turbine gas plants at alternate locations; and (iii) retirement of the Plants and construction and operation of solar and storage facilities, primarily at alternate locations. The scope of the potential alternatives considered in each EIS may increase, decrease, evolve, or change based on comments received and TVA's analysis of the reasonableness of those alternatives. Retirement options also will include the demolition of the Plants. Related actions, such as the construction of natural gas pipelines and transmission upgrades, also will be considered as a part of the EIS processes. The Federal Energy Regulatory Commission will conduct a separate NEPA review on any proposed interstate natural gas pipelines that may be needed for any alternative.

As part of the EIS process, TVA considers the biological, cultural, and socioeconomic impacts of each alternative, including impacts on land use, air quality and greenhouse gas emissions, water use, hazardous and solid waste, and

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

environmental justice. TVA will assess GHG emissions as part of the climate analysis in the EIS being developed for the Plants. TVA will also consider GHG lifecycle analysis based on available published resources/reports similar to those used in our 2019 IRP EIS.

Coal Combustion Residuals Facilities

TVA has committed to a programmatic approach for the elimination of wet storage of CCR within the TVA service area. Under this program ("CCR Program"), TVA performed stability remediation, completed the conversion of all operational coal-fired plants to dry CCR storage, and is now closing all remaining wet storage facilities. To carry out its CCR Program, TVA is undertaking the following actions:

- **Dry generation and dewatering projects:** Conversion of coal plant CCR wet processes to dry generation or dewatering is complete at Bull Run Fossil Plant ("Bull Run"), Shawnee Fossil Plant ("Shawnee"), and Kingston Fossil Plant ("Kingston"). Construction at Gallatin Fossil Plant ("Gallatin") was completed during 2020. Construction of dewatering and dry generation facilities at Cumberland Fossil Plant ("Cumberland") was completed in the second 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, Gallatin, and Shawnee; construction of a lined and permitted landfill at Cumberland is expected to start in 2022; and TVA is designing and permitting a new 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 closure:** 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 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.
- **Groundwater monitoring:** Compliance with the Environmental Protection Agency's ("EPA's") CCR rule ("CCR Rule") required implementation of a groundwater monitoring program, additional engineering, and ongoing analysis. As further analyses are performed, including evaluation of monitoring results, there is the potential for additional costs for investigation and/or remediation. These costs cannot reasonably be predicted until a final remedy is selected, if necessary.

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

In compliance with the CCR Rule, TVA published the results of 2020 groundwater testing at its CCR facilities during the second quarter of 2021. The results included values above groundwater protection standards for some constituents at certain CCR units. TVA previously identified several CCR units with constituents at statistically significant levels above site-specific groundwater protection standards. TVA has completed an assessment of corrective measures ("ACM"), which analyzes the effectiveness of potential corrective actions, and has published ACM reports to its CCR Rule Compliance Data and Information website (link available on page 54 of this document). Based on the results of the ACM, TVA is required to select a remedy as soon as feasible. TVA continues to investigate and evaluate remedies and will continue posting semi-annual progress reports on the status of remedy selection until the final remedy is selected.

As of September 30, 2021, TVA had spent approximately \$2.3 billion on its CCR Program. TVA expects to spend an additional \$789 million on the CCR Program through 2026. These estimates may change depending on the final closure method selected for each facility. While the conversion portion of the CCR Program is completed, TVA will

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

continue to undertake CCR closure and storage projects, including building new landfill cells under existing permits and closing existing cells once they reach capacity.

TVA was involved in two lawsuits concerning the CCR facilities at Gallatin. One of these cases was decided in TVA's favor by the U.S. Court of Appeals for the Sixth Circuit, and the other case was resolved by the entry of a consent order in Davidson County Chancery Court 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.

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.

Variable Interest Entities

On August 9, 2013, TVA entered into a lease financing arrangement with Southaven Combined Cycle Generation LLC ("SCCG") for the lease by TVA of the Southaven Combined Cycle Facility ("Southaven CCF"). SCCG is a special single-purpose limited liability company formed in June 2013 to finance the Southaven CCF through a \$360 million secured notes issuance and the issuance of \$40 million of membership interests subject to mandatory redemption. The membership interests were purchased by Southaven Holdco LLC ("SHLLC"). SHLLC is a special single-purpose entity, also formed in June 2013, established to acquire and hold the membership interests of SCCG. A non-controlling interest in SHLLC is held by a third-party through nominal membership interests, to which none of the income, expenses, and cash flows of SHLLC are allocated. The membership interests held by SHLLC were purchased with proceeds from the issuance of \$40 million of secured notes and are subject to mandatory redemption pursuant to scheduled amortizing, semi-annual payments due each August 15 and February 15, with a final payment due on August 15, 2033.

On January 17, 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 notes issuance 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 of Holdco are allocated. The membership interests held by Holdco in JSCCG were purchased with proceeds from the issuance of \$100 million of secured notes and are subject to mandatory redemption pursuant to scheduled amortizing, semi-annual payments due each January 15 and July 15, with a final payment due on January 15, 2042.

Wholesale Rate Structure Changes

Since the fall of 2013, TVA, LPCs, and directly served industries have worked collaboratively to develop changes to TVA's rates that focus on TVA's long-term pricing efforts. A comprehensive rate restructuring was implemented in October 2015 to improve pricing by better aligning rates with underlying cost drivers and to send improved pricing signals while maintaining competitive industrial rates and keeping residential rates affordable.

Consistent with the pricing goals and changes implemented through the October 2015 rate restructuring, TVA staff recommended and the TVA Board approved a proposed rate change on May 10, 2018. This change reduced wholesale energy rates for standard service customers and introduced a Grid Access Charge ("GAC") at an offsetting rate to better recover fixed costs. The net impact to TVA, as a result of this change, was designed to be revenue neutral. This rate change better reflects the wholesale cost of energy and recognizes the value of the grid's reliability and associated fixed costs. This modernized approach to pricing provides bill stability while maintaining reliability and fairness for all TVA customers. Concurrent with this process, an Environmental Assessment was completed on May 4, 2018, resulting in a finding of no significant impact. The primary objectives of the 2018 rate change were to continue to improve the alignment of wholesale rates with their underlying costs to serve and to facilitate measured, managed changes in LPCs' retail rate structures.

Recognizing the need for flexibility, all LPCs were presented with the option to implement the wholesale changes in October 2018 or defer the implementation of the GAC until October 2019. Seventy-nine LPCs implemented the GAC

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

in October 2018, while the remaining 75 LPCs implemented the wholesale changes in October 2019. In May of 2019, the TVA Board approved a change to the wholesale power rate schedules providing a mechanism to adjust the GAC for large changes in LPC load. This change helps ensure the equitable administration of the GAC.

Additionally, at its August 22, 2019 meeting, the TVA Board approved a 20-year Long-Term Partnership Agreement ("LTPA") option that better aligns the length of LPC contracts with TVA's long-term commitments. These agreements are automatically extended for an additional year each year after their initial effective date. Participating LPCs will receive benefits including a 3.1 percent wholesale bill credit in exchange for their long-term contractual commitment, which enables TVA to recover its long-term financial obligations over a commensurate period. This offer was made available to all TVA served LPCs. As of December 31, 2021, 146 of the 153 LPCs had signed the 20-year LTPA.

Furthermore, in August 2020, due to challenges incurred from the COVID-19 pandemic, the TVA Board approved a Pandemic Relief Credit that was effective for FY 2021. This 2.5 percent monthly base rate credit, which totaled \$221 million for FY 2021, applied to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers through September 2021. In August 2021, the TVA Board approved a 2.5 percent monthly base rate credit, the Pandemic Recovery Credit, which is effective for FY 2022. The credit, expected to approximate \$220 million, also applies to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers. In November 2021, the TVA Board approved a 1.5 percent monthly base rate credit, which is an extension of the Pandemic Recovery Credit, to be effective for FY 2023. The FY 2023 credit is expected to approximate \$133 million, and it will be administered in a manner similar to the Pandemic Recovery Credit.

Payments in Lieu of Taxes

TVA provided nearly \$500 million in tax equivalent payments in FY 2021 to state and local governments where it sells electricity or has power properties. Since 1941, TVA has paid nearly \$15.2 billion in tax equivalent payments, with payments in the past 10 years totaling nearly \$5.4 billion.

The TVA Act requires TVA to annually return five percent of its gross proceeds from the sale of power during the previous fiscal year (excluding sales or deliveries to other federal agencies, off-system sales with other utilities, and power used by TVA, with a provision for minimum payments under certain circumstances) in the form of tax equivalent payments. The payments compensate state and local governments that cannot levy property or sales tax on TVA as a federal entity. TVA pays tax equivalent payments to the eight states where it sells electricity or owns generating plants, transmission lines, substations or other power assets, and directly to 147 county governments where TVA owns power properties that were previously privately owned and operated and subject to ad valorem taxes.

State and local governments distribute the funds according to their own formulas and discretion to support a variety of initiatives, including schools, fire departments, other emergency response agencies, tourism and recreation, and human service organizations.

Management Initiatives

TVA actively evaluates plans for the future that will both address challenges and identify strategies enabling TVA to achieve the organization's mission. These initiatives help outline paths to serve the people of Valley while providing sustainable, clean, and affordable energy and supporting economic development efforts for TVA's customers. The following sections detail key management initiatives outlined by TVA.

Financial Plan

In August 2019, the TVA Board approved an annual budget that reflects the first year of a new Strategic Financial Plan. This Strategic Financial Plan, which extends from FY 2020 through FY 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 (1) establishing alignment between the length of LPC contracts and TVA's long-term commitments, (2) stabilizing debt, (3) maintaining flat rates, (4) driving efficiencies into the business, and (5) advancing the public power model. As TVA executes the plan, key assumptions and focus areas may change.

Establish Better Alignment between LPC Contracts and TVA's Long-Term Commitments

Long-term power planning requires TVA to make long-term financial commitments. As of October 1, 2018, the weighted average length of the notice period under TVA's wholesale power contracts with LPCs was less than seven years. In order to better align customer contractual commitments with TVA's overall financial obligations, the TVA Board approved a long-term partnership proposal that was made available to all TVA-served LPCs in August 2019. Under this long-term partnership proposal, LPCs that agree to contractual changes, which include a rolling 20-year term and a termination notice period of 20 years, will receive a long-term partner credit. That credit is currently 3.1% of wholesale standard service demand, energy, and grid-access charges. TVA's effective wholesale rate and annual revenues will decline as LPCs commit to becoming long-term partners, and TVA's overall financial health will improve through better alignment of customer contract terms with TVA's overall financial obligations.

As of December 31, 2021, 146 of the 153 LPCs served by TVA had signed the long-term partnership proposal, thus closing the gap between TVA's committed revenues and long-term obligations. Additionally, as part of the LTPA, participating LPCs are permitted the option to sign a Flexibility Agreement allowing for flexible generation capacity up to approximately five percent of their average total hourly energy sales over TVA fiscal years 2015 through 2019 (or 1 MW, whichever is greater). As of December 31, 2021, 76 LPCs had signed up for the Flexibility Agreement.

Stabilize Debt

TVA is focused on stabilizing debt in a range aligned to the balance between customer contractual commitments and total obligations. As TVA executes the plan, key assumptions and performance may change estimated debt and cash balances; however, TVA remains committed to keeping debt stable at or below \$24 billion. Over the coming decade, debt may increase modestly as TVA makes continued investments in power system assets. TVA is comfortable with slightly higher debt levels (less than \$24 billion), given the large number of local power companies that have committed to 20-year partnerships and long-term incentives with TVA.

Maintain Flat Rates

As part of the updated Strategic Financial Plan, TVA implemented an aggressive objective that includes no planned base rate increases for 10 years. To this point, TVA has already foregone any rate increases through FY 2022 and continues to plan for no rate increases through FY 2030. Additionally, any LPC that commits to signing the LTPA is eligible to receive the aforementioned 3.1% partner credits on its monthly power invoices.

Drive Efficiencies into the Business

Over the last decade, TVA was able to successfully reduce its annual non-fuel O&M expenses by \$800 million compared to FY 2013 budget levels. Additionally, TVA's annual fuel and purchased power expenses were reduced by over \$1 billion during the same timeframe. TVA remains committed to achieving operating efficiencies, while also maintaining the fuel cost benefits of a diverse portfolio.

Additionally, as part of the organization's priority to drive efficiencies into the business, TVA currently maintains the objective to achieve top quartile performance with respect to its nuclear fleet by the end of 2022 and to lead the nation in nuclear fleet performance by the end of 2025.

Advance the Public Power Model

Another focus area within the new financial plan is to continue to advance the public power model. This includes creating better, sustainable relationships with our customers. These long-term relationships help with regard to both

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

long-term planning and creating an environment in which both TVA and LPCs share in the success of delivering low-cost, reliable power for everyone in the Tennessee Valley. In order to continue to achieve this objective, TVA plans to deliver differentiated products and solutions for our customers, including avenues for acquiring renewable energy to help our customers achieve their desired sustainability goals. Additionally, this requires TVA to consider future risks as part of the decision-making process, while enabling future business development.

As TVA executes this new financial plan, the organization's long-term financial health and rate positioning are expected to improve through the better alignment of customer contractual commitments with TVA's long-term financial obligations, the expectation of no base rate increases through FY 2030 coupled with long-term partner credits, and the continued achievement of operational efficiencies.

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 U.S. TVA implemented a company-wide pandemic plan to address specific aspects of the COVID-19 pandemic, including impacts from variants. TVA's pandemic plan continually evolves 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 actively monitored, and TVA's operations and delivery of energy to customers have not been materially impacted by the COVID-19 pandemic at this time. While TVA experienced a reduction in revenue for the year ended September 30, 2020, the COVID-19 pandemic had little impact on TVA's sales volume for the year ended September 30, 2021. TVA continues to assess potential supplier risk, and through September 30, 2021, TVA has seen an increase in supplier impacts as a result of COVID-19, such as delays and price fluctuations, but has not experienced significant business disruptions at this time.

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 created initiatives such as the Public Power Support and Stabilization Program, Back-to-Business Credit Program, Community Care Fund, and Pandemic Credits. TVA has also provided regulatory flexibility for LPCs to halt disconnection of services.

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.

An outline of some of the initiatives created by TVA in response to the COVID-19 pandemic are as follows:

- **Regulatory Flexibility:** TVA continues to provide regulatory flexibility for LPCs to halt disconnection of services and respond to the local needs of their customers and communities.
- **Program Flexibility:** In 2020, TVA established flexibility provisions for certain economic development programs for participating customers impacted by the COVID-19 pandemic. These provisions were made available through the December 2020 application period, which provided flexibility to customers through 2021. TVA also offered deferral options for EnergyRight® program loan payments, through October 31, 2020, for customers experiencing financial hardship. All EnergyRight® loans approved for the deferral period resumed payments in the second quarter of 2021.
- **Financial Support:** In 2020, the TVA Board approved the Public Power Support and Stabilization Program. Through this program, TVA offered up to \$1.0 billion of credit support to LPCs that demonstrated the need for temporary financial relief, through the deferral of a portion of LPCs' wholesale power payments owed to TVA. The program ended December 31, 2020, with a total of \$1 million of credit support approved under the program. The \$1 million was fully repaid in the second quarter of 2021.
- **Back-to-Business Credit Program:** TVA created the Back-to-Business Credit Program to enable TVA and LPCs 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, 2021, TVA had provided approximately \$13 million in Back-to-Business credits under this program since its inception, with over \$3 million provided for the year ended September 30, 2021. This program ended September 30, 2021.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

- **Community Care Fund:** TVA also continues to partner with LPCs through the Community Care Fund by making available over \$9 million in TVA matching funds to support local initiatives that address hardships created by the COVID-19 pandemic. As of September 30, 2021, over \$4 million in matching funds had been provided by TVA, with nearly \$2 million provided for the year ended September 30, 2021.
- **Pandemic Relief Credit:** In August 2020, the TVA Board approved a Pandemic Relief Credit that was effective for FY 2021. The 2.5 percent monthly base rate credit, which totaled \$221 million for FY 2021, applied to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers through September 2021. In August 2021, the TVA Board approved a 2.5 percent monthly base rate credit, the Pandemic Recovery Credit, which will be effective for FY 2022. The credit, expected to approximate \$220 million, will also apply to service provided to TVA's LPCs, their large commercial and industrial customers, and TVA directly served customers. In November 2021, the TVA Board approved a 1.5 percent monthly base rate credit, which is an extension of the Pandemic Recovery Credit, to be effective for FY 2023. The FY 2023 credit is expected to approximate \$133 million, and it will be administered in a manner similar to the Pandemic Recovery Credit.

These actions 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 continues to closely monitor developments and will adjust its response as necessary to ensure reliable service while protecting the safety and health of its workforce.

Cybersecurity

TVA has an established risk-based Cybersecurity Program designed to ensure alignment with applicable regulations, industry requirements, and best practices. The program includes multi-layer security standards, training, and metrics that assign clear accountability for all cybersecurity activities throughout TVA. Security controls are integrated into business processes, enabling timely, coordinated, effective, and efficient execution of the program across TVA. Cybersecurity management processes are implemented agency-wide with the goal of being systematic, repeatable, and effective in achieving the strategic security goals of the program.

The budget of the Cybersecurity Program is allocated to responsible organizations to improve accountability and provide transparency. Budgeting and planning for the program's components are integrated into the business planning process and are maintained in a three-year cybersecurity strategic plan. The plan will be modified to upgrade TVA's capabilities as technology, threat vectors, and business requirements change.

Securing timely, accurate, and reliable information is critical to the success of the TVA mission and the role it plays as a National Critical Infrastructure Key Resource and Bulk Electric System provider. The Cybersecurity Program objectives are aligned with TVA's business strategy and support the goals of the enterprise. TVA uses a full spectrum defense security model to identify, protect, detect, respond to, and recover from threats against its systems. TVA plans to invest approximately \$180 million to \$200 million in its Cybersecurity Program between FY 2022 and FY 2024 to ensure it meets its mission objectives.

Stewardship

TVA's mission includes managing the Tennessee River, its tributaries, and federal lands along the shoreline to provide year-round navigation, flood damage reduction, affordable and reliable electricity, and, consistent with these primary purposes, recreational opportunities, adequate water supply, improved water quality, and natural resource protection. TVA's integrated reservoir system is composed of 49 dams, and each may have ancillary structures 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 throughout the Tennessee River system and further downstream on the lower Ohio and Mississippi Rivers. The reservoir system also provides water supply for residential and industrial customers, as well as cooling water for TVA's coal-fired, combined cycle, and nuclear power plants.

Flood control is an important outcome of TVA's mission of environmental stewardship. Over the years, TVA personnel have averted billions of dollars of potential flood damage in the Tennessee Valley. As of September 30, 2021, TVA had spent \$155 million on the modifications and improvements related to extreme flooding preparedness. TVA continues its flood resilience and dam safety initiatives, including remediation efforts at Boone Dam that are expected to be completed in 2022.

Navigation on the Tennessee River is made possible by a system of dams and locks and contributes to the regional economy. TVA owns 14 lock chambers at 10 dam sites on the Tennessee River and one tributary. The U.S. Army

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Corps of Engineers operates and maintains these locks for navigation. This provides an alternative mode of transportation for businesses in the region to ship their products. Barges can move bulk cargo on 652 miles of the Tennessee River, which ends where it flows into the Ohio River near Paducah, Kentucky. Secondary channels provide approximately 150 miles of additional commercially navigable waterways.

In 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 accomplishes this mission and supports the objectives of the TVA Environmental Policy through implementation of its NRP.

TVA's NRP serves as a guide for TVA's stewardship efforts for managing biological resources (plants, animals, and aquatic species), cultural resources (archaeological sites, historical sites, and artifacts), recreation, ecotourism, water resources, public lands, reservoir land planning, and public engagement within its seven-state service area. The NRP also guides TVA in achieving the objectives of its Environmental Policy for a more systematic and integrated approach to fulfilling its essential stewardship responsibilities.

In 2020, TVA updated its NRP which continues to serve as a guide for TVA's management of the public lands and waters within its seven-state service area. During 2019, TVA hosted public meetings around the Valley and released the draft NRP and the associated Supplemental Environmental Impact Statement ("SEIS") for public review and comment. In February 2020, TVA published the final SEIS and 2020 NRP, which the TVA Board approved at its May 2020 meeting. 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 near and long-term 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.

In managing the watershed, TVA balances water quality protection with other demands for water use. TVA has installed and is maintaining equipment at several dams to help provide the flows and oxygen levels needed for a healthy aquatic community in tailwaters (the areas immediately downstream from dams). As part of the NRP, TVA has implemented several programs to improve water resources including Tennessee Valley Clean Marinas, Sentinel Monitoring, Aquatic Ecological Management, and Nutrient Source Management. Under the Stream and Tailwater Monitoring Program in the NRP, TVA performs annual monitoring and analysis of streams and rivers within the Tennessee River Watershed. Upon request, TVA provides the monitoring data to other agencies, educational institutions, non-government organizations, and stakeholders.

Air Quality in the Tennessee Valley

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. TVA estimates that compliance with existing and future CAA requirements (excluding greenhouse gas ("GHG") requirements) could lead to additional costs of \$159 million from FY 2022 to FY 2026, which include existing controls on capital projects and air operations and maintenance projects.

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

National Ambient Air Quality Standards. The CAA requires the EPA to set National Ambient Air Quality Standards ("NAAQS") for certain air pollutants. The EPA has done this for ozone, particulate matter ("PM"), Sulfur Dioxide ("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

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

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 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") 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 March 15, 2021, the EPA Administrator signed the final revisions to the CSAPR Update Rule. The revisions address the defects identified by the D.C. Circuit and took effect on June 29, 2021. In this final action, the EPA reduced ozone-season nitrogen oxide ("NOx") allowances for a group of 12 states, including Kentucky, and required sources in those states to surrender most of their banked allowances. TVA's Shawnee facility is affected by these revisions, and TVA is in the process of analyzing compliance strategies to determine how any shortage in allowances will be overcome for the ozone season in 2022 and beyond.

Mercury and Air Toxics Standards for Electric Utility Units. In April 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 ("RTR") 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 filed petitions in the D.C. Circuit challenging the "appropriate and necessary" finding and the RTR finding. On February 16, 2021, the EPA filed a motion requesting the D.C. Circuit to hold the cases in abeyance pending the agency's review of the final rule under Executive Order ("EO") 13990, which, among other things, requires the EPA to reconsider the final rule by August 2021. The EPA did not meet the August 2021 deadline, and TVA will evaluate the proposal when it is issued.

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 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 were required to submit their Regional Haze SIPs to the EPA by July 31, 2021. In response to requests from state air pollution control agencies in Tennessee and Kentucky, TVA submitted regional haze analyses for Cumberland and Shawnee. The reports evaluate SO₂ emission reduction options for these facilities and will be used by these state agencies in preparing their Regional Haze SIPs.

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 ("2015 Rule"). The 2015 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 2015 Rule before the D.C. Circuit. In April 2017, the D.C. Circuit, at the request of the EPA Administrator, ordered this litigation to be suspended pending the EPA's review to determine whether to reconsider all or part of the 2015 Rule. On October 9, 2020, the EPA issued a guidance memorandum ("2020 Memorandum") that superseded and replaced policy statements outlined in the 2015 Rule. On September 30, 2021, the EPA withdrew the 2020 Memorandum, reinstating the agency's prior policy as set out in the 2015 Rule. The

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

EPA's evaluation of state SIPs will be undertaken in light of the considerations outlined in the September 30, 2021 memorandum. TVA cannot predict the outcome of future SIP evaluations.

Affordable Clean Energy Rule. In 2019, the EPA finalized the Affordable Clean Energy ("ACE") rule and repealed the EPA's previous regulation addressing GHG emissions from existing fossil fuel-fired units. The ACE rule established guidelines for GHG emissions from existing coal-fired units based on efficiency improvements that can be achieved at those units at reasonable cost. Several industry, environmental, and state and local petitioners filed for judicial review of the ACE rule. On January 19, 2021, the D.C. Circuit vacated and remanded the ACE rule, and specified that the court's mandate will not issue with regard to the portion of the ACE rule that repeals the Clean Power Plan until after the EPA develops a replacement for the ACE rule. In Congressional hearings in February 2021, the EPA Administrator stated that the EPA will propose a new rule to regulate Carbon Dioxide ("CO₂") emissions from electric generating units. On April 29, 2021, a coalition of states asked the Supreme Court to reverse the D.C. Circuit's decision to vacate and remand the ACE rule. TVA is unable to predict the future course of this litigation on appeal, nor the direction that the EPA may take in the future to regulate GHG emissions from fossil fuel-fired units.

New Source Performance Standards. In 2018, the EPA proposed revisions to the GHG emission standards for new, modified, and reconstructed electric utility generating units required under Section 111(b) of the CAA. For coal-fired units, the EPA 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. In January 2021, the EPA published criteria in the Federal Register for making a significant contribution finding for GHGs from a source category for the purpose of regulating those emissions under Section 111(b) of the CAA, and the EPA did not take final action on the 2018 proposed revisions in this rulemaking. On March 17, 2021, the EPA asked the D.C. Circuit to vacate and remand the "significant contribution" finding since the rule was promulgated without public notice or opportunity to comment. On April 5, 2021, the D.C. Circuit vacated and remanded the January 2021 final rule. 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.

New York Petition to Address Impacts from Upwind High Emitting Sources. In 2018, the State of New York filed a petition with the EPA under Section 126(b) of the CAA to address ozone impacts on New York from the NO_x emissions from sources emitting at least 400 tons of NO_x in CY 2017 from nine states including Kentucky. The New York petition requests that the EPA require daily NO_x limits for utility units with selective catalytic reduction systems ("SCRs") such as Shawnee Units 1 and 4 and emission reductions from utility units without SCRs such as Shawnee Units 2, 3, and 5-9. Kentucky utility unit NO_x emissions are already limited 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 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. In July 2020, the D.C. Circuit vacated the EPA's denial of the petition and remanded the petition to the EPA for reconsideration. In its recently published Unified Regulatory Agenda, the EPA indicated that it will respond to the D.C. Circuit's decision by providing a revised response to New York's Section 126(b) petition. Specific impacts to TVA cannot be determined until the EPA takes further action on the petition.

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 NO_x have been reduced by 97 percent below peak 1995 levels and emissions of SO₂ have been reduced by 99 percent below 1977 levels through CY 2020. For CY 2020, TVA's emissions of CO₂ from its owned and operated units, including purchased power and REC retirement adjustments which reduce the CO₂ emissions, were 43 million tons, resulting in a TVA system average, as delivered, CO₂ emission rate of 562 lbs/MWh. This represents a 63 percent reduction in mass carbon emissions from 2005 levels.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Economic Development

TVA's partnerships with its customers and communities have helped create good paying jobs and attract significant capital investments from new and existing companies. TVA conducts these economic development efforts in partnership with private and public organizations, including local, regional, and state agencies. This serves the needs of TVA stakeholders through regional economic development, which contributes to a better quality of life for Tennessee Valley residents. TVA's innovative programs and services combine to create effective tools for sustainable economic development. These programs and services include, but are not limited to, the following:

- **Recruiting Services** – TVA works with LPCs and their customers and local, state, and regional economic development organizations to recruit companies through an integrated package of economic development resources.
- **Regional Development** – TVA assigns a regional development specialist with economic development expertise to serve counties in a specific area to help create and sustain job growth.
- **Training and Development** – TVA helps communities increase their competitiveness in attracting investment and creating jobs by delivering resources and training to local economic development partners.
- **Rural Initiative Strategy** – TVA helps rural communities develop and better market their sites and buildings to prospective companies. TVA also offers leadership development, planning, and project assistance.
- **Research** – TVA provides economic and market research to help build the business case for the location and expansion of companies and prepare communities for future growth opportunities.
- **Business Development Support** – An array of products and services is designed to meet the needs of prospective or existing industries. These include financial support and industry consulting services. This work provides vision to businesses for locating and being successful in the Tennessee Valley.
- **Technical Services** – TVA offers general engineering design services to help industrial prospects make sound location decisions and to help communities market themselves for prospects and growth.

The results of some of TVA's innovative economic development programs and offerings are described below.

- For the sixteenth consecutive year, TVA made *Site Selection* magazine's list of the top utilities in North America for economic development activity, one of only three utilities to earn this distinction.
- TVA Economic Development recruits new companies and investments to the region in these targeted industry sectors: Transportation-Related Manufacturing, Consumer and Industrial Products, Aerospace and Defense, Advanced Manufacturing.
- TVA staff provides ongoing economic development assistance through technical services, economic research, proposal writing, training, and other services.
- Financial support, offered by TVA and LPCs, continues to be successful in helping new and existing companies locate or expand and make a commitment to enhance economic development in the region.
- The Valley Sustainable Communities Program was launched in 2013. This economic development preparedness program assists communities in cataloging their sustainable assets and improving their competitiveness when companies are considering locating or expanding in the Valley. To date, more than 40 communities have completed this program to highlight and increase their sustainability efforts and differentiate their communities.
- TVA's Rural Development strategy supports economic development efforts in rural and economically distressed areas.
- FY 2021 announcements of jobs created and/or retained and capital investment include:
 1. Alabama: 13,730 jobs and 1.3 Billion
 2. Kentucky: 8,000 jobs and \$515.8 Million
 3. Middle Tennessee: 21,600 jobs and \$3.5 Billion
 4. Mississippi: 3,385 jobs and \$414.2 Million
 5. Northeast Tennessee and Virginia: 11,380 jobs and \$977 Million
 6. Southeast Tennessee, Georgia, and North Carolina: 8,985 jobs and \$896.5 Million
 7. West Tennessee: 13,840 jobs and \$1.1 Billion

Technological Innovation

The TVA Act specifies that members of the TVA Board shall affirm support for the objectives and missions of TVA, including being a national leader in technological innovation. A key element in achieving this vision is an annual investment in science and technology, positioning TVA to meet future business and operational challenges. TVA's goal is to demonstrate how technologies can be used to improve/sustain reliability, reduce costs, and lower emissions for a sustainable future.

Each year, TVA's research portfolio is updated based on a broad range of operational and industry drivers assessing key technology gaps, performance issues, or other significant challenges addressed through research and development. Core research activities support modernization and optimization of TVA's generation and transmission assets, air and water quality, and distributed/clean energy integration. The current research strategy focuses on components of the power system, including sustainability, generating fleet optimization, grid modernization, cyber security, data analytics, and grid edge engagement.

Additional research is placed on grid modernization for distribution systems, electrification, grid edge technologies, and evolving DER applications. TVA's efforts are directed towards demonstrating and validating the performance, reliability, consumer acceptance, and implementation of new technologies in the Tennessee Valley. TVA coordinates activities with EPRI and industry stakeholders on transportation electrification in order to support operational fleet requirements and plug-in EV grid integration and readiness.

Technology evaluations are accomplished through studies and field scale demonstrations to document performance and requirements. TVA delivers or transfers results to the operating organizations and other stakeholders through reporting, technology transfer events, and educational outreach. TVA also serves as a technology advisor for LPCs and directly served customers. Investments in TVA's research portfolio are highly leveraged through partnership and collaboration with LPCs, EPRI, and other stakeholders throughout the Tennessee Valley.

TVA is also initiating several Transformative Initiatives to support the realization of an integrated grid across the Valley. These initiatives include Advanced Nuclear Solutions, Connected Communities, Decarbonization Options, Electric Vehicle Evolution, Regional Grid Transformation, and Storage Integration. Through collaborative partnerships, conversations, pilot research, and programs, TVA is working to craft plans of action focused on making life better for the people of the Valley. These Transformative Initiatives are designed to position the Valley for implementation of solutions at scale.

Sustainability

Sustainability for TVA means ensuring its ability to provide the people of the Tennessee Valley with low-cost and reliable electricity, a healthy environment, and a prosperous economy – without compromising the ability of future generations to do the same. The three Es – energy, environmental stewardship, and economic development – continue to drive everything TVA does to sustain the Tennessee Valley Region. TVA's mission to “serve the people to make life better” is as relevant today as it was when President Roosevelt signed the TVA Act in 1933.

Since its inception, TVA has maintained a proud history of leadership in sustainability. In fact, sustainability is incorporated into the work performed at TVA to protect the miles of reservoir shoreline, to keep electricity rates as low as feasible, to reinforce TVA's commitment to a safe employee workplace and public safety, to support TVA's economic development efforts throughout the region, and to pursue continuous improvement in environmental performance. TVA also manages many environmental sustainability programs, including technology innovation, environmental stewardship and compliance, and a growing renewable energy portfolio.

Because the TVA mission includes serving the Tennessee Valley by providing low-cost and reliable energy, environmental stewardship, and economic development, achieving sustainability goals directly supports this mission. TVA works to integrate its federal sustainability performance goals into existing and new innovative programs. These goals are an integral part of TVA's business practices and are tracked along with other business objectives.

TVA issued its FY 2020 Sustainability Report on May 6, 2021, and this report is publicly available on the organization's website. This comprehensive Sustainability Report aligns with global reporting standards and will serve as a baseline for annual corporate sustainability reporting. TVA will continue to publish two other sustainability-related documents: a *Federal Sustainability Report and Implementation Plan*, which addresses TVA's responsibilities related to federal sustainability performance, and an *Environmental, Social, and Governance (ESG) Sustainability Report*, which uses a utility-focused and investor-driven reporting template developed by the Edison Electric Institute.

Oversight and Governance

In December 2004, Congress passed legislation to make TVA’s governance structure more like that of other large corporations. The TVA Board changed from three full-time members to nine part-time members who are responsible for providing strategic direction, governance, and oversight. In addition, a full-time Chief Executive Officer (“CEO”) position was established to supervise day-to-day activities. The CEO is appointed by and reports directly to the TVA Board. The December 2004 legislation also amended the Securities Exchange Act of 1934 by adding Section 37. This section requires TVA, as a non-accelerated filer under Securities and Exchange Commission (“SEC”) rules, to file financial reports with the SEC. In December 2006, TVA filed its first Annual Report on Form 10-K with the SEC and now files Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K with the SEC. As an SEC filer:

- The management reporting requirements of Section 404(a) of the Sarbanes-Oxley Act became effective for TVA for FY 2008.
- As a non-accelerated filer, the external auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act are not applicable. However, TVA implemented the auditor attestation requirements of Section 404(b) in FY 2009 and continues to do so on a voluntary basis.
- The Dodd-Frank Act deferred indefinitely the auditor attestation requirements of Section 404(b) for non-accelerated filers; however, management has chosen to continue to have external auditor attestations.

TVA Oversight

TVA is a government-owned corporation, and its mission of service is fundamentally different from that of publicly traded companies. TVA has oversight similar to other utilities, such as a board of directors, SEC requirements, credit rating agencies, and Sarbanes-Oxley requirements. In addition, TVA has oversight from Congress, the Government Accountability Office (“GAO”), the Office of Management and Budget (“OMB”), the U.S. Treasury, and an independent Office of the Inspector General (“OIG”).

Board of Directors

TVA is governed by the TVA Board. The TVA Board has nine part-time members, at least seven of whom must be legal residents of the TVA service area. The TVA Board members are appointed by the President of the United States with the advice and consent of the U.S. Senate. The TVA Board’s responsibilities include formulating broad goals, objectives, and policies for TVA, approving plans for their implementation, reviewing and approving annual budgets, setting and overseeing rates, and establishing a compensation plan for employees.

Audit Committee

In August, 2021, the TVA Board established the Audit, Finance, Risk, and Cybersecurity Committee (the “Committee”). The Committee is responsible for, among other things, recommending an external auditor to the TVA Board, overseeing the auditor’s work, and reviewing reports of the auditor and the OIG.

Independent Inspector General

The OIG conducts ongoing audits of TVA’s operational and financial matters in accordance with Government Auditing Standards, which incorporate the American Institute of Certified Public Accountants Generally Accepted Auditing Standards. The OIG had 108 employees as of September 30, 2021, including more than 50 auditors. TVA’s Inspector General is appointed by the President of the United States and confirmed by the U.S. Senate. The OIG provides semi-annual reports to Congress on the results of its audit and investigative work.

As required by the Inspector General Reform Act of 2008 (Pub. L. No. 110-409), the TVA OIG made an aggregate budget request of \$28 million for FY 2023, which includes amounts for OIG training and support of the Council of the Inspectors General on Integrity and Efficiency. TVA’s FY 2023 budget assumes OIG activities at the level requested.

\$ million	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	2022 OIG Proposed	2023 OIG Proposed
OIG Spend	\$24	\$24	\$24	\$25	\$25	\$25	\$27	\$28

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Independent Auditor

An independent auditor audits TVA's annual financial statements in accordance with standards of the Public Company Accounting Oversight Board and with Government Auditing Standards issued by the Comptroller General of the U.S. The auditor also provides an opinion as to whether those statements are presented in conformity with U.S. Generally Accepted Accounting Principles ("GAAP").

Congressional Oversight

Congress provides formal oversight of TVA through two committees, the U.S. House of Representatives Transportation and Infrastructure Committee and the U.S. Senate Environment and Public Works Committee. The audit arm of Congress, the GAO, also conducts audits of various TVA activities and programs, generally at the request of members of Congress.

Executive Branch

TVA routinely submits budget information to OMB, and TVA's budget is included in the consolidated budget of the U.S. Government. TVA's financial results also are included in the federal government's financial statements, which are coordinated with the U.S. Treasury and are subject to audit by GAO.

The TVA Act

TVA's congressional charter, the TVA Act of 1933, as amended, defines the range of TVA's business activities. TVA is also subject to the Government Performance and Results Act, which requires that a strategic plan and an annual performance report be submitted to Congress.

Other Regulatory Oversight

In aspects of its operations, TVA is subject to regulations issued by other governmental agencies, including the EPA, state environmental agencies, the SEC, and the NRC. While TVA is generally not subject to regulations issued by the Federal Energy Regulatory Commission ("FERC"), this commission has some regulatory authority over TVA activities. Other organizations with major influence on TVA and others in the electric utility industry include the North American Electric Reliability Corporation and the industry-based Institute of Nuclear Power Operations.

Auditor Independence – Providing Assurance to Stakeholders

The TVA OIG conducts an annual audit of the work of TVA's independent auditor to help ensure compliance with generally accepted Government Auditing Standards. Additionally, a peer review audit of the OIG is conducted every three years by another federal Inspector General's office.

Accounting and Financial Reporting

On an annual basis, TVA submits a closing package, which is a set of special purpose financial statements and notes that represent TVA's comparative, consolidated, department-level financial statements, to the U.S. Treasury to comply with the requirements of the U.S. Treasury Financial Manual. This provides financial information to the U.S. Treasury and the GAO to use in preparing the Financial Report of the U.S. Government. TVA's independent auditor also provides an opinion on whether the closing package is prepared in accordance with accounting standards and other pronouncements issued by the Federal Accounting Standards Advisory Board. TVA's financial transactions are subject to audit by the Comptroller General under various statutes.

TVA also submits financial information to the OMB, SEC, NRC, U.S. Treasury, Energy Information Administration, and others, in accordance with applicable regulatory and statutory requirements. As required by the TVA Act, TVA maintains its accounting records in accordance with the FERC's Uniform System of Accounts for Public Utilities. In addition, TVA presents its financial statements and related disclosures in conformity with GAAP promulgated by the Financial Accounting Standards Board. These financial statements are annually audited by an independent financial auditor.

Consistent with the Payment Integrity Information Act of 2019, TVA has determined that none of its programs or activities are susceptible to significant improper payments.

Enterprise Risk Management

Enterprise Risk Management ("ERM") is a strategic business function that provides TVA with a comprehensive risk perspective to more effectively identify and manage risks, capitalize on opportunities, and improve risk management behaviors. ERM is specifically responsible for TVA's risk governance structure, performing risk assessments and analysis, and facilitating enterprise risk discussions to evaluate risk profiles as an interrelated portfolio in order to support risk-informed decisions for achieving TVA's strategic and operational objectives. The TVA Board has

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

established an Enterprise Risk Council (“ERC”) to oversee TVA’s management of enterprise risks and establish an appropriate tone for a risk management culture throughout TVA, and the ERM organization, along with other designated subcommittees, carries out the ERC mission at the direction of the ERC and TVA’s Chief Risk Officer.

Fraud Disclosure

The Payment Integrity Information Act of 2019 (the “PII Act”) was enacted in March 2020. Among other things, the legislation is intended to improve federal agency financial and administrative controls and procedures to assess and mitigate fraud risks and to improve federal agencies’ development and use of data analytics for the purpose of identifying, preventing, and responding to fraud, including improper payments.

To help ensure compliance with the PII Act, TVA operates a Fraud Risk Management program (the “Fraud Program”) led by the ERM organization. In accordance with the guidelines of the PII Act, TVA has adopted the GAO’s Framework for Managing Fraud Risks in Federal Programs to document its Fraud Program. Additionally, TVA has considered both the fraud risk principles in the Standards for Internal Control in the Federal Government and OMB Circular A–123 with respect to the leading practices for managing fraud risk in the development of the Fraud Program.

To establish a commitment to combating fraud, TVA issued an executive policy regarding fraud risk management, establishing TVA’s approach, designating the guiding principles, and outlining the governance structure. Additionally, TVA implemented supporting processes and procedures to define roles and responsibilities within the Fraud Program.

To determine TVA’s fraud risk profile, TVA has included the identification and assessment of fraud risks as a component of its annual risk assessment process. Among other areas, TVA will continue to assess fraud risk related to payroll, beneficiary payments, grants, large contracts, purchase and travel cards, physical asset misappropriation, and information technology and security.

To help mitigate assessed fraud risks, TVA will evaluate its current control activities and consider the need for additional financial and administrative controls based on the fraud risk profile.

In order to improve the Fraud Program, TVA has developed a strategy for monitoring and evaluating its fraud risk management activities. The results of the monitoring activities and evaluations will be utilized to adapt the Fraud Program’s activities and communicate up through the program’s governance structure.

Monthly Reporting Process

Internal financial performance reporting is done on a monthly basis at all levels within the enterprise. The monthly financial performance reports contain analysis for the income statement, cash flow statement, and statement of capital expenditures. The reports also include a balance sheet analysis detailing significant changes during the reporting period. TVA also performs agency-wide financial forecasts on a monthly basis in order to anticipate and respond to events that may have a significant impact on financial performance during the year.

Pending GAO and OIG Recommendations

Periodically, the GAO and OIG may offer recommendations to TVA as part of their standard review process of the organization. TVA actively works with GAO and OIG to review any potential recommendations in order to better serve the Valley.

The table on the following page lists open recommendations that had been outstanding for at least one year as of September 30, 2021.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Source	Report Number	Report Title	Report Date	Recommendation Status	Estimated Date of Completion
GAO	GAO-17-343	Tennessee Valley Authority: Actions Needed to Better Communicate Debt Reduction Plans and Address Billions in Unfunded Pension Liabilities	3/23/2017	Accepted / Implementing	Ongoing
OIG	2019-15642	Power Operations Arc Flash Protection	7/15/2020	Accepted / Implementing	9/30/2022

For additional information regarding the recommendations listed above, and TVA's actions taken to date, please see Appendix A.

Strategic Priorities, Strategic Objectives, and Performance Goals

Strategic Priorities

As discussed previously, TVA has established five strategic priorities noted as follows:



People
Advantage



Operational
Excellence



Financial
Strength



Powerful
Partnerships



Igniting
Innovation

Strategic Objectives

In order to help ensure that TVA accomplishes its strategic goals, TVA is focusing on the following strategic objectives:

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

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Performance Goals

TVA has formulated key performance goals to support its strategic priorities. The intent of each measure is to align employees to TVA's mission by focusing collective efforts on financial strength, operational excellence, people advantage, powerful partnerships, and igniting innovation. The goals are designed to promote teamwork, encourage high performance behaviors, and motivate TVA employees to achieve goals aligned with TVA's mission and values.

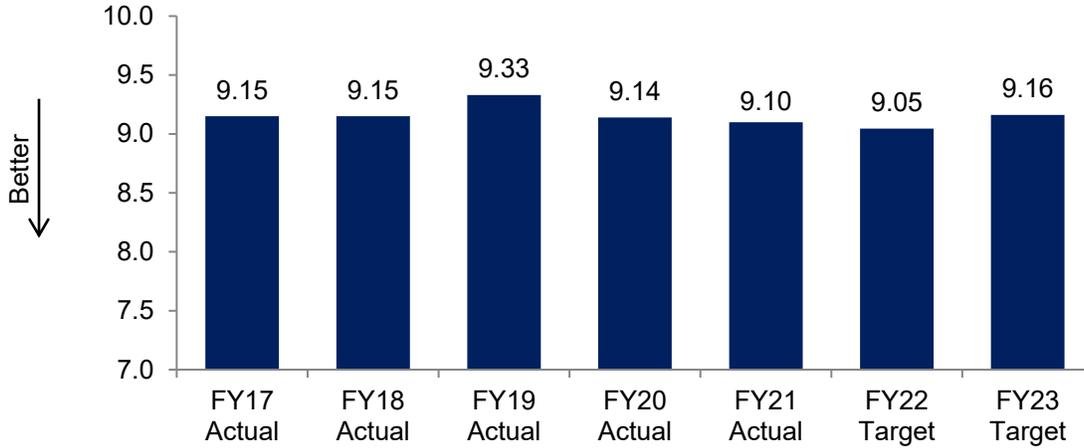
The performance goals include the following:

- Financial Strength
 - Retail Rates
 - Non-Fuel Delivered Cost of Power
 - Operating Cash Flow
 - Net Income
 - Total Financing Obligations
- Operational Excellence
 - CO₂ Emissions Rate
 - Environmental Violations of Significance
 - Load Not Served
 - Coal Equivalent Availability Factor ("EAF")
 - Nuclear Performance Index
 - Combined Cycle EAF
 - Nuclear Unit Capability Factor / Nuclear Online Reliability Loss Factor
- People Advantage / Powerful Partnerships
 - Serious Injury Incident Rate
 - Jobs Created and Retained
 - Capital Investment
- Igniting Innovation
 - Milestone Metrics

Each of TVA's performance goals is described in more detail on the following pages.

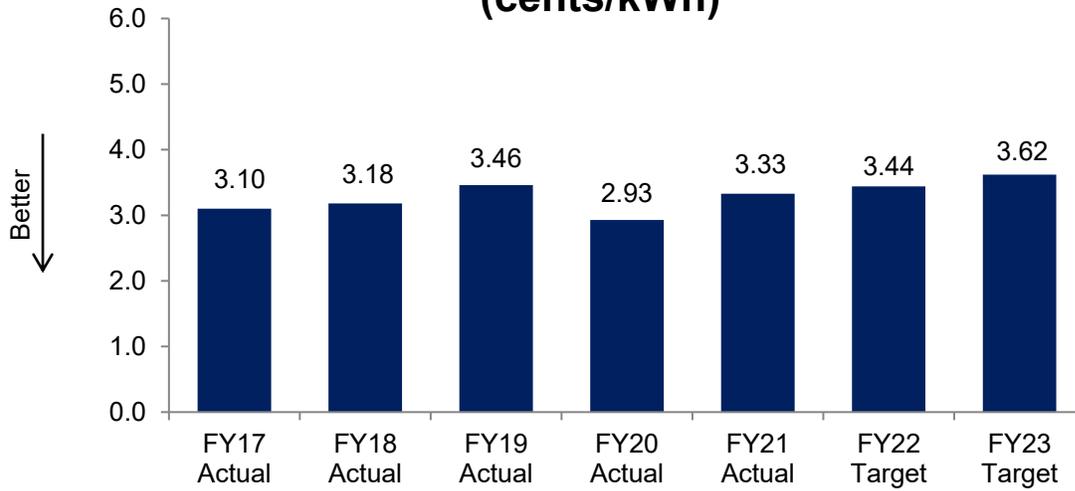
Financial Strength

Retail Rates (cents/kWh) - 12 Month Rolling Avg



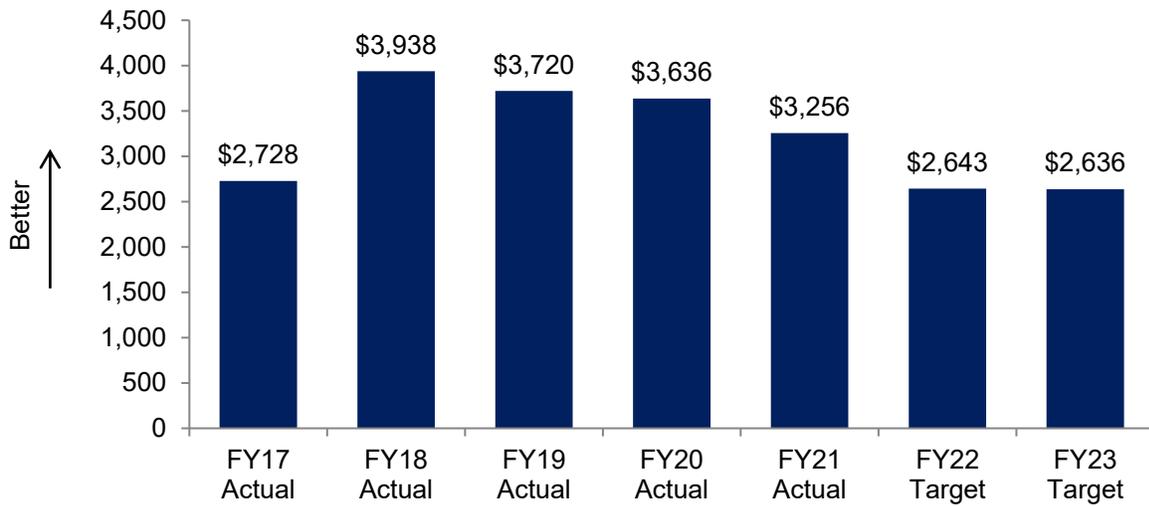
Definition	Average of the previous twelve months' LPC reported retail power revenue and directly served power revenue divided by LPC reported retail power sales and directly served power sales.
Calculation	$(\text{LPC reported retail power revenue} + \text{Directly served power revenue}) / (\text{LPC reported retail power sales} + \text{Directly served power sales})$

Non-Fuel Delivered Cost of Power (cents/kWh)



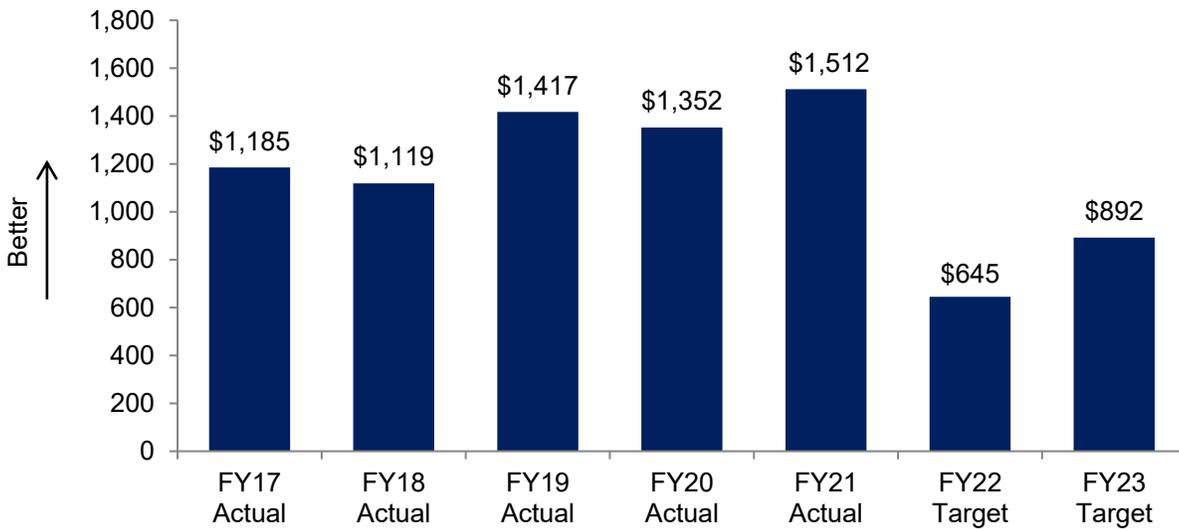
Definition	TVA's Non-Fuel Delivered Cost of Power represents TVA's non-fuel O&M, base capital, interest, and other cash needs divided by budgeted electric sales.
Calculation	$\text{(Non-Fuel O\&M + Base Capital + Interest + Other Cash Needs) / Budgeted Electric Power Sales}$ <p>Additional incremental contributions to liabilities approved by the Board of Directors are excluded from the measure.</p>

Operating Cash Flow (\$ Million)



Definition	Operating Cash Flow refers to the amount of cash generated from power production and other mission-related activities and is generally defined as Operating Revenues received less cash payments made for Operating Expenses. This amount can be found on the Consolidated Statement of Cash Flows under Cash Flows from Operating Activities.
Calculation	Net income + Non-cash expenses + Impact of changes in working capital and other deferred operating items

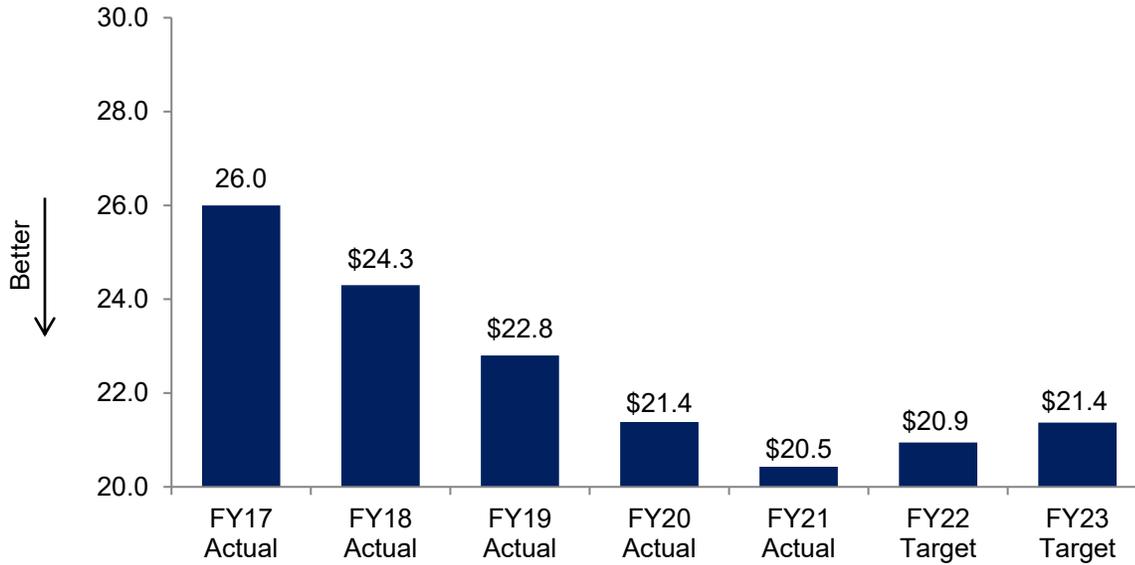
Net Income (\$ Million)



* FY17 Actual Results Exclude \$500M Incremental Pension Contribution

Definition	Net Income is an entity's net earnings derived by adjusting revenues for the cost of doing business, including cost of sales, depreciation, interest, taxes, and other expenses. This amount is shown on the bottom line of the Consolidated Statement of Operations.
Calculation	Operating Revenues – Operating Expenses + Other Income/(Expense) – Net Interest Expense

Total Financing Obligations (\$ Billion)

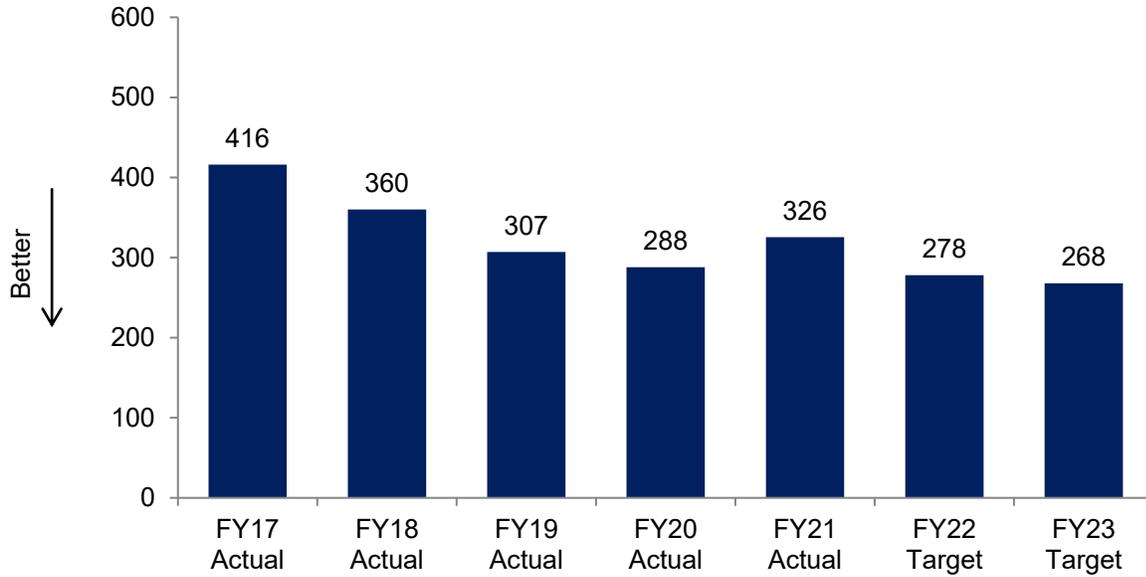


Definition	TFOs include all statutory debt and other financing obligations, as shown on TVA's balance sheet.
Calculation	Long-term Power Bonds + Short-Term Debt + Leaseback Obligations + Energy Prepayment Obligations + Debt of Variable Interest Entities ("VIE") + Membership Interests of VIE Subject to Mandatory Redemption + Notes Payable

* See Appendix B for a calculation of TFOs utilizing financial statement line items reported in accordance with Generally Accepted Accounting Principles.

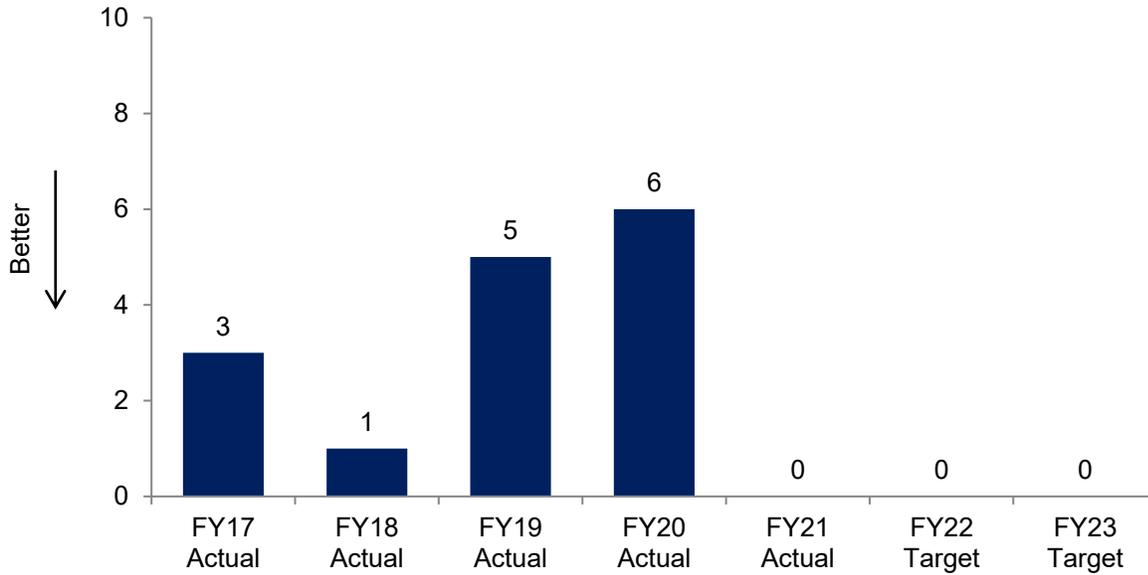
Operational Excellence

CO₂ Emissions Rate (tons/GWh)



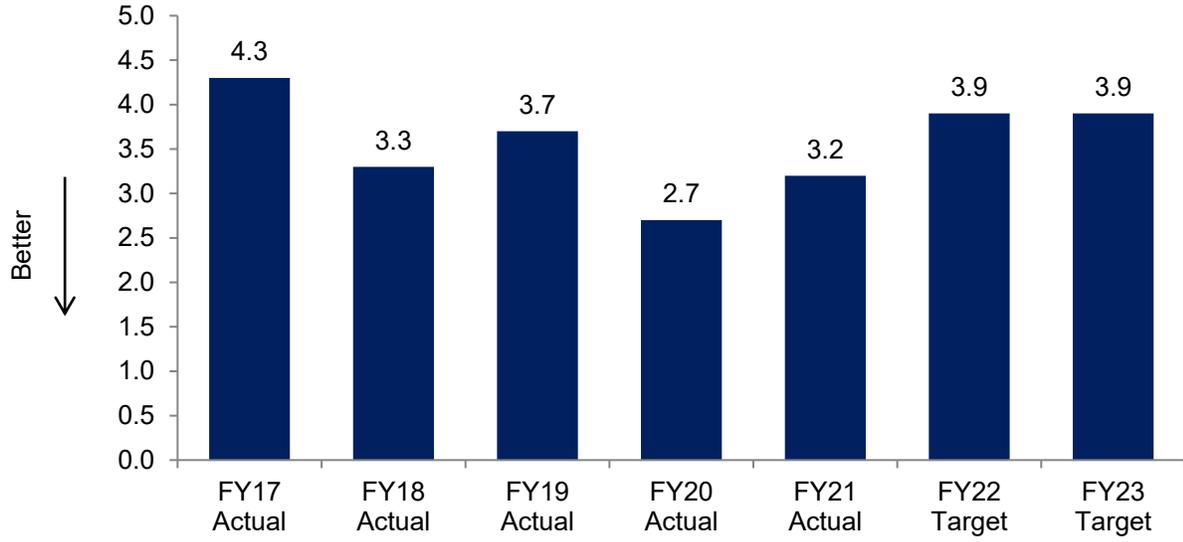
Definition	This measure reflects TVA's commitment to manage greenhouse gas emissions through efficient operation of its diverse generation mix.
Calculation	Tons of CO ₂ emissions / GWh of generation

Environmental Violations of Significance



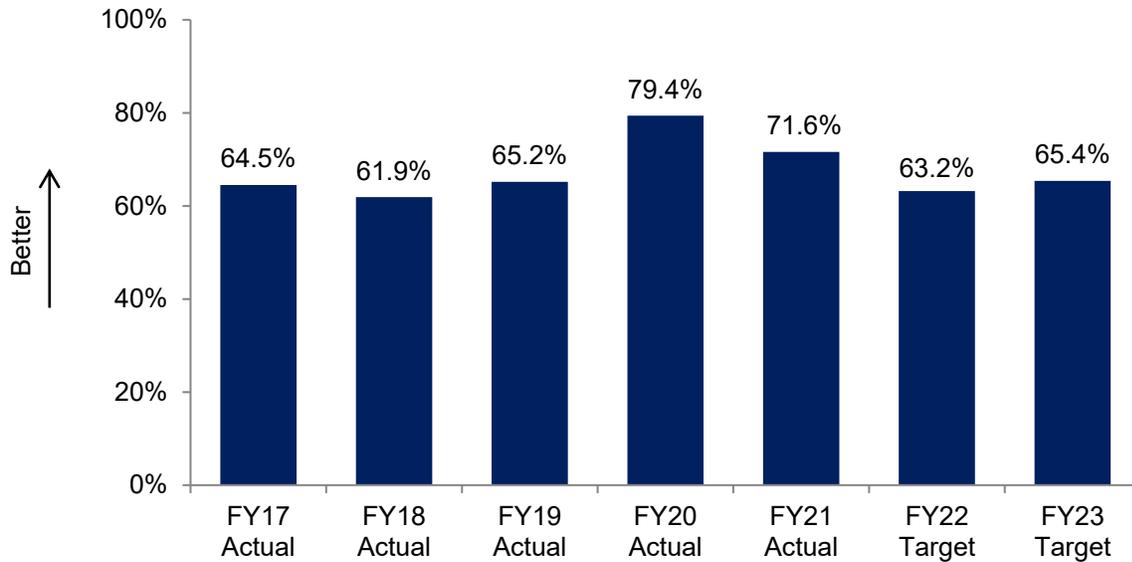
Definition	Environmental Violations of Significance (“EVOS”) is defined as a notice of violation or enforcement order issued by a regulatory agency for any non-compliance, or any non-compliance resulting in a fine or penalty.
Calculation	<p>Number of EVOS (an occurrence will be recorded for each event)</p> <ul style="list-style-type: none"> - Multiple parameters or multiple regulatory violations that result from the same root cause/event are counted once. - Repeat occurrences will always count as separate events where cause evaluations are complete but actions to address have not been completed.

Load Not Served (System Minutes)



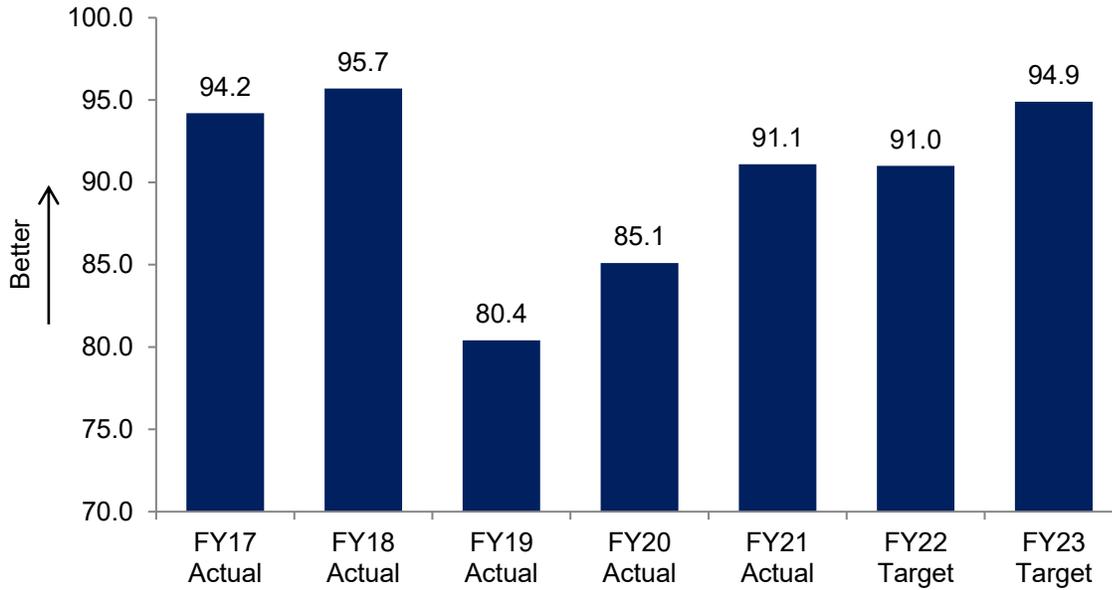
Definition	Load Not Served measures the magnitude and duration of transmission system outages that affect TVA customers. This measure is expressed in system minutes and excludes events during declared major storms.
Calculation	Percent of total load not served x Number of minutes in period

Coal Equivalent Availability Factor



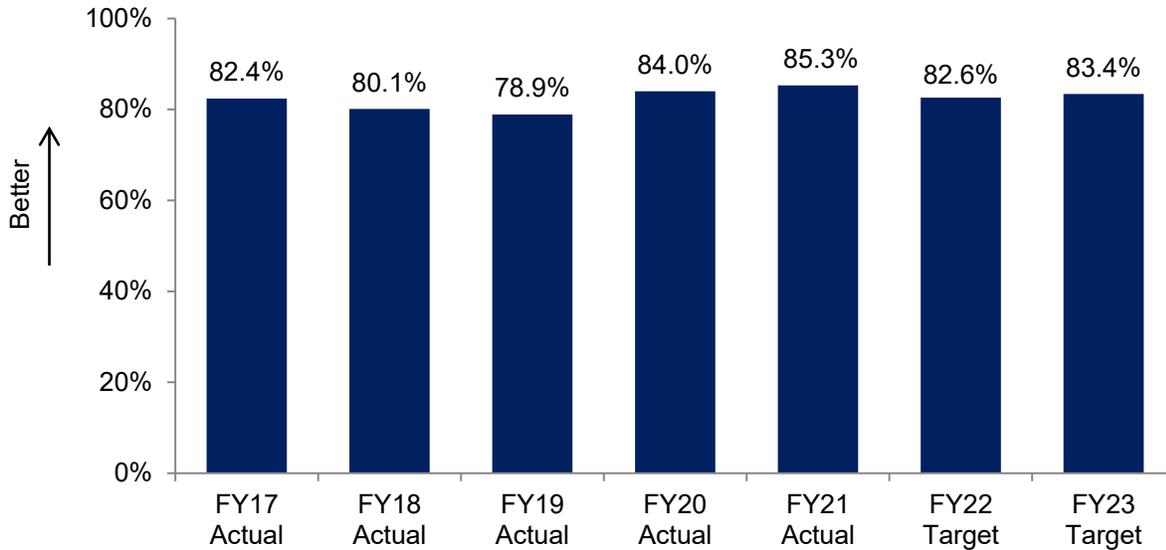
Definition	The Coal Equivalent Availability Factor reflects the percentage of time over a given period that a coal-fired unit was available to generate electricity for TVA. This measure excludes any newly commissioned units until after the first full fiscal year of operation.
Calculation	<p>Weighted Capacity Based Equation: $WEAF = \{ \Sigma [(AH - EFDH - EMDH - EPDH - ESEDH) \times NMC] / \Sigma (PH \times NMC) \} \times 100$</p> <p>Where:</p> <ul style="list-style-type: none"> WEAF = Weighted Equivalent Availability Factor NMC = Net Maximum Capacity AH = Available Hours PH = Period Hours ESEDH = Equivalent Seasonal Derated Hours EPDH = Equivalent Planned Derated Hours EFDH = Equivalent Forced Derated Hours EMDH = Equivalent Maintenance Derated Hours

Nuclear Performance Index



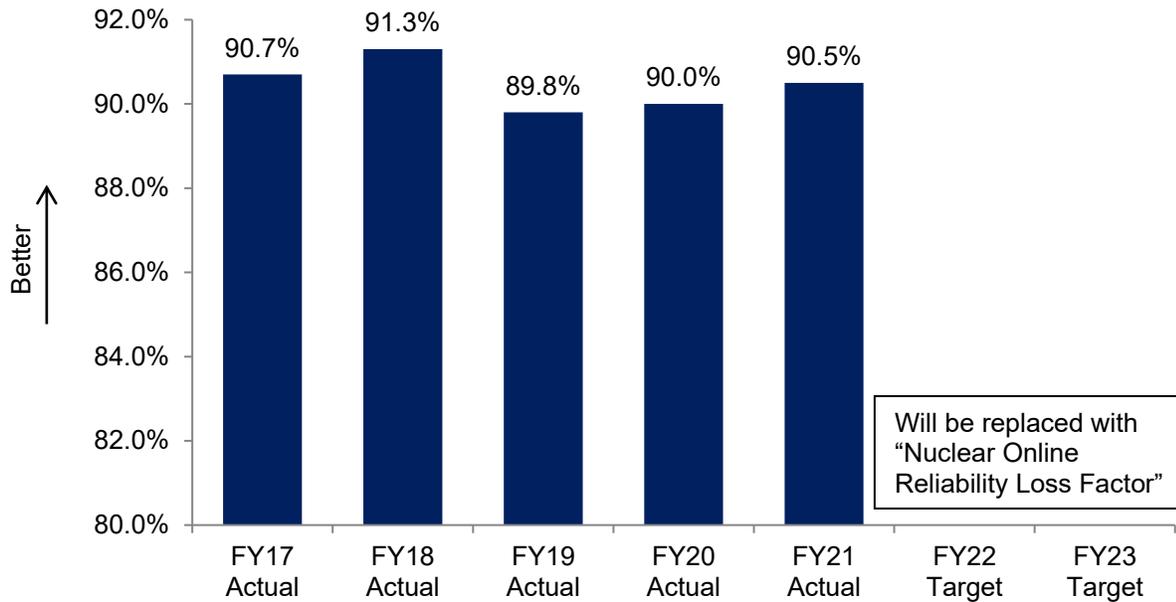
Definition	The Nuclear Performance Index is a weighted combination of the key performance indicators based on standard nuclear industry definitions for station performance. Metrics for FY 2021 and prior are based on the 2020 Index while metrics after FY 2021 are based on the 2025 Index.
Calculation	The Nuclear Performance Index for each unit is calculated using a weighted combination of key performance indicators based on standard nuclear industry definitions, with the maximum obtainable being 100 points. TVA's fleet-level Nuclear Performance Index is a simple average of the performance of each unit.

Combined Cycle Equivalent Availability Factor



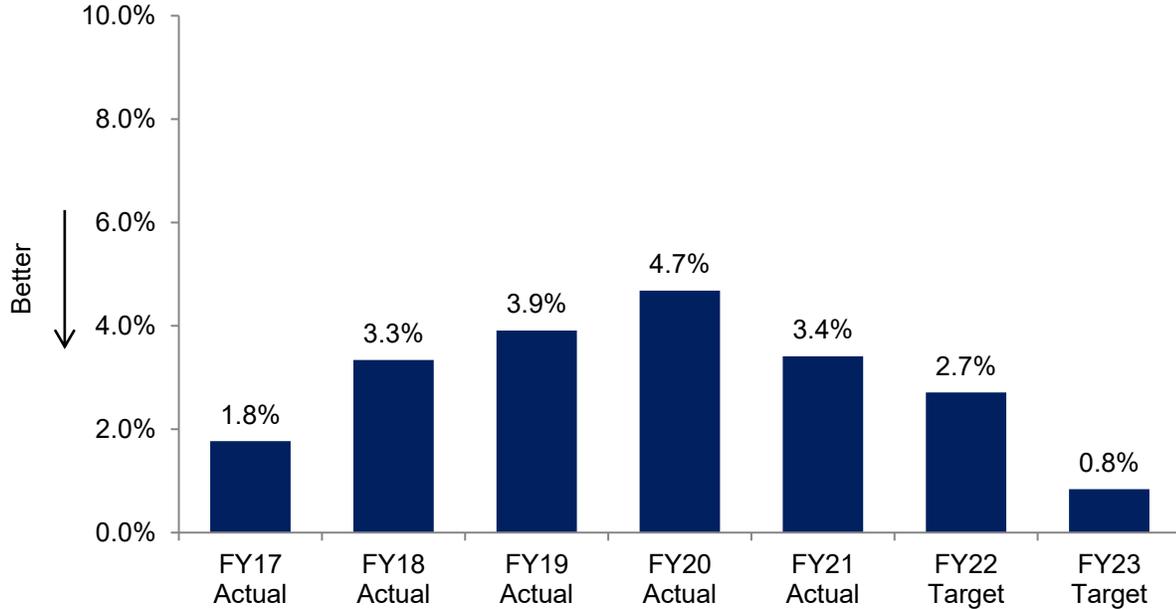
Definition	The Combined Cycle Equivalent Availability Factor reflects the percentage of time over a given period that a natural gas-fired unit was available to generate electricity for TVA-operated combined cycle generating assets. This measure excludes any newly commissioned units until after the first full fiscal year of operation.
Calculation	<p>Weighted Capacity Based Equation: $WEAF = \left\{ \frac{\sum [(AH - EFDH - EMDH - EPDH - ESEDH) \times NMC]}{\sum (PH \times NMC)} \right\} \times 100$</p> <p>Where:</p> <ul style="list-style-type: none"> WEAF = Weighted Equivalent Availability Factor NMC = Net Maximum Capacity AH = Available Hours PH = Period Hours ESEDH = Equivalent Seasonal Derated Hours EPDH = Equivalent Planned Derated Hours EFDH = Equivalent Forced Derated Hours EMDH = Equivalent Maintenance Derated Hours

Nuclear Unit Capability Factor



Definition	Nuclear Unit Capability Factor is the ratio of available energy generation over a given period of time to the reference energy generation over the same time period, expressed as a percentage.
Calculation	$[(REG - PEL - UEL - OEL) / REG] \times 100$ <p>REG = Reference Energy Generation PEL = Planned Losses UEL = Unplanned Losses OEL = Outage Extension Losses</p>

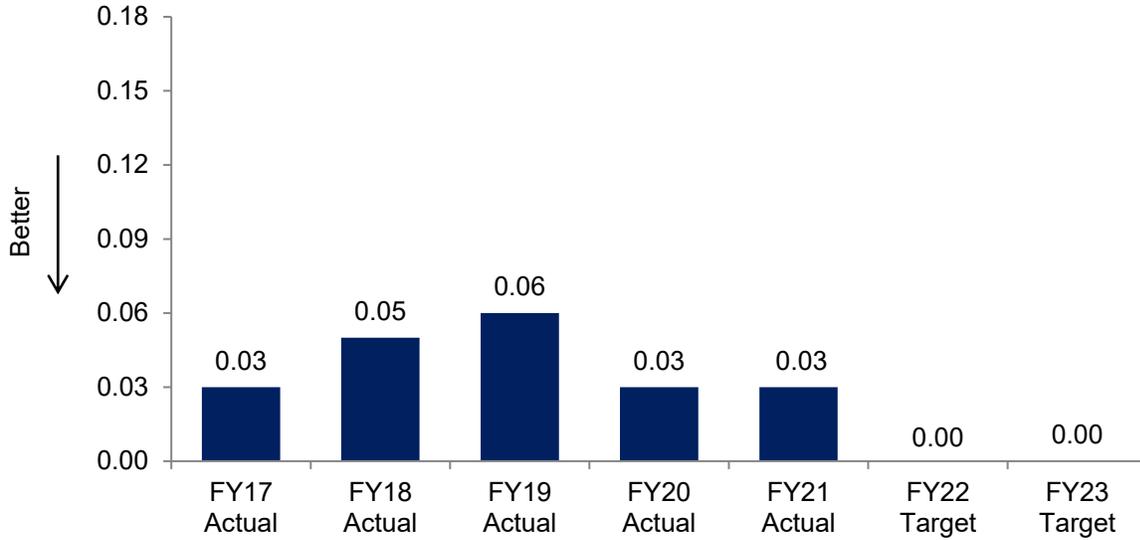
Nuclear Online Reliability Loss Factor



Definition	Nuclear Online Reliability Loss Factor is the 12 month ratio of all generation losses, minus refueling outages and exempt losses, to reference energy generation minus refueling outages and exempt losses in a normal fuel cycle period.
Calculation	$\{[(PEL + UPEL + UPELOE) - (RFOT + SPEL)] / (REG - (RFOT + SPEL))\} * 100$ <p> PEL = Planned energy losses, MW-hr. UPEL = Unplanned Energy Loss (Forced) UPELOE = Unplanned Energy Loss (all Outage Extension) RFOT = Refueling outage duration in hrs. * RUP, MW-hr. (Breaker open to breaker closed, includes any refueling outage extension losses) SPEL = Exempt Reliability Energy Loss; energy losses associated with exempt activities REG = Reference Energy Generation REG (month) = RUP * 24 hours/day * no. days/month RUP = maximum power capability of the unit under reference ambient conditions </p>

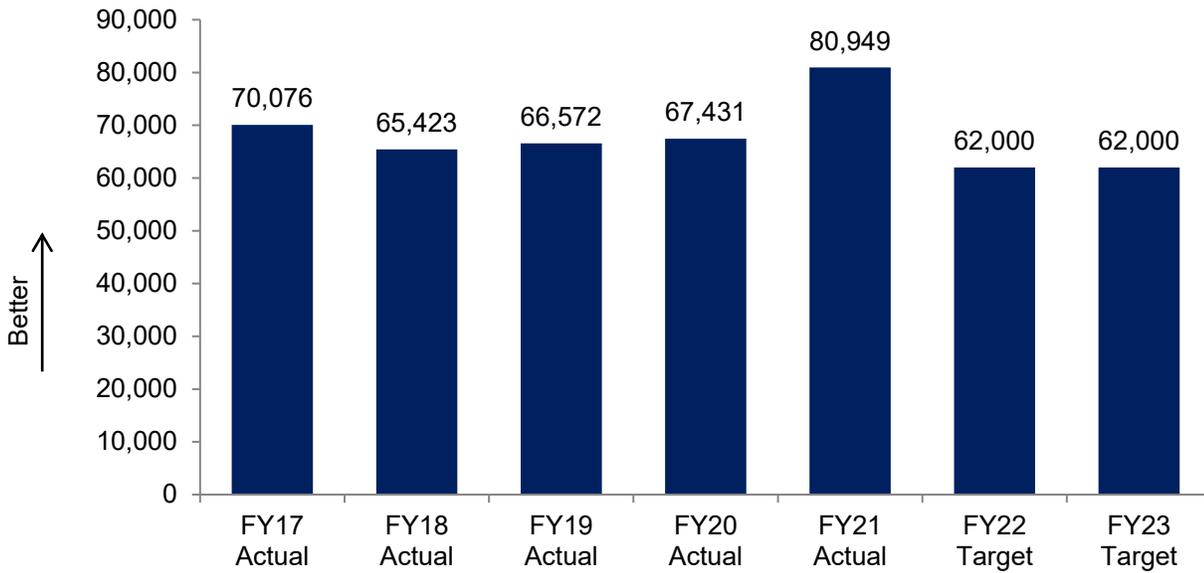
People Advantage / Powerful Partnerships

Serious Injury Incident Rate (SIIR)



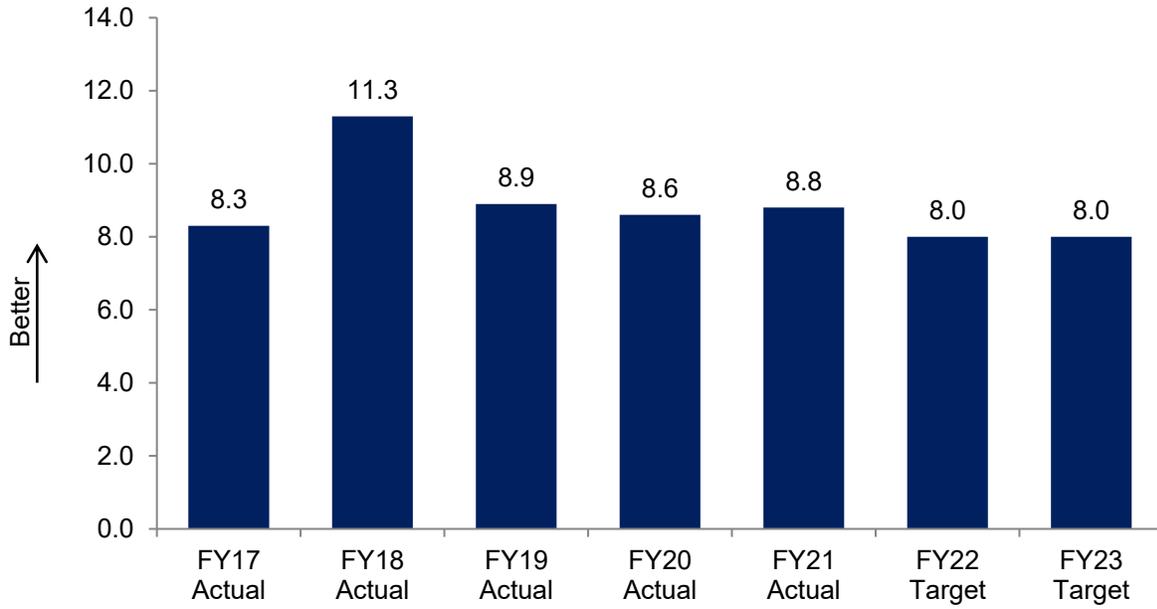
Definition	The SIIR is a mathematical calculation used by Edison Electric Institute that quantifies the extent of injury for serious injuries and fatalities from events within the control of the employee and/or the employer.
Calculation	$(\text{Number of cases} \times 200,000) / (\text{number of hours worked during the time period})$ Metric applies to TVA employees and staff augmentation contractors.

Jobs Created & Retained



Definition	Jobs Created and Retained measures the annual 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.
Calculation	Number of annual Jobs Created and Retained as reported through TVA channels

Capital Investment (\$Billion)



Definition	Capital Investment measures the amount of economic and capital investment in the Tennessee Valley for which TVA has played a role in attracting.
Calculation	Amount of capital investment as reported through TVA channels

Igniting Innovation

TVA's Igniting Innovation priority is designed to measure progress toward milestones and initiatives that provide innovative and advanced solutions to better serve the people of the Tennessee Valley.

At TVA's November 2020 Board meeting, a set of transformative innovation initiatives was presented, including the following:

- **Energy Storage Integration** – Implement a long-term strategy to integrate energy storage for system flexibility and maximizing renewables
- **Electric Vehicle Evolution** – Enable the adoption of electric vehicles in the Valley to create load growth and benefits for citizens
- **Regional Grid Transformation** – Enable an interconnected, intelligent grid to reliably deliver power as customer values evolve, investing in a state-of-the-art System Operations Center and Energy Management System that enhance security, resiliency and reliability and enable innovation
- **Connected Communities** – Expand smart technologies including broadband with communities to manage energy and services
- **Advanced Nuclear Solutions** – Develop a reliable, affordable, flexible, and clean generation option with cost and risk shared
- **Decarbonization Options** – Develop feasible technology pathways to achieve the next phases of carbon reductions and offsets

TVA's electric vehicle initiative will also support economic development in the TVA region by attracting significant jobs and capital investment to the area. Several major auto makers have already invested in major electric vehicle manufacturing operations in the region, and TVA is partnering with the industry, the State of Tennessee and our LPC partners and customers to advance electric vehicles. TVA has plans for fast charging stations every 50 miles along Tennessee interstates and major highways with the intent of helping to put more than 200,000 electric vehicles on Valley roads by 2028.

TVA's electric vehicle initiative is a 21st century embodiment of our historic work in Energy, Economic Development, and the Environment, and the initiative demonstrates how those three elements combine for optimal results. The electric vehicle initiative aims to increase the number of electric vehicles across the seven-state area from approximately 16,000 today to over 200,000 by 2028. The average electric vehicle driver is expected to save up to \$1,000 a year in fuel costs—totaling an estimated \$200 million a year in consumer savings and \$120 million in refueling dollars that go back into the region's economy. The locally produced, clean energy fueling these vehicles will save almost a million metric tons of CO₂ per year.

Regarding the energy storage initiative, and to help manage resiliency and reliability with increased renewable energy on the system, TVA announced a battery-storage demonstration project at Vonore, Tennessee, that is expected to be online in 2023. This project will help TVA understand how best to utilize batteries for balancing renewables and optimizing the transmission system. This understanding will help TVA effectively plan for the future grid. The battery at Vonore will be TVA's first owned and operated grid-scale project. This battery system will use lithium-ion batteries to store 40 MWh of energy— enough electricity to power 11,000 homes for three hours. The project will test the effectiveness of batteries in supporting the transmission system as an alternative to fossil fuels to provide frequency regulation and voltage support.

Making progress toward these initiatives will better position TVA to serve the Valley in providing clean, low-cost energy while supporting new technologies that can improve the quality of life for those in the Valley.

Other Information

Data Validation and Verification

Much of the data contained in this document was derived from TVA's Annual Report on SEC Form 10-K for the year ended September 30, 2021 (the "Annual Report"). TVA filed the Annual Report with the SEC, and TVA's CEO and Chief Financial Officer certified the Annual Report in accordance with the requirements of the Sarbanes-Oxley Act. In addition, TVA's independent auditor, Ernst & Young LLP, audited the financial statements contained in the Annual Report.

TVA's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934 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 GAAP. Because of the inherent limitations in all control systems, internal controls over financial reporting and systems may not prevent or detect misstatements.

TVA's management, including the CEO, the Chief Financial Officer, and the Controller, evaluated the design and effectiveness of TVA's internal control over financial reporting as of September 30, 2021, 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, 2021.

Although management's report on the effectiveness of internal control over financial reporting was not required to be subject to attestation by TVA's registered public accounting firm, TVA has chosen to obtain such a report. Ernst & Young LLP issued an attestation report on TVA's internal control over financial reporting as of September 30, 2021.

Lower-Priority Program Activities

TVA has determined that it does not have any lower-priority program activities for purposes of 31 U.S.C. § 1115(b)(10).

Hyperlinks

Hyperlinks to documents discussed in this Performance Plan are set forth below:

Documents and Reports	Hyperlink
Integrated Resource Plan	https://www.tva.gov/Environment/Environmental-Stewardship/Integrated-Resource-Plan
Natural Resource Plan	https://www.tva.gov/Environment/Environmental-Stewardship/Environmental-Reviews/Natural-Resource-Plan
Annual/Quarterly Reports	https://tva.q4ir.com/financial-information/sec-filings/default.aspx
Annual Performance Report	https://www.tva.gov/About-TVA/Guidelines-and-Reports
Sustainability Report	https://www.tva.com/environment/environmental-stewardship/sustainability/sustainability-report
Strategic Intent & Guiding Principles	https://www.tva.com/energy-system-of-the-future
CCR Rule Compliance Data and Information	https://www.tva.com/environment/environmental-stewardship/coal-combustion-residuals

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Appendix A

<u>Report Number</u>	<u>GAO Recommendation</u>	<u>TVA Response</u>
GAO-17-343	The TVA Board should ensure that TVA propose, and work with the TVARS Board to adopt, funding rules designed to ensure the plan's full funding.	<p>TVA remains committed to working with the TVARS Board, a separate legal entity from TVA, to ensure a fully-funded retirement system. In addition to the 2016 plan amendments that were approved by the TVARS Board and accepted by TVA that put in place a plan to close the gap between TVARS' assets and obligations over a 20-year period, other recent developments include:</p> <ul style="list-style-type: none"> - In FY 2017, TVA made an additional one-time pension contribution of \$500 million to TVARS. This brought the total FY 2017 contribution to \$800 million versus the required contribution of \$300 million. This additional contribution has improved the confidence of being fully-funded over the original 20-year period. - As of September 30, 2020, TVARS reported a funded ratio of over 87%. - In June 2018, the TVARS Board approved, and TVA accepted, rule changes that allowed employees with a Cash Balance pension account to stop receiving Cash Balance pension benefits and instead shift their retirement benefits to the 401(k) Plan effective October 1, 2018. This choice provided employees with greater flexibility in future financial planning and the option to choose the retirement benefits that are best for them.

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

<u>Report Number</u>	<u>OIG Recommendation</u>	<u>TVA Response</u>
2019-15642	Execute the plan to update arc flash hazard analyses at plants currently overdue on their review cadence to ensure the analyses are reflective of current plant operating conditions and comply with requirements for a 5-year review.	<p>TVA is executing the plan to update all Arc Flash Hazard Analyses at plants that were identified as overdue on their cadence review. Progress is reviewed and tracked monthly.</p> <p>Progress to Date: 17 of 21 planned plants have been completed this year. Additional plants are required to be completed through 2022.</p> <p>Note: COVID-19 has delayed some completions scheduled for 2021. These will be completed in 2022 and have been re-scheduled.</p> <p>This action is on-track for completion by 09/30/2022.</p>
2019-15642	Develop and implement a control to ensure arc flash hazard analyses contain all updated calculations at those respective plants.	<p>TVA has developed a control to ensure arc flash hazard analysis contains updated calculations.</p> <p>Progress to Date: TVA has developed controls to ensure Arc Flash Hazard analysis contains all updated calculations. This control is being executed on all plants currently being updated.</p> <p>This control is currently being executed and will be reflected as a required action within TVA Engineering Guidance Document format.</p> <p>This action is on-track for completion by 09/30/2022.</p>

TVA FY 2023 Budget Proposal & Management Agenda and FY 2021 Annual Performance Report

Appendix B

TFOs are a financial measure that is not calculated and presented in accordance with GAAP. TFOs are measured by summing bonds and notes, gross, debt related to variable interest entities (“VIEs”), leaseback obligations, energy prepayment obligations, the membership interests of VIEs subject to mandatory redemption, and notes payable. A calculation of TFOs utilizing financial statement line items reported in accordance with GAAP follows:

TENNESSEE VALLEY AUTHORITY
Unaudited Reconciliation of Total Financing Obligations
at September 30 (dollars in millions)

	2017	2018	2019	2020	2021	2022 Projected	2023 Projected
Total Financing Obligations	\$ 26,022	\$ 24,281	\$ 22,818	\$ 21,421	\$ 20,543	\$ 20,946	\$ 21,370
Energy prepayment obligations	(110)	(10)	-	-	-	-	-
Notes payable	(122)	(69)	(23)	-	-	-	-
Leaseback obligations	(339)	(301)	(263)	(223)	(25)	(9)	-
Membership interests of VIE subject to mandatory redemption	(32)	(30)	(28)	(25)	(24)	(20)	(18)
Debt of VIE	(1,211)	(1,175)	(1,137)	(1,098)	(1,056)	(1,013)	(974)
Bonds and Notes, gross	24,208	22,696	21,367	20,075	19,438	19,904	20,378
Exchange loss (gain)	(125)	(147)	(191)	(153)	(58)	-	-
Unamortized discounts, premiums, issue costs and other	(163)	(154)	(139)	(131)	(122)	(168)	(183)
Notes payable	122	69	23	-	-	-	-
Debt of variable interest entities	1,211	1,175	1,137	1,098	1,056	1,013	974
Total outstanding debt	<u>\$ 25,253</u>	<u>\$ 23,639</u>	<u>\$ 22,197</u>	<u>\$ 20,889</u>	<u>\$ 20,314</u>	<u>\$ 20,749</u>	<u>\$ 21,169</u>

