Agency	Tennessee Valley Authority
Climate Adaptation Official	Rebecca Tolene
Agency Climate Adaptation Webpage	TVA.com/greenhouse-gases

Head of Agency: CEO Jeff Lyash

Signature

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Date

Section 1: Updates on Priority Actions

Priority Action Progress Summary

Priority Action	Status	Timeframe	Brief Description of Progress
Climate Resiliency for Aquatic Species	In Progress	Ongoing (Since 2014)	Over $4 million in stream habitat enhancement projects have been implemented by TVA and our partners since these programs were initiated in 2014.
Improve Climate Adaptation and Resiliency Literacy at TVA	In Progress	Ongoing (Since 2011)	TVA has updated its guiding environmental policies, has expanded disclosure relevant to climate adaptation and resiliency, and works toward continuous improvement in environmental management processes.
River Management Climate Change Impact Assessment	In Progress	Ongoing (Phase 1 implemented 2020)	Inflow forecast modeling using data from the Fourth National Climate Assessment was implemented in 2020. TVA is now in the first year of a three-year project in partnership with ORNL to assess climate impacts in six key river management areas.
Flood Hazards and Water Reliability	Complete	2020	The completed water reliability study has improved TVA's understanding of the scope and impacts of record historical droughts, and this understanding will enable us to better anticipate and respond to future extreme weather events.
Investing in the Future while Keeping Energy Costs as Low as Possible	In Progress	2030 (Current iteration)	The 2020-2030 Financial Plan has enabled TVA to deliver energy at some of the lowest rates in the nation while we remain on track toward our decarbonization goals.

Priority Action Progress Examples

1. Through the Sentinel Monitoring and Aquatic Ecology Management programs addressed by Priority Action 1, TVA has worked with partners to implement over $4 million dollars in stream and aquatic habitat improvement projects in the Tennessee River watershed since 2014. These projects include the establishment of riparian buffers, the removal of stream barriers, and the propagation and reintroduction of at-risk fish and mussel species. Data collected by stream monitoring under these programs are shared with partner agencies and organizations to advance scientific understanding of the Tennessee River's rich aquatic biodiversity and to support aquatic conservation programming.

2. Recent strategic planning and disclosure initiatives reflect progress in Priority Action 2: Improve Climate Adaptation and Resilience Literacy at TVA. For example, TVA updated its Environmental Policy in 2020 and adopted its Biodiversity Policy in 2021; initiated and completed multiple roadmap teams to support and expand our integrated Environmental Management System; publishes annual corporate Sustainability Reports; and released a supplemental Carbon Report in 2021. The board-level support of these policies and disclosures-- as well as other collaboration strategies such as monthly interdepartmental climate policy meetings-- enable staff-level engagement and familiarity with climate adaptation and resilience planning.

3. TVA is currently in the first year of a multi-year project in support of Priority Action 3: River Management Climate Change Impact Assessment, which will assess the impacts of certain climate scenarios to six key river management areas (water supply, flood prevention, navigation, recreation, water quality, and power production) within the Tennessee Valley. TVA is working with DOE Water Power Technologies Office (WPTO) / Oak Ridge National Laboratory (ORNL) to obtain projected temperature and precipitation data from various global climate models and downscale them to the Tennessee Valley region. TVA's goal will be to use this research to better plan for the future of its river operations, whereas ORNL will use this opportunity to provide further guidance to other national hydropower stakeholders in evaluating climate impacts and adaption strategies and to add to the scientific literature. Furthermore, ORNL may also assess other climate change interest areas (i.e., hydrothermal projections) from a research perspective within the Valley through this project.

4. The data gained in studies completed in support of Priority Action 4: Flood Hazards and Water Reliability are used to improve planning and performance by testing the resiliency of TVA's management policies and intake equipment. State-of-the-art stochastic flood event models were used to evaluate the magnitude and likelihood of realistic extreme floods and assess their impact on TVA infrastructure, and a 600-year reconstruction of rainfall within the Valley was used to assess the impact of extreme drought events. These models are incorporated into planning processes to ensure TVA is equipped to respond to the extreme weather events associated with climate change.

5. TVA is an electric utility industry leader in reducing carbon emissions from our generating fleet while maintaining high reliability and low cost. Through CY 2021, TVA has attained a 57% reduction in mass carbon emissions from a 2005 baseline. TVA

has established carbon emission goals for the electricity we provide to the Valley-- we are executing a plan to achieve 70% reduction by 2030, developing a path to about 80% reduction by 2035, and we have an aspirational goal to be net-zero by 2050. The increasingly clean energy TVA delivers remains reliable and low-cost: in 2021, TVA's effective wholesale rates were the lowest in a decade, and we maintained 99.999% reliability for the 22nd straight year. According to June 2021 Energy Information Administration data, TVA residential rates were lower than 80% of the top 100 US Utilities and TVA industrial rates were lower than more than 95%.

Section 2: Updates on Other Initial Plan Topics

1. Climate-Risk Reduction

At TVA, we work around the clock to monitor and protect our assets and the people of the Valley. Our robust governance structure and oversight helps ensure that our power grid is resilient to disruptions such as cybersecurity threats, adverse weather, and atmospheric events. In addition to oversight from Congress, TVA is overseen by the Government Accountability Office (GAO), Office of Management and Budget (OMB), the U.S. Treasury, and an independent Office of the Inspector General (OIG); in addition, TVA's activities, like those of other utilities, are overseen by a Board of Directors, credit rating agencies, Sarbanes-Oxley Act requirements and the Securities and Exchange Commission (SEC).

In March 2022, the SEC proposed rule changes that would require registrants to include certain climate-related disclosures in their registration statements and periodic reports, including information about climate-related risks that are reasonably likely to have a material impact on their business, results of operations, or financial conditions. TVA currently reports greenhouse gas emissions and other climate-related information in the Annual Report on Form 10-K, the corporate Sustainability Report, and additional public disclosures, and will comply with the requirements of the final SEC rule.

TVA uses a structured method for assessing operating risk to climate-related hazards as part of resilience planning, which addresses a range of high-impact events including natural disasters such as flooding and extreme heat, man-made threats such as physical and cyber-attacks, and electromagnetic pulses. TVA documents high impact risks and the process of developing resilience to them using a resilience matrix format proposed by the North American Transmission Forum and the Electric Power Research Institute (EPRI). The matrix serves as a single point for analyses, emergency and operating plans, procedures, and associated publications and is a useful reference during emergency events as well as a guideline for further improvements and an education source for employees. Successful disaster responses require resilient design standards and adequate assessment and preparation of the material inventory, labor and equipment support to begin restoration.

Periodic audit plans are developed using information from assurance programs and processes supporting performance incentive plans, regulatory obligations, relevant Sarbanes-Oxley (SOX) deficiencies, and business plan results. Priority of audits is

based on elements such as the strength of oversight, past performance, time since changes in management, process complexity, appropriateness of risk mitigation plans, and the potential impact to the agency. Results are shared with audit and assurance groups across TVA, including the OIG and SOX. Emergent issues are considered throughout the year. To maintain readiness for future disruption, TVA has cataloged major short-term and long-term enterprise level risks, including cyber threats and climate change risk, across the organization.

Fiscal risk from climate change and other threats is assessed and disclosed in the annual 10-K and quarterly 10-Q SEC filings. Fiscal risks from climate change identified in these disclosures include impacts from extreme temperatures, extreme rainfall events, extreme drought, and the operating changes required to effectively respond to these extreme events. Extreme temperatures may increase the demand for power and require TVA to purchase power at high prices to meet the demand from customers, while unusually mild weather may result in decreased demand for power and lead to reduced electricity sales. In periods of below normal rainfall or drought, TVA's low-cost hydroelectric generation may be reduced, requiring TVA to purchase power or use more costly means of producing power. Additionally, periods of either high or low levels of rainfall may impede river traffic, impacting barge deliveries of critical items such as coal and equipment for power facilities. High river water temperatures in the summer may limit TVA's ability to use water from the Tennessee or Cumberland River systems for cooling at certain of TVA's generating facilities, thereby limiting TVA’s ability to operate these generating facilities. This situation would be aggravated during periods of reduced rainfall or drought. If changes in the climate make such shifts in weather more common or extreme or cause catastrophic events, such as droughts, floods, wildfires, and snow or ice storms to occur more frequently in the Tennessee Valley region, TVA may be required to, among other things, change its generation mix or change how it conducts its operations, which could have a material adverse effect on TVA's cash flows, results of operations, and financial condition. Moreover, TVA's efforts to address the potential impacts of climate change may not be effective, as there are uncertainties with any new technology and operational development and deployment, and there are also potential financial, operational, and environmental impacts, including impacts to rates and reliability as well as siting and permitting challenges.

To ensure continued financial strength as we prepare for a changing climate, TVA has developed a Sustainable Financing Framework to guide future issuances of green, social, and sustainability bonds or other financing instruments. In September 2021, TVA announced its first green bond offering based on this framework. The $500 million offering of 10-year maturity green bonds drew strong market demand with over $2 billion in initial orders, closing with a 1.500% interest rate. Proceeds from the bond sale may be used for renewable energy projects, battery storage, development of advanced clean energy technologies and transmission system enhancements – supporting our 2050 net-zero carbon aspirational goal and enhancing our agency’s climate resilience. Low-cost financing will enable us to keep energy rates as low as possible while we make strategic capital investments in our generation and grid system to prepare for a sustainable future.

2. Climate Vulnerability Assessments

TVA has completed its climate vulnerability assessment. Consistent with CEQ guidance, TVA has leveraged former vulnerability assessments to identify the five vulnerabilities directly tied to management function, as well as decision points for managing

procurement, real property, public lands, waters and financial programs. The risks and opportunities identified by the vulnerability assessment are within the scope considered by TVA's current planning and evaluation processes and are therefore considered in agency policies and decision-making. Please refer to the 2021 *Climate Action Adaptation and Resilience Plan* to review a high-level summary of the climate vulnerability assessment results.

3. Climate Literacy

TVA is conducting broad climate training initiatives to improve executive and staff understanding and implementation of guiding policies and disclosures including the Environmental Policy, Environmental Management System Road Map Implementation, Sustainability Report, and Climate Action Implementation Plan.

In November 2021, TVA adopted our Biodiversity Policy, which guides employees across TVA to consider biodiversity risks and opportunities and to integrate biodiversity considerations into project planning. An interdepartmental Biodiversity Action Team was established to drive policy education and implementation.

We continue to review alignment of these guiding documents, assess workforce understanding and familiarity, and update approaches as needed. TVA is in the process of retooling our disclosure documents and stakeholder engagement strategy in preparation for compliance with the newly proposed SEC Climate Disclosure rules and the anticipated instructions for the 2023 Climate Adaptation Plan.

TVA is fostering a culture of knowledge and practice for climate adaptation through ongoing discussion, education, and interdepartmental collaboration. This includes monthly climate policy interdepartmental meetings of key staff and a TVA-wide Adaptation and Resiliency SharePoint collaboration site.

TVA employees are encouraged to incorporate climate considerations into their planning and projects, including consideration of both long- and short-term vulnerabilities, and to seek to balance trade-offs. Significant climate change risks are identified in each TVA major planning process and inform agency-wide and regional planning.

4. Tribal Engagement

TVA is committed to government-to-government coordination with our Tribal partners as we seek to implement climate adaptation considerations into regional planning, in alignment with the *Plan*. Over the past five years, TVA has proactively increased its efforts to provide partnership and engagement opportunities to strengthen TVA's relationship with Tribes and to encourage meaningful cultural interaction between tribal representatives, TVA staff and the public. In accordance with the Presidential Memorandum of January 26, 2021 ("Tribal Consultation and Strengthening Nation-to-Nation Relationships"), TVA has prepared a Plan of Action to support implementation of the directives of E.O. 13175: *Consultation and Coordination with Indian Tribal Governments,* detailing partnership initiatives and plans to promote Tribal sovereignty and provide platforms for Tribes to present their perspectives in their own voices.

Native American tribes play a critical role in the protection of natural and cultural resources on public land in the Tennessee Valley, and TVA understands the value of proactive coordination with Tribal stakeholders. Among other programs celebrating the unique value of Indigenous Traditional Ecological Knowledge, TVA is developing a

native plant partnership with Tribes and providing opportunities for collaboration on species rehabilitation, collection and propagation when feasible; facilitating opportunities for Tribes to assist in damage assessments and remediation efforts at archaeological sites and providing funding where available; and partnering with Tribes and funding their participation as instructors in TVA's Thousand Eyes Volunteer Site Stewardship program. The value of tribal input and ITEK is reflected in the Climate Adaptation and Resiliency Planning principles, which guide TVA's adaptation planning to develop integrated approaches based on ecosystem planning in strong partnership with Tribes and other stakeholders.

5. Environmental Justice

TVA is committed to prioritizing environmental, energy, and climate justice across our strategies and operations, and continues to evaluate environmental justice impacts in the implementation of the *Climate Action Adaptation and Resiliency Plan* and other plans and policies. TVA's Environmental Justice work is becoming more structured to improve alignment with Biden administration Executive Orders directing federal agencies to address disproportionate health, environmental, economic and climate impacts on disadvantaged communities. In 2021, TVA established a multidisciplinary Environmental Justice core team that is creating a framework for how TVA will identify disadvantaged communities and their needs; improved our communication and services; and planned strategically so we are better able to assess our holistic impact on communities when we make operational decisions. TVA has also established a dedicated resource responsible for ensuring the lens of environmental justice is embedded into its decision-making processes. This individual ensures TVA incorporates the views of all impacted people in any decisions that could affect the environment (e.g., asset siting, waste removal, etc.), including climate adaptation planning processes.

6. Partnerships

Building strong partnerships is a core guiding principle in TVA's climate adaptation planning. We have continued our work to establish and strengthen the partnerships that enable us to develop tools, processes, projects and understanding to improve resiliency and adaptation to climate change. As we make progress in pursuit of the Priority Actions identified in this plan, we have strengthened our relationship with: local, state, and federal agencies engaged in the knowledge- and resource-sharing collaboration offered by the Tennessee River Basin Network; Oak Ridge National Laboratory and local Universities as we collaborate to develop innovative technology solutions and research historical climate patterns; and numerous governmental, tribal and community organizations as we continue to keep rates as low as feasible while working toward net-zero carbon emissions.

Among these partners in innovation are:

- Ontario Power Generation, coordinating exploration into the design, licensing, and construction of small modular nuclear reactors as a source of reliable, carbon-free energy;
- Local Governments for Sustainability (ICLEI), assisting local power companies served by TVA to develop community greenhouse gas inventories to enable carbon emission reduction analysis and enhance community resilience; and

- Multiple communities, organizations and local power companies participating in TVA's Connected Communities initiative, which funds projects to expand access to technology and address environmental and climate inequity in the Tennessee Valley.

Section 3: New Topics from E.O. 14057

1. Policy Review

TVA maintains its Climate Action Adaptation and Resiliency Plan as a cohesive part of its major planning processes-- including integrated resource management and planning, natural resource planning, and National Environmental Policy Act (NEPA) reviews. The *Climate Action Adaptation and Resiliency Plan* is intended to equip all TVA planners with the analytical tools, framework and guidance necessary to ensure that TVA policies, projects and plans are climate resilient.

With each *Plan* update, TVA continues to improve its climate adaptation and resiliency planning efforts with more detailed and updated information on stakeholder concerns, management objectives, resource availability (natural, human and financial), science and technology and other dynamic factors. Ongoing efforts to address gaps in data, methodologies, tools and other resources are underway at TVA and at academic, government and industry organizations across the country. Continued communication, data sharing, and coordination on research best practices, resilience solutions and needs will continue to help leverage resources, strengthen knowledge and projections, and improve resilience.

TVA continues its efforts to ensure climate change adaptation and resiliency are integrated into agency and regional planning, in coordination with other federal agencies as well as state and local partners, Tribal governments and private stakeholders.

2. Climate Scenario Analysis

Consideration of climate projections is an important tool in TVA decision-making. The analytical framework of the *Climate Action Adaptation and Resiliency Plan* provides TVA planners with guidance on how to use multiple future scenarios and different time periods in planning and project design. TVA aims to achieve familiarity and common use of this *Plan* and framework through monthly climate policy interdepartmental meetings of key staff and a TVA-wide Adaptation and Resiliency SharePoint collaboration site. The strategy is designed to ensure TVA staff adequately understand adaptation and resiliency risks or opportunities and provide TVA staff with opportunities to collaborate and easily share information with each other.

The climate data and information needed for decision-making is continuously refined by efforts underway at TVA and at academic, government, and industry organizations nationwide. *National Climate Assessment* data and Intergovernmental Panel for Climate Change scenarios inform precipitation, temperature, and load forecasting projections. Grid resiliency planning uses multiple approaches and sources to consider a range of

risk factors related to climate change, for example, including FEMA National Flood Hazard Layer data in TVA GIS applications.

Multiple offices across TVA incorporate climate information into decision-making. In the organizational chart on the following page, the business units shaded in blue consider climate information in strategic planning.

TVA Organizational Chart

Chief Operating Office	TVA Nuclear	External Relations	Human Resources & Communications	Chief Financial Office	General Counsel
Transmission & Power Supply	Corporate	Office of the CEO	Business HR	Corporate Accounting	Commerical Law
Power Operations	Browns Ferry	Economic Development	People First Solution Center	Treasury & Risk	Employment Law
Generation Projects & Fleet Services	Sequoyah	External Strategy & Regulatory Oversight	Strategic Performance	Financial Operations & Performance	Enterprise Records & OGC Operations
Resource Management & Operations Services	Watts Bar	Federal Affairs	Talent & Culture	Enterprise Planning	Ethics & Compliance
		Regional Relations	Total Rewards	Technology & Innovation	Litigation
			Communications & Public Relations	Commercial Energy Solutions	Regulatory Law
				Innovation & Research	