2022 TVA Federal Sustainability Plan

1. TVA Sustainability Plan Summary

Sustainability is engrained in TVA's mission, which guides us to provide energy that is reliable, resilient, low-cost and clean; environmental stewardship that protects and preserves public lands, water and air; and economic development that attracts investment and creates jobs in the region. TVA is committed to serving Valley communities as a community leader and trusted partner; to continued investment in our increasingly clean, diverse generation portfolio; to being a leader in innovation; to being a leader in low-carbon energy; to prioritizing diversity and inclusion in our workforce, suppliers and partners; and to maintaining financial strength and stability as a self-sustaining and self-funded agency.

TVA is an industry leader in carbon reduction. In CY2021 we achieved a 57% carbon intensity reduction from a 2005 baseline, and we have a plan to achieve 70% reduction by 2030, a path to ~80% by 2035, and an aspirational goal of net-zero carbon emissions by 2050. We have identified more than thirty actions to drive deep carbon reduction, focused in five key areas—Energy Technology Innovation, Valley Innovation, Fleet Innovation, Energy Delivery Innovation, and Natural Resources Stewardship Innovation. At TVA, we are working with our partners to build a sustainable, clean energy future while continuing to prioritize affordability, reliability and resiliency.

2. Priority Actions Towards Goals

A. 100 Percent Carbon Pollution-Free Electricity for federal facilities

For TVA-owned buildings, we are taking a number of actions to increase carbon pollution-free electricity (CFE) to 100% by 2030 with up to 50% on a 24/7 annual basis. TVA expects to achieve 50-55% CFE in FY 2022. Priority actions in FY 2022 include the following:

- Quantifying emissions from purchased electricity based on location and determining which buildings will remain in-service long term (September 2022).
- Determine how TVA long-term generation changes will impact building emissions by end of calendar year 2022.
- Determine the future approach to meeting the 2030 CFE goal by end of calendar year 2022.

B. 100 Percent Zero-Emission Vehicle Fleet

TVA is committed to transitioning our Vehicle Fleet to Zero-Emission Vehicles by 2030 through a comprehensive action plan, including installation of a robust internal charging network at our facilities. TVA's Fleet Sustainability program prepares us to have a 100% Zero Emission Light-Duty Fleet and a 50% Zero Emission Medium-Duty fleet by 2030, and all new acquisitions of Zero-Emission Medium Duty Fleet Vehicles starting in 2030. Priority actions in FY22 include the following:

- Design and Installation of 100 Level-2 Chargers and 4 DC Fast Chargers at 19 TVA Facilities in FY22.
- Transition of 50 Light Duty Fleet Vehicles to Zero-Emission Vehicles, and preparation of an additional 75 Fleet Vehicles to Zero-Emission Vehicles in FY23.
- Development and Implementation of a comprehensive internal Charging network to support our 2500 Zero-Emission Vehicle Fleet.

C. Net-Zero Emissions Buildings, Campuses, and Installations

i. Design and Construction for Net-Zero Emissions

TVA is committed to designing net-zero emission buildings for all new construction and modernization projects greater than 25,000 GSF by FY 2030. Priority actions in FY 2022 include the following:

- Meet with all internal stakeholders who may be impacted by the new requirements to inform of the upcoming changes by end of calendar year 2022.
- Incorporate new guidance and standards into our current processes by end of calendar year 2022.
- Review any new projects that meet the criteria to be designed to meet net-zero emission building requirements.

ii. Increasing Energy Efficiency

TVA continues to make investments in its buildings that further reduces their energy use intensity (EUI). Priority actions in FY 2022 include the following:

- Continue EISA 2007 and goal-subject energy/water surveys and project upgrades. Completed surveys will identify opportunities for improvement that can be implemented, which will result in GHG emissions reductions (September 2022).
- Employ operations and management (O&M) best practices for emission generating and energy consuming equipment by end of calendar year 2022. Employees that impact operations will be more educated about operations and management best practices.
- Collect and utilize building and facility energy use data to improve building energy management and performance by end of calendar year 2022. TVA will investigate building energy usage at buildings that have large increases and make corrections to prevent high energy usage in the future on an annual basis.

iii. Increasing Water Efficiency

TVA continues to make investments at its facilities to reduce water-use intensity (WUI) and expects a reduction of 0.5%-0.75% reduction in FY22 from FY21. Priority actions in FY 2022 include the following:

- Continue to identify and repair water leaks through visual identification and through water bill analysis (September 2022).
- Conduct EISA surveys to identify and implement cost effective building improvements that will reduce facility water consumption (September 2022).
- Reduce non-potable water consumption through conversion of wet fly ash storage to dry storage and plant retirements by end of calendar year 2022.

D. Reducing Waste and Pollution

At TVA, we are dedicated to ensuring safe, long-term storage and sustainable management of the waste produced by our operations. TVA is working to reduce hazardous and non-hazardous waste generation. Priority actions in FY 22 include the following:

- Maintained recycling programs at our facilities to divert solid waste from landfills.
- Continued evaluations to retire aging coal generating units, which will reduce generation of non-hazardous waste and pollution, including greenhouse gases.
- Fully implemented our program to convert coal combustion residual storage from wet impoundments to dry systems (lined landfills) in 2021 and will continue our robust groundwater monitoring program in 2022 and following years.

E. Sustainable Procurement

TVA prioritizes sustainable procurement through procurement policies, programs, and standard terms and conditions. In addition to utilizing these tools, TVA reviews and provides necessary updates to them annually to ensure purchases provide for federally mandated sustainable products in all relevant contract. TVA's methodology is based on green codes identified on purchase order lines issued in TVA's purchasing system of record. Green codes indicate that the product or service is eligible bio-based, energy efficient products, Energy Star, EPEAT-registered electronic products, recycled content, water efficient products, products containing alternatives to ozone depleting substances, products containing no or low toxic constituents, or another environmentally preferable products or services. TVA reports issues reports of these purchase order lines indicating when sustainable options were purchased and when not (of which a sustainable option is available).

Moreover, TVA Supply Chain launched a new Net-Zero Planning program in FY 2021. This effort focuses on identifying opportunities and improving the carbon situations by material and services categories (as determined to be in scope). The initiative includes issuing the contract to install the net-carbon reducing equipment at Browns Ferry Nuclear plant and setting up various hit team and/or cross functional teams to review other identified commodities.

FY21 Sustainable Procurement by the Numbers:

- 88% - Percent of compliant purchase order lines
- 63% - Percent of compliant biobased purchase order line (goal = 50%)
- $12.7M - Spend on compliant purchase order lines
- $1.9M - Spend on compliant biobased purchase order lines

F. Climate- and Sustainability-Focused Federal Workforce

Sustainability, climate action and environmental stewardship are engrained in TVA's mission, and we are continuing work to foster these values in our organizational culture and to strengthen these skills in our workforce. Our interdepartmental sustainability program drives education, dialogue and engagement in sustainability and climate adaptation planning across the organization. Priority actions in FY 22 include the following:

- Building broad climate training initiatives to improve executive and staff understanding of the Environmental Policy, Environmental Management System Road Map Implementation, Sustainability Report, and Climate Action Implementation Plan and to facilitate their implementation.
- Fostering a culture of knowledge and practice for climate adaptation through ongoing discussion, education, and interdepartmental collaboration, including a strategy of monthly climate policy interdepartmental meetings of key staff and a TVA-wide Adaptation and Resiliency SharePoint collaboration site.
- Incorporating a "team of teams" approach to sustainability, ensuring areas across the enterprise have accountability for their roles. TVA's senior leaders support integrated sustainability planning and each business unit is encouraged to incorporate sustainability metrics and objective into business planning.

G. Incorporating Environmental Justice

TVA is working to ensure that everyone in the Valley has access to a healthy environment (natural and built) and reliable, affordable and clean energy. We are committed to

prioritizing environmental, energy and climate justice across operations, and we continue to evaluate environmental justice impacts in the implementation of the sustainability program, the *Climate Action Adaptation and Resiliency Plan* and other programs and policies. Priority actions in FY22 include the following:

- Established a multidisciplinary core team responsible for ensuring the lens of environmental justice is embedded into TVA decision-making processes, which is developing a framework for how TVA will identify disadvantaged communities and their needs; improve our communication and services; and plan strategically to ensure we holistically consider our impact on communities when we make operational decisions.
- Continued investment in programs that further environmental, energy and climate justice in the Tennessee Valley, including Home Uplift, School Uplift, the Building Futures Initiative, Community Centered Growth, Save it Forward, the Generating Justice Pro Bono program, and the Connected Communities Initiative.
- Continuing to consider environmental justice considerations in the NEPA review process to assess and avoid disproportionate impacts on environmental justice populations through federal actions, though TVA is not listed as a federal agency mandated to do so by E.O. 12898.

H. Accelerating Progress through Partnerships

TVA continues to expand and establish external partnerships to support and collaborate to meet sustainability goals and objectives. Priority actions in FY 2022 include the following:

- TVA is partnering with the Tennessee Environmental Council to implement rights of way pollinator pilot projects in middle Tennessee to support biodiversity goals.
- TVA meets regularly with local power companies, municipalities, and local universities to discuss sustainability efforts and identify opportunities to collaborate.
- TVA is working on a pilot project with EPRI to test and install 15 energy management circuit breakers integrated into electric vehicle chargers. This will be a valuable way to monitor charging trends and manage peak loads.
- TVA is partnering with EPRI on cold climate heat pump research. The advantages of heat pumps over fossil heat include high overall efficiency and reduced local emissions (CO2, NOx, and SOx).
- TVA is partnering with the U.S. Dept. of Housing and Urban Development, EPRI, and Southern Company to research plant installed equipment on manufactured homes and site installed equipment. It is anticipated that factory installation and commissioning will improve system operating efficiency resulting in lower energy bills, reduced service calls and costs, vest responsibility for HVAC quality and performance with the home manufacturer, and eliminate confusion regarding warranty coverage.

3. Progress Examples

Reducing Waste and Pollution through Safe, Secure Monitoring of Coal Combustion Residuals

TVA has pioneered new technology using the best science, data and research to ensure our coal ash sites are secure, which has enabled us to implement best practices years before they were required by t he 2015 federal CCR rule. For example, six years before the CCR rule was enacted, TVA committed to eliminating wet handling of CCR materials. We have fully implemented our program to convert the coal plant CCR wet processes to dry generation or

dewatering systems and ceased flows to all wet coal ash handling units. TVA has also built lined and permitted dry storage facilities at some TVA locations, allowing these facilities to operate beyond existing dry storage capacity. TVA maintains a robust groundwater monitoring program with a network of more than 450 monitoring wells at our CCR sites to protect natural resources.

Fostering a Sustainability-Focused Workforce through Policy Development and Implementation

In November 2021, TVA adopted the Biodiversity Policy, which aligns with the Environmental Policy, Natural Resource Plan, and Environmental Management System objectives. The Biodiversity Policy supports the integration of biodiversity conservation across TVA operations and business units, and it encourages collaboration, accountability and transparency for TVA and our workforce. In 2022, an interdepartmental Biodiversity Action Team is developing a framework to implement the policy across TVA, driving visibility, education and literacy. For example, to celebrate Earth Day, TVA created a website to improve sustainability and stewardship literacy. The website features three TVA employees' whose work supports sustainability in the Valley; provides a list of upcoming events and volunteer opportunities; and encourages specific actions that employees and members of the public can take to support environmental stewardship.

Partnering for Environmental Justice in the Tennessee Valley

Through the Connected Communities Initiative, TVA and our partners are providing funding for nine projects focused on economic empowerment, equitable access to services, and energy and environmental justice in communities across our service area. Energy and Environmental Justice-focused pilot projects selected for funding in 2022 are promoting grid-interactive technologies, maximizing access to and adoption of clean energy technologies, and addressing environmental and public health outcomes through digitally connected devices, sensors and data analytics. One Connected Communities project receiving funding in 2022 is the development of the Elders Alerts System about Imminent Environmental Risks (EASIER), a partnership led by Three3 Inc. that aims to advance indoor environmental justice outcomes for elders living in historically under-resourced communities of color by improving resilience to indoor and outdoor environmental health risks. Through the program, air quality and environmental monitors will be installed inside and outside participants' homes to monitor conditions, and data from these monitors will be aggregated to trigger alerts to elders and their designated contacts via tablets equipped with an accessible user interface. Census tracks with high minority and low-income residents will be the focus of recruitment efforts for the program, and 50 homes will receive EASIER.

Increasing Energy Efficiency

Our Internal Energy Management Program (IEMP) helps us meet our energy and sustainability goals, lowers costs, improves safety, increases productivity and creates jobs. In FY 2021, TVA invested $1.79M on improvements resulting in $209,315 in annual savings and 2,449 MWh in energy consumption savings. Energy and water conservation projects identified by IEMP help us reduce our carbon footprint and lower energy costs at TVA buildings across the Tennessee Valley. Since 2008, TVA has reduced its cumulative energy usage by nearly 942 GWh. That's enough energy to power 64,200 average homes for a year. TVA's CO2 emissions savings from these improvements was an impressive 667,580 metric tons of CO2e, which is equivalent to eliminating the emissions from 145,185 passenger vehicles driven for an entire year.