

STRATEGIC SUSTAINABILITY PERFORMANCE PLAN (SSPP)

Executive Order 13693

Planning for Federal Sustainability in the Next Decade



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Tennessee Valley Authority

Strategic Sustainability Performance Plan

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Prepared by:



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POLICY STATEMENT

Since its inception, the Tennessee Valley Authority (TVA) has maintained a proud history of environmental leadership. On May 18, 1933, President Franklin Roosevelt signed the TVA Act to create an Agency that serves the people of the Tennessee Valley. TVA's **Mission** to "serve the people to make life better" is achieved through work in three main areas:

- **ENERGY:** *provide safe, clean, reliable and affordable electric power throughout its service area*
- **ENVIRONMENT:** *act as a steward of the Valley's natural resources including its public lands and waters*
- **ECONOMIC DEVELOPMENT:** *serve as a catalyst for recruiting and retaining jobs, working in partnership with others towards a sustainable economy*

TVA remains committed to this Mission which represents TVA's sustainability principles that are carried out through various policies, strategies and programs.

In August 2010, the TVA Board of Directors adopted a **Vision**, to be "one of the Nations' leading providers of low-cost and cleaner energy by 2020." This vision helps TVA lead the Tennessee Valley region and the nation toward a cleaner and more secure energy future while meeting the needs of its customers and promoting a strong foundation for a sustainable future.

In 2015 TVA published an updated **Integrated Resource Plan (IRP)** that guides the agency in making decisions about energy resources used to meet future demand for electricity through 2033. This study reinforces the importance of TVA's power being reliable, affordable and sustainable into the future. The IRP discusses ways that TVA can meet future electricity demand economically while supporting TVA's equally important mandates for environmental stewardship and economic development across the Valley.

TVA's **Environmental Policy** is "to provide cleaner, reliable, and affordable energy to support sustainable economic growth in the Tennessee Valley and to engage in environmental stewardship in a balanced and ecologically sound manner." TVA's pursuits in these areas benefit the well-being of its employees, customers and the natural resources it stewards. These pursuits include many environmental sustainability programs, including technology innovation, environmental stewardship, compliance, and a growing renewable energy portfolio.

TVA's **Natural Resource Plan** guides its natural resource stewardship efforts. TVA is unique among power generators in that it was created to not only empower the economic aspects of Southeast but also to protect and improve the natural resources of the Tennessee Valley region. The Natural Resource Plan addresses TVA's management of biological, cultural, and water resources; recreation; reservoir lands planning; and public engagement. The goal of the plan is to integrate the objectives of these resource areas, provide for the optimum public benefit, and balance sometimes conflicting resource uses. The plan also guides TVA in achieving the objectives of its Environmental Policy for a more systematic and integrated approach to natural resource stewardship.

TVA also works to integrate the goals of Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade*, including climate change adaptation, into its existing business operations. This comprehensive **Strategic Sustainability Performance Plan (SSPP)** addresses key

aspects of TVA's energy, environmental, economic, and social resources and responsibilities into the next decade.

As part of this SSPP, TVA has established target goals for the agency. These goals are part of TVA's business practices and are tracked along with other business objectives. TVA's SSPP is driven by the:

- Goals set forth in Executive Order 13693, the Energy Policy Act of 2005 (EPAct05), and the Energy Independence and Security Act (EISA) of 2007
- TVA Environmental Policy
- TVA Integrated Resource Plan and the Natural Resource Plan

TVA continues to serve 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. We do this by utilizing integrated resource management and business planning practices. TVA receives no tax payer funding deriving virtually all of its revenues from the sales of electricity. The TVA budget for meeting the provisions of the SSPP will be based upon non-appropriated dollars and is subject to the availability of funding as TVA, in its discretion, deems appropriate and practicable to achieve the TVA mission.

Brenda E. Brickhouse
Chief Sustainability Officer

EXECUTIVE SUMMARY

Overview

Section 14 of Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade*, directs Federal agencies to develop, implement, and annually update a multi-year Strategic Sustainability Performance Plan (SSPP). TVA submitted its first SSPP to the White House in June 2010. This document is the sixth annual update to the Plan.

Vision

The TVA Mission includes serving the Tennessee Valley through providing affordable and reliable energy, environmental stewardship, and economic development. Achieving the EO 13693, EO13653, EPAAct05, and EISA 2007 goals directly supports the broader TVA Mission.

Sustainability focuses on environmental, economic and social criteria, aspects that are integral to TVA and its mission:

- ❖ The TVA Environmental Policy and commitment to cleaner energy correlates with the environmental aspect of sustainability. TVA efforts to manage natural resources responsibly, reduce emissions, increase use of renewable energy, all while providing affordable and reliable power, are central to this commitment.
- ❖ TVA's economic development commitment mirrors the economic aspect of sustainability through goals of increasing capital investment and attracting and retaining quality jobs for the people and businesses served by TVA.
- ❖ The TVA mission is supported by its values, all of which reflect sustainability's social aspect: safety, diversity, integrity and respect, honest communication, accountability, teamwork, flexibility, and continuous improvement.

Leadership

TVA's implementation of the Sustainability Plan will be directed by the following key staff:

- Brenda E. Brickhouse – TVA Vice-President of Environment & Energy Policy and TVA Chief Sustainability Officer
- Monte L. Matthews – TVA Manager, Sustainability & Climate and TVA Deputy Sustainability Officer

TVA's Environment & Energy Policy group is the point of contact with the Office of Management and Budget, and the Council on Environmental Quality for sustainability reporting. TVA's Environment & Energy Policy group also leads TVA's Sustainability Program and governance structure, which includes subject matter experts (SMEs) and representatives from multiple business units working together and with TVA's Sustainability Program to provide leadership and focus for TVA's efforts. These staff comprise the TVA Sustainability Working Group.

The objective of TVA's Sustainability Program is to reduce the non-power block component of the TVA environmental footprint as a federal agency. The program achieves this objective by issuing and maintaining the TVA SSPP, increasing awareness and engaging employees on sustainability, and implementing actions to reduce TVA's internal environmental footprint through cross-organizational collaboration.

Performance Summary

Progress, challenges and Strategies and Planned Actions for each goal area identified in the SSPP are summarized below for the past year's performance:

Goal 1: Greenhouse Gas (GHG) Reduction

Progress - TVA is meeting its GHG Scope 1 & 2 reduction targets by already achieving the 17% 2020 goal for Scope 1& 2. A 20% reduction in Scope 3 has been achieved. Target goal is 20.7% for 2020.

Challenges - Reliance on the default Federal Greenhouse Gas Reporting Guidance methodologies continues to present metric calculation difficulties to accurately show Scope 3 goal progress. Results show TVA to be lagging based on the Federal default accounting methodologies which assume set distances and an average type of vehicle used. Improved data collection would enable a more accurate calculation for personal vehicle use and enable TVA to better account for employees using alternative forms of transportation. Additionally, TVA agreed in FY13 to apply the petroleum reduction goal and alternative fuel requirements to its light duty vehicles. Due to this late start, it has been challenging to catch up with the current requirement of a 20% reduction from the 2005 baseline, but we continued to make progress in FY16.

Strategies & Planned Actions - For Scope 1 and 2 greenhouse gas emissions related to buildings, TVA plans to continue EISA 2007 and goal-subject energy/water surveys and project upgrades to help meet greenhouse gas reduction targets. For Scope 1 greenhouse gas emissions related to fleet vehicles, TVA will continue to reduce petroleum use in fleet vehicles by reducing employee travel, increasing utilization of alternative fuel, and optimizing its fleet size. For Scope 3 greenhouse gas emissions related to commuter travel, TVA will continue its efforts to collect better data and increase awareness of the environmental and financial benefits of using alternative modes of commuting. For Scope 1, 2 and 3 greenhouse gas emissions inventory, TVA has purchased an agency-wide commercial carbon accounting database in FY13 and is on track to complete its deployment effort by September 30, 2015.

Goal 2: Sustainable Buildings

Progress - TVA finished FY15 at 32.3% exceeding the 30% reduction goal and implemented \$2.8M worth of improvements resulting in \$350,400 in annual savings, 4,122 MWh in energy consumption savings at both covered and non-covered facilities.

Challenges - Meeting the short term yearly goals has been challenging due to a change from initial plans to upgrade its two largest office buildings that represent 21% of applicable square footage. Priorities changed to multiple smaller buildings due to OMB's emphasis on numbers of buildings in 2010. TVA continues to apply the SGPs to its two largest office complexes and to date, 85 percent of the SGP requirements have been completed at both complexes. If partial credit would be given for this work the agency would have exceeded the 15% by FY 2015 target. TVA continues to be challenged by reduced funding as TVA is self-funded receiving no appropriated dollars.

Strategies & Planned Actions - TVA plans to continue completing projects that were previously underway. In addition, TVA continues to implement cost-effective energy saving projects in both goal subject and excluded buildings based on funding availability.

Additional Optional Information:

Successful Evaluation Measures - TVA is using the Energy Star Portfolio Manager Sustainable Check List to track SGP progress for existing buildings and its own internal database (Tririga) to track building energy/water use.

Integration - TVA will continue to review all new building designs and major renovations for incorporation of the new Sustainable Guiding Principles (SGPs) of its greater than 5,000 square feet buildings by FY 2025. TVA is budgeting for implementing the SGPs at new buildings through existing new construction budgets and at existing buildings through project review and approval during TVA business planning.

Goal 3: Clean & Renewable Energy

Progress - TVA well exceeded last year's renewable energy goal of 7.5 percent finishing at 12.3 percent for FY 2015. TVA is on track toward meeting the 30% goal by 2025.

Challenges - No challenges are anticipated in meeting the renewable energy goal.

Strategies & Planned Actions - TVA plans to maintain current progress by increasing use of hydro modifications (HMODs) as continued participation in TVA's Green Power Switch Southeastern RECs program.

Additional Optional Information:

Lessons Learned - TVA has recognized the need to move from the practice of using multiple spreadsheets for accounting of renewables to the use of a more efficient database to track all renewables and streamline reporting.

Successful Evaluation Measures - TVA's Power Operations Group implements and tracks HMOD improvements at its various hydro sites and provides data to the Internal Energy Management Program (IEMP). IEMP only uses a small portion of this available renewable energy, which combined with RECs meets the renewable goal. TVA's Renewable Energy Solutions Group has purchased a dedicated database program to account for all renewable energy used both internally and externally by TVA customers to better account for all renewables.

Integration - A large part of TVA's renewable energy used to meet its goal subject building energy reduction goal (Goal 2) and GHG targets (Goal 1) is the result of hydro modifications (HMODs), which are generated and used on-site. In addition, TVA also purchases renewable energy credits (RECs) for its large office buildings through local power suppliers which participate in TVA's Green Power Switch Program. These REC purchases are budgeted and funded through TVA's facilities group, which also pays for utility bills.

Goal 4: Water Use Efficiency & Management

Progress - TVA finished FY15 with a 26.4 percent reduction in Gal/GSF compared to its FY 2007 base year. TVA's water use finished slightly down. Water surveys were conducted at multiple TVA sites covering ~2.7 million square feet.

Challenges - No major challenges are foreseen considering it is already trending ahead of the annual targets. However, TVA's water use could fluctuate due to its aging water infrastructure that is prone to leaking.

Strategies & Planned Actions - TVA continues identifying and fixing water leaks which have helped keep water usage from rising. Areas where potable water use can be diverted to non-potable water sources will continue to be identified.

Additional Optional Information:

Successful Evaluation Measures - TVA uses water utility bills to show its progress in meeting the potable water reduction goal.

Integration - TVA considers water management plans as part of its normal operation and maintenance activities. Making water efficiency upgrades in TVA buildings helps meet Goal 2 - sustainable buildings, as many of the upgrades have occurred in buildings chosen to receive SGP upgrades. Reducing water also helps reduce energy use, especially related to heating demands, helping to meet Goal 1 - GHG targets.

Goal 5: Fleet Management

Progress - While TVA is not currently meeting its overall fuel reduction target, fleet petroleum consumption is down 8.4% relative to the FY 2005 baseline. In FY 2015, TVA's use of alternative fuel equaled 1% of total fuel used. TVA's alternative fuel use has increased 368% since FY 2005 and well exceeds the alternative fuel use target. TVA's progress in the reduction of per-mile greenhouse gas goal is 17.1% above target.

Challenges - TVA's service territory requires employees to travel to urban and very rural areas on average 2,000 miles more annually than utility industry peers. The availability of GHG compliant vehicles to support TVA's mission and the geographic coverage area impacts TVA's opportunity to improve performance in this area. Fueling options in rural areas are limited. Miscoded E85 fuel transactions by retail suppliers continue to impact the accuracy of reporting. TVA will continue to purchase alternative fuel vehicles that meet core mission requirements. The most cost-effective and fuel-efficient options will influence the vehicle types purchased. The fulfillment of the Fleet Alternative Fuel Consumption Goal is dependent upon the availability of product and funding.

Strategies & Planned Actions - TVA will continue to look for additional methods to reduce petroleum consumption with renewed emphasis on the use of alternative fuels. Efforts will be made to increase EV utilization and to enhance communication on E85 purchasing. TVA will continue to promote the acquisition of alternative fuel vehicles after first considering the GHG requirements of EISA 141. Implementation of telematics will improve accuracy of mileage and fuel reporting. Improving accuracy of fuel consumption along with focusing on vehicle idling will improve TVA's performance in this area.

Goal 6: Sustainable Acquisition

Progress - The percentage of Sustainable Acquisition achieved for the First Quarter 2016 was 81% and for the Second Quarter was 77%, as calculated by TVA's methodology. Biobased purchases were at 57% for each quarter, which surpasses established target of 50% of contracts in products to be delivered.

Challenges: Barriers to increased adoption of Biobased Cleaning products were identified as reduced effectiveness of products, higher cost of Biobased alternatives, and lack of knowledge concerning Biobased attributes and certifications by vendor sales staff.

Strategies & Planned Actions: TVA's Sustainable Acquisition strategy for Fiscal Year 2017 will focus on the review and update of TVA policies, programs, and standard terms and conditions in our purchase request and contracting processes. TVA will review our office furniture purchasing processes. Biobased targets for FY17 are \$800,000 in spend on 200 purchase orders (or contracts).

Additional Optional Information:

Highlights: TVA's "Sustainable Acquisition Training" course was updated and deployed through TVA's Learning Management System.

Goal 7: Pollution Prevention & Waste Reduction

Progress – The overall tons of municipal solid waste continues to be reduced through recycling and source reduction. In FY 2015, TVA reported 11,868 tons of MSW relative to its FY 2008 baseline of 23,640 tons, which is approximately a 50% diversion rate. TVA also showed the largest reduction to Scope 3 emissions due to a decrease in contracted municipal solid waste disposal.

Challenge – Implementing recycling at many smaller buildings at remote locations has been challenging due to the lack of local recycling infrastructure and available markets. TVA has worked with facility maintenance personnel and even employees on-site to find ways to collect and transport recyclables to other locations.

Strategies & Planned Actions – TVA will continue with current strategies including complying with the emergency planning and community right to know requirements of Section 301 – 313. In addition, coordination with Supply Chain Acquisition encourages source reduction and recycling in contracts and develop employee focused messaging on benefits of recycling and reduction. TVA will also continue to coordinate with appropriate business units to ensure HFC recycling quip/contracted services are available as appropriate.

Goal 8: Energy Performance Contracts

Progress - TVA awarded \$22.9 million toward its 2016 performance contracting target of \$22.5 million, exceeding its initial and revised targets and meeting the Presidential challenge ahead of schedule. TVA has met its 2016 performance contracting targets ahead of schedule. TVA met its commitment through the implementation of projects identified by its energy, water and sustainability surveys.

Challenges - TVA's cost cutting efforts has made funding energy, water and sustainability projects more difficult. Moving forward TVA may have to rely on projects funded by other TVA business units that carry budget for renovations, operation and maintenance, and modernization efforts. It will be even more important to coordinate and incorporate energy performance into these projects. The biggest challenge will be influencing and capturing energy and water benefits of these projects.

Strategies & Planned Actions - TVA as a provider of utility based ESPCs will continue to self-fund its own energy, water and sustainability projects. TVA is setting a target to implement an additional \$5M for FY 17-18.

Additional Optional Information:

Successful Evaluation Measures - TVA tracks projects through its Internal Energy Management Program and reports progress in meeting Goal 8 through MAX Collect and the EISA 432 Compliance Tracking System.

Lessons Learned & Integration - TVA, as an energy provider, has its own Federal Energy Services Program that offers Utility Energy Service Contracts (UESC) to Federal direct-serve customers and Federal non-direct serve customers in its region. As such, TVA recognizes the value in these contracts and has chosen to self-fund its own projects to provide more value.

Goal 9: Electronics Stewardship & Data Centers

Progress - TVA has been able to maintain >95% compliance with the goal of acquiring EPEAT registered electronics. All eligible devices are currently being managed for power settings through Microsoft Group Policy Objects. All devices are under Group Policy and those that must be exempted have unique policies applied. TVA's primary data centers in Chattanooga and Knoxville have achieved <1.5 PUE. Smaller site data centers are being evaluated for improvements.

Challenges - Currently, TVA's greatest EPEAT hard spots is monitors. NEC, our monitor partner for several years has recently withdrawn from the EPEAT registry, so testing is being conducted with different manufacturers to find replacement. TVA has a centralized investment recovery organization that disposes of surplus electronic equipment. This function was recently transferred from the IT organization which resulted in the discontinuing of the use of certified recyclers. Resource limitations prevent implementing power management solutions that provide more detailed reporting of results. Budget constraints and site specific limitations will affect how many data center locations can achieve the <1.5 PUE. Operational requirements will continue to override other considerations.

Strategies and Planned Actions - We plan to shift primarily to Solid State storage in laptops purchased after April 2016, resulting in reduced energy consumption, re-establish disposal of surplus electronics with certified recyclers, continue to monitor electronic equipment surplus process and look for additional opportunities and evaluate site data centers for opportunities to improve energy efficiency goals.

Goal 10: Climate Change Resilience

Progress - TVA is continuing its Climate Change Sentinel Monitoring (CCSM) program started in April 2013, with 18 stations being monitored by TVA and partners throughout the Tennessee River watershed. TVA has, in accordance with the goals and directives of EO 13653 and EO 13693,

updated its *Statement on Climate Change, Adaptation Plan and High Level Vulnerability Assessment* consistent with the Third National Climate Assessment and EO 13653 related guidance. TVA also assisted in DOE Partnership for Energy Sector Climate Resilience Phase 1 Case Study, “Assessing the Costs and Benefits of Investments in Climate Resilience” with DOE/ORNL.

Challenges - TVA manages the effects of climate change on its mission, programs, and operations within its environmental management processes. Its primary planning processes are its Integrated Resource Plan (IRP) and its Natural Resource Plan (NRP). As a Federal agency, TVA must also comply with the National Environmental Policy Act. While also interdependent, these planning processes have separate review and update cycles that are independent of each other.

Strategies and Planned Actions - TVA will continue to manage the effects of climate change on its mission, programs, and operations within its environmental management processes. TVA will also continue participation in DOE’s *Partnership for Energy Sector Climate Resilience*. This Partnership is an initiative to enhance U.S. energy security by improving the resilience of energy infrastructure to extreme weather and climate change impacts.

Additional Optional Information:

Integration - TVA participates in the Federal Interagency Floodplain Management Task Force, the Interagency Forum on Climate Change Impacts and Adaptations, and the Federal Climate Change Adaptation Community of Practice.

Progress on Administration Priorities

- **President’s Performance Contracting Challenge**

Over \$22.9 million has been invested in energy efficiency improvements in TVA facilities from 2013 to 2015, exceeding the agency’s SSPP target of \$22.5million. For CY 2016 TVA’s commitment under the President’s Performance Contracting Challenge is at least \$5 million. Targets for the next two fiscal years are \$2.5 M for 2017 and \$2.5M for 2018. TVA as a provider of utility based ESPCs will continue to self-fund its own energy, water and sustainability projects.

- **Electric and Zero Emission Vehicles**

TVA continues to follow progress in EV technology and is exploring the establishment of a cross-functional team to develop a best case recommendation for the deployment of ZEV/PHEV vehicles and the associated charging infrastructure. Any recommendations will be presented to TVA management for guidance and funding.

- **Climate Preparedness and Resilience**

TVA has, in accordance with the goals and directives of EO 13653 and EO 13693, updated its *Statement on Climate Change, Adaptation Plan and High Level Vulnerability Assessment* consistent with the Third National Climate Assessment and EO 13653 related guidance.

SIZE & SCOPE OF AGENCY OPERATIONS

Agency Size and Scope	FY 2014	FY 2015
Total Number of Employees as Reported in the President's Budget	11,542	10,920
Total Acres of Land Managed	335,549	293,000
Total Number of Buildings Owned	2,655	2,617
Total Number of Buildings Leased (GSA and Non-GSA Lease)	30	22
Total Building Gross Square Feet (GSF)	29.537 million	29.182 million
Operates in Number of Locations Throughout U.S.	7	7
Operates in Number of Locations Outside of U.S.	0	0
Total Number of Fleet Vehicles Owned	2,597	2561
Total Number of Fleet Vehicles Leased	0	0
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.) ¹	1032	1051
Total Amount Contracts Awarded as Reported in FPDS (\$Millions)	n/a	n/a

¹ TVA's vehicle fleet has been historically excluded from being subject to fleet management goals due to nature of its make-up, use, and its connection to "the operation and maintenance of the TVA power system." In FY 2013, TVA agreed to apply the petroleum reduction goal and alternative fuel goals to its light duty vehicles.

AGENCY PROGRESS & STRATEGIES TO MEET FEDERAL SUSTAINABILITY GOALS

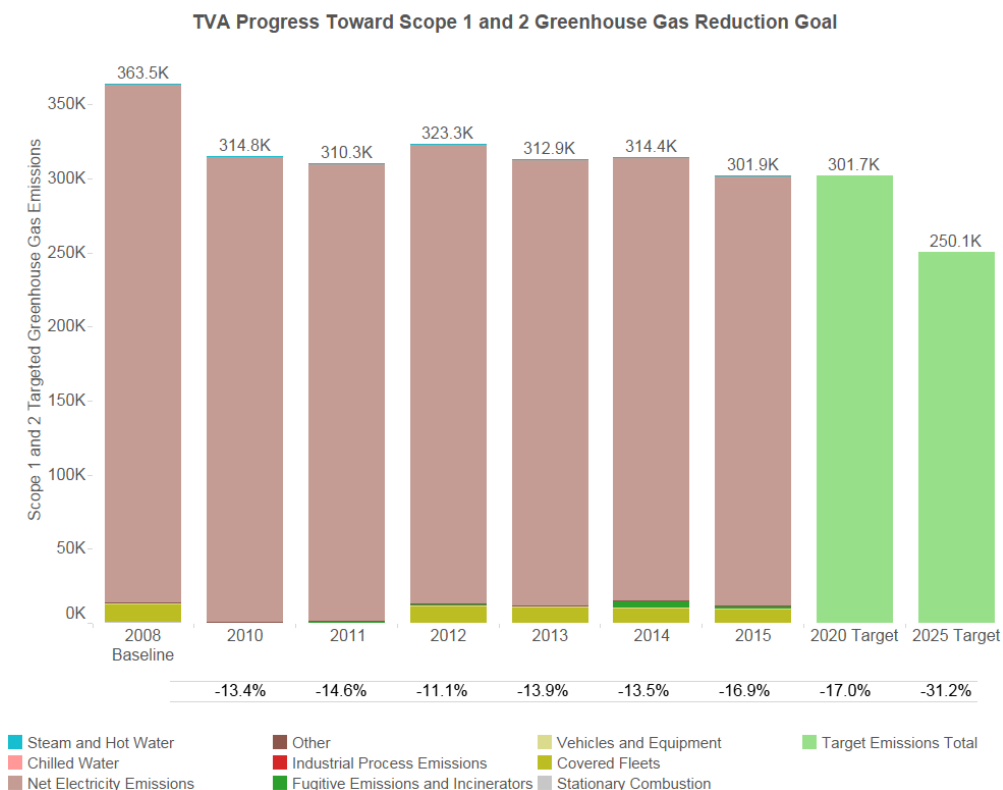
This section provides an overview of progress through FY 2015 on sustainability goals contained in Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, and agency strategies to meet the new and updated goals established by Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*.

Goal 1: Greenhouse Gas (GHG) Reduction

Scope 1 & 2 GHG Reduction Goal

E.O. 13693 requires each agency to establish a Scope 1 & 2 GHG emissions reduction target to be achieved by FY 2025 compared to a 2008 baseline. TVA's 2025 Scope 1 & 2 GHG reduction target is 31.2% from its FY 2008 baseline.

Chart: Progress Toward Scope 1 & 2 GHG Reduction Goal



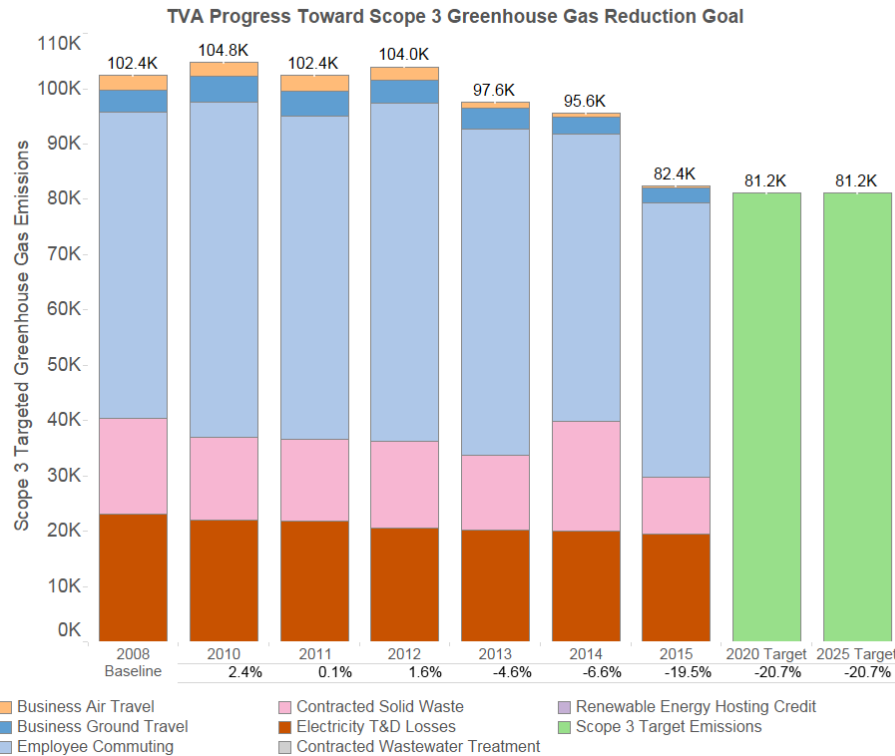
Scope 1 & 2 GHG Reduction Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Use the Federal Energy Management Program (FEMP) GHG emission report to identify/target high emission categories and implement specific actions to address high emission areas identified.	Yes	TVA was successful in using this strategy and will continue to monitor/identify high emission categories with a goal to reduce them.	Complete annual review and identify items to target for reduction.
Identify and support management practices or training programs that encourage employee engagement in addressing GHG reduction.	Yes	Develop & implement communication plan that raises awareness regarding the requirements and benefits to reducing GHG reductions.	Develop and implement communication plan that raises awareness regarding the requirements and benefits to reducing GHG reductions.
Determine unsuccessful programs or measures to be discontinued to better allocate agency resources.	No	TVA will consider implementing this strategy as needed.	N/A
Given agency performance to date, determine whether current agency GHG target should be revised to a more aggressive/ambitious target.	No	TVA currently reviews its targets as part of its management processes and considers its targets to be appropriate.	N/A
Employ operations and management (O&M) best practices for emission generating and energy consuming equipment.	Yes	TVA is working to improve the integration of its Sustainability and Greenhouse Gas strategies into its management and training programs.	Work with TVA management to encourage employees that impact operations at facilities to take existing FEMP training to learn about operations and management best practices.
Identify additional sources of data or analysis with the potential to support GHG reduction goals.	No	TVA will consider implementing this strategy if deemed necessary.	N/A

Scope 3 GHG Reduction Goal

E.O. 13693 requires each agency to establish a Scope 3 GHG emission reduction target to be achieved by FY 2025 compared to a 2008 baseline. TVA’s 2025 Scope 3 GHG reduction target is 20.7 percent.

Chart: Progress Toward Scope 3 GHG Reduction Goal



Scope 3 GHG Reduction Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Reduce employee business ground travel.	Yes	Continue to look into ways of using technology and better planning to reduce the need for employee business ground travel.	Targeting December 2016 for implementation of employee car share program. Refer to Goal - Fleet Management for more detail.
Reduce employee business air travel.	Yes	Continue to look into ways of using technology and better planning to reduce the need for employee business air travel.	Consider inclusion of business air travel in FY18 greenhouse gas metric reporting.

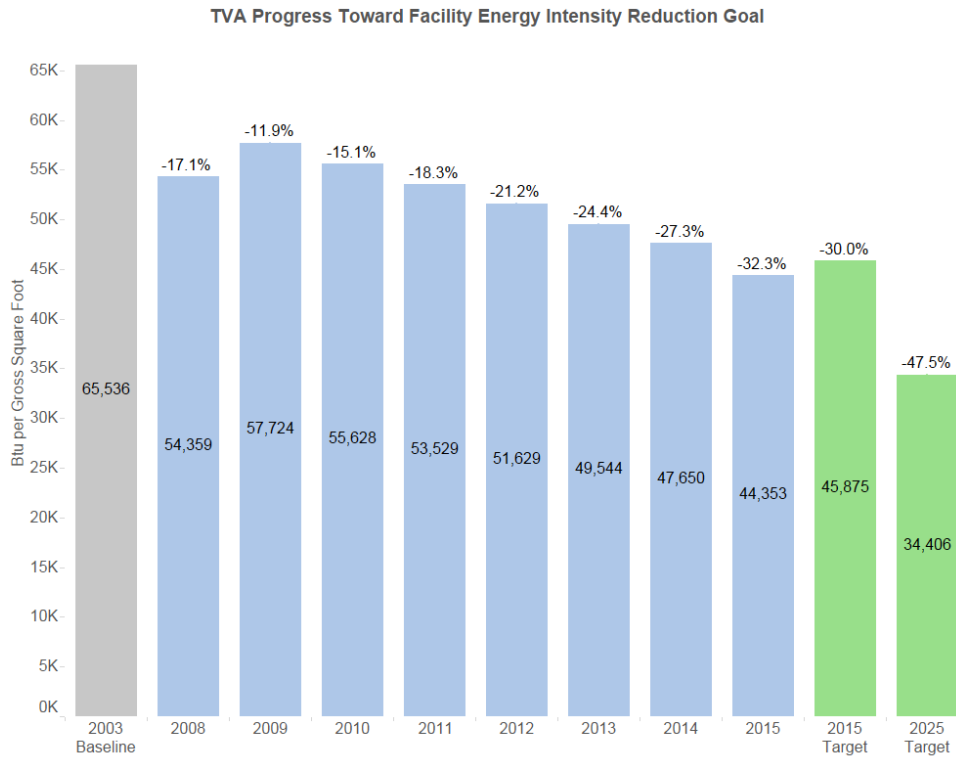
Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Develop and deploy an employee commuter emissions reduction plan.	No	TVA will consider implementing this strategy if appropriate.	N/A
Use an employee commuting survey to identify opportunities and strategies for reducing commuter emissions.	Yes	Conduct an employee survey every other year to update information used to estimate commuter travel.	Complete survey by June 2017.
Increase & track number of employees eligible for telework and/or the total number of days teleworked.	No	TVA will consider implementing this strategy as appropriate.	N/A
Develop and implement a program to support alternative/zero emissions commuting methods and provide necessary infrastructure.	No	TVA will consider implementing this strategy if deemed necessary.	N/A
Establish policies and programs to facilitate workplace charging for employee electric vehicles.	No	As noted in the Multimodal Action Plan, TVA is investigating implementing this strategy.	N/A
Include requirements for building lessor disclosure of carbon emission or energy consumption data and report Scope 3 GHG emissions for leases over 10,000 rentable square feet.	Yes	Report energy consumption for new leases as part the Annual GHG Data Report.	Complete by January 2017

Goal 2: Sustainable Buildings

Building Energy Conservation Goal

The Energy Independence and Security Act of 2007 (EISA) requires each agency to reduce energy intensity 30% by FY 2015 as compared to FY 2003 baseline. Section 3(a) of E.O. 13693 requires agencies to promote building energy conservation, efficiency, and management and reduce building energy intensity by 2.5% annually through the end of FY 2025, relative to a FY 2015 baseline and taking into account agency progress to date, except where revised pursuant to Section 9(f) of E.O. 13693.

Chart: Progress toward Facility Energy Intensity Reduction Goal



Building Energy Conservation Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Make energy efficiency investments in agency buildings.	Yes	TVA's Internal Energy Management Program will lead the EISA energy and water surveys to identify cost-effective measures that may be implemented.	Implement the most cost effective projects totaling \$1.5M that have been identified by the EISA energy and water surveys.
Use remote building energy performance assessment auditing technology	No	TVA will consider using this technology if feasible.	Evaluate remote building energy performance assessment auditing technologies currently available.
Participate in demand management programs.	No	TVA currently has plans in place at its large facilities to curtail demand during high demand periods.	Continue to participate in existing demand management program and look to expand to more facilities.
Incorporate Green Button data access system into reporting, data analytics, and automation processes.	No	TVA has a limited number of buildings with green button data available.	TVA will research what would be required to integrate green button data into its existing database to be leveraged.
Redesign interior space to reduce energy use through daylighting, space optimization, and sensors and control systems.	No	TVA currently is implementing a project at its largest corporate office that is taking this into consideration.	N/A
Identify opportunities to transition test-bed technologies to achieve energy reduction goals.	Yes	Work with TVA's Technology Innovation group to test new technologies.	Complete pilot project showcasing the potential savings of a new technology that can be applied to other facilities by September 2017.
Follow city energy performance benchmarking and reporting requirements.	No	TVA currently complies with current adopted state and local building codes and is unaware of any city energy performance benchmarking and reporting requirements.	N/A

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Install and monitor energy meters and sub-meters.	Yes	TVA recently completed its metering plan and intends to follow the meter installation laid out in the plan based on the highest potential savings that could result.	Complete planning to start installation of advanced water meters at buildings/sites with the highest potential savings.
Collect and utilize building and facility energy use data to improve building energy management and performance.	Yes	TVA will track and monitor building energy usage to identify buildings that may have high energy usage as compared to year over year and month over month.	TVA will investigate building energy usage at buildings that have a large increases and make corrections to prevent high energy usage in the future on an annual basis.
Ensure that monthly performance data is entered into the EPA ENERGY STAR Portfolio Manager.	Yes	TVA will continue to track and report covered facilities and sustainable guiding principle buildings that have meters in ENERGY STAR Portfolio Manager.	Benchmark all covered facilities and sustainable guiding principle buildings that have utility meters on an annual basis.

Building Efficiency, Performance, and Management Goal

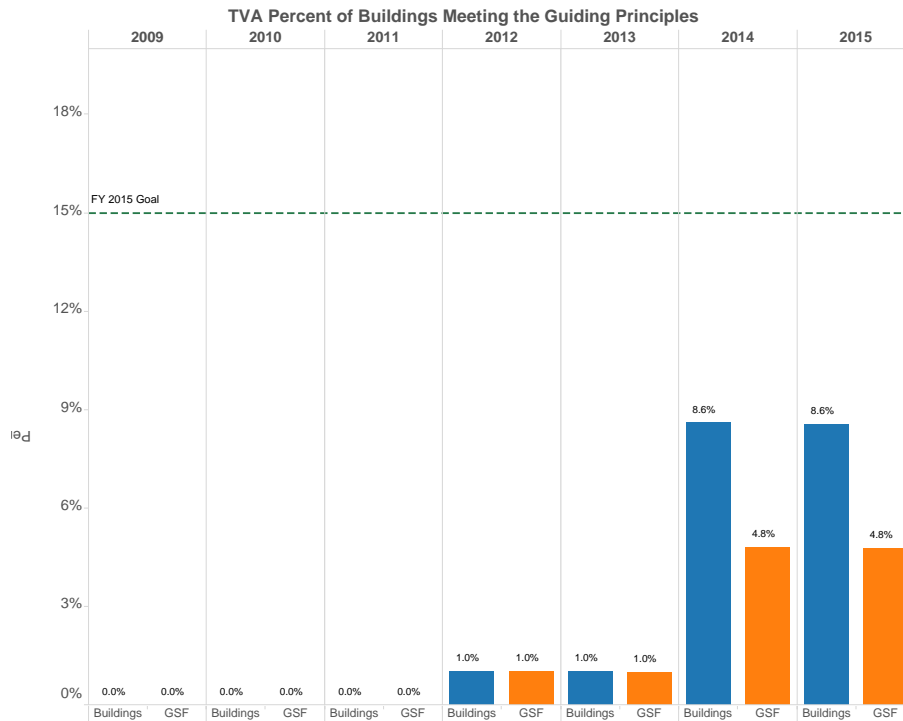
Section 3(h) of E.O. 13693 states that agencies will improve building efficiency, performance, and management and requires that agencies identify a percentage of the agency's existing buildings above 5,000 gross square feet intended to be energy, waste, or water net-zero buildings by FY 2025 and implementing actions that will allow those buildings to meet that target. TVA's 2025 target is 1%.

Guiding Principles for Sustainable Federal Buildings

Section 3(h) of E.O. 13693 also states that agencies will identify a percentage, by number or total GSF, of existing buildings above 5,000 GSF that will comply with the *Guiding Principles for Sustainable Federal Buildings (Guiding Principles)* by FY 2025.

TVA's FY 2025 target is 15% based on total GSF.

Chart: Percent of Buildings Meeting the Guiding Principles



Sustainable Buildings Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Include climate resilient design and management into the operation, repair, and renovation of existing agency buildings and the design of new buildings.	No	Consider if deemed necessary.	N/A
In planning new facilities or leases, include cost-effective strategies to optimize sustainable space utilization and consideration of existing community transportation planning and infrastructure, including access to public transit.	Yes	TVA will incorporate into its internal SPP-05.21 - Resources Efficient Building Design Process.	Incorporate requirement into TVA-SPP-05.21 by September 2017.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Ensure all new construction of Federal buildings greater than 5,000 GSF that enters the planning process be designed to achieve energy net-zero and, where feasible, water or waste net-zero by FY 2030.	No	TVA will provide guidance to organizations on the future requirement to construct net-zero buildings by FY2030 if feasible.	Incorporate requirement into TVA-SPP-05.21 by September 2017.
Include criteria for energy efficiency as a performance specification or source selection evaluation factor in all new agency lease solicitations over 10,000 rentable square feet.	Yes	TVA will incorporate into its internal SPP-05.21 - Resources Efficient Building Design Process.	(1) Incorporate requirement into TVA-SPP-05.21 by September 2017. (2) Include criteria in all new lease solicitations by January 2017.
Incorporate green building specifications into all new construction, modernization, and major renovation projects.	Yes	TVA will continue to implement its two internal Energy and Water Sustainable processes: TVA-SPP-05.20 - Internal Environmental and Energy Sustainability Process and TVA-SPP-05.21 - Resources Efficient Building Design Process to guide TVA project managers, architects and interior designers in incorporating sustainability into all new construction and major renovation projects.	TVA does not build many new buildings each year, but for those that are planned; design and construction methods will be reviewed for incorporation of applicable Sustainable Guiding Principles (SGPs) in its "Goal Subject" buildings. TVA had pointed out many years ago in its Sustainable Building Plan that applying the SGPs to its excluded buildings (those used to generate, transmit and control power) was not practical or cost effective on a as needed basis.
Implement space utilization and optimization practices and policies.	Yes	TVA will review its existing building inventory in an effort to reduce inefficient, high cost, and underutilized space as part of its Strategic Real Estate Plan.	Complete assessments at over 2M GSF by January 2017.
Implement programs on occupant health and well-being in accordance with the <i>Guiding Principles</i> .	No	Consider if deemed necessary.	N/A

Goal 3: Clean & Renewable Energy

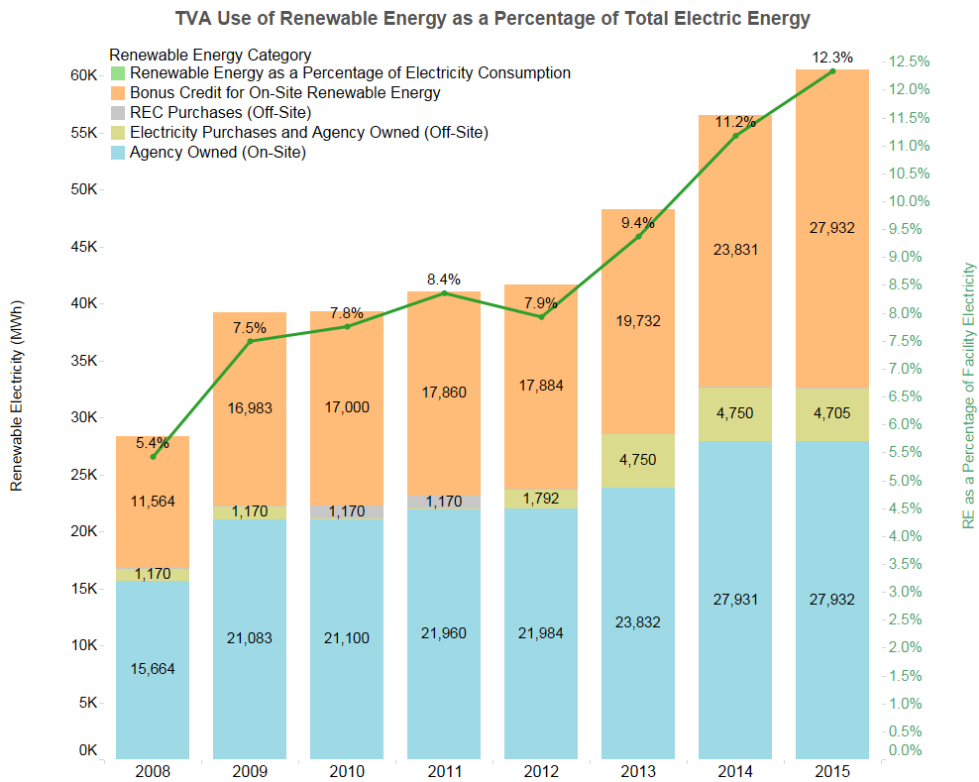
Clean Energy Goal

E.O. 13693 Section 3(b) requires that, at a minimum, the percentage of an agency's total electric and thermal energy accounted for by renewable and alternative energy shall be not less than: 10% in FY 2016-17; 13% in FY 2018-19; 16% in FY 2020-21; 20% in FY 2022-23; and 25% by FY 2025.

Renewable Electric Energy Goal

E.O. 13693 Section 3(c) requires that renewable energy account for not less than 10% of total electric energy consumed by an agency in FY 2016-17; 15% in FY 2018-19; 20% in FY 2020-21; 25% in FY 2022-23; and 30% by 2025.

Chart: Use of Renewable Energy as a Percentage of Total Electric Energy



Clean and Renewable Energy Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Install agency-funded renewable on-site and retain corresponding renewable energy certificates (RECs).	Yes	TVA will continue to make hydro modifications (HMODs) as this has proven to be cost-effective to the agency.	TVA will continue to work toward the 30% goal by FY 2025 by continuing to implement HMODs at its hydroelectric plants.
Contract for the purchase of energy that includes installation of renewable energy on or off-site and retain RECs or obtain replacement RECs.	No	Consider if deemed necessary.	N/A
Purchase electricity and corresponding RECs or obtain equal value replacement RECs.	No	Consider if deemed necessary.	N/A
Purchase RECs to supplement installations and purchases of renewable energy, when needed to achieve renewable goals.	Yes	Participate in the Green Power Switch Southeastern RECs program to purchase RECs for large office buildings where installing onsite renewable is not feasible.	TVA will continue to work toward the 30% goal by FY 2025 by continuing to purchase RECs for its large office buildings on an annual basis.
Install on-site thermal renewable energy and retain corresponding renewable attributes or obtain equal value replacement RECs.	No	Consider if deemed necessary.	N/A
Install on-site combined heat and power processes.	No	TVA will consider this strategy if presented with a viable project.	N/A
Identify opportunities to install on-site fuel cell energy systems.	No	Consider if deemed appropriate.	N/A
Identify opportunities to utilize energy that includes the active capture and storage of carbon dioxide emissions associated with energy generation.	No	TVA will consider this strategy if presented with a viable project.	N/A

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Identify and analyze opportunities to install or contract for energy installed on current or formerly contaminated lands, landfills, and mine sites.	No	TVA will consider this strategy if presented with a viable project.	N/A
Identify opportunities to utilize energy from small modular nuclear reactor technologies.	No	TVA will consider this strategy if presented with a viable project.	N/A

Goal 4: Water Use Efficiency & Management

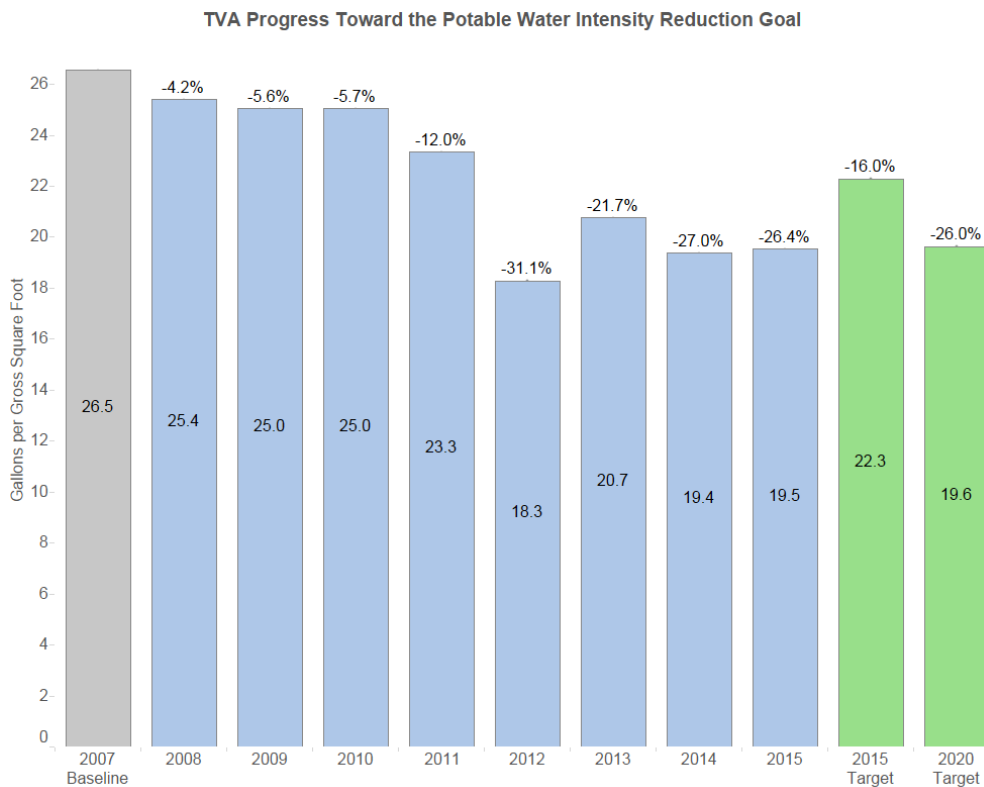
Potable Water Consumption Intensity Goal

E.O. 13693 Section 3(f) states that agencies must improve water use efficiency and management, including storm water management, and requires agencies to reduce potable water consumption intensity, measured in gallons per square foot, by 2% annually through FY 2025 relative to an FY 2007 baseline. A 36% reduction is required by FY 2025.

Industrial, Landscaping and Agricultural (ILA) Water Goal

E.O. 13693 section 3(f) also requires that agencies reduce ILA water consumption, measured in gallons, by 2% annually through FY 2025 relative to a FY 2010 baseline.

Chart: Progress Toward the Potable Water Intensity Reduction Goal



Water Use Efficiency & Management Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Install green infrastructure features to assist with storm and wastewater management.	No	TVA will consider when constructing new buildings.	N/A
Install and monitor water meters and utilize data to advance water conservation and management.	Yes	TVA recently completed its metering plan and intends to follow the meter installation laid out in the plan based on the highest potential savings that could result.	Complete planning to start installation of advanced water meters at buildings/sites with the highest potential savings.
Install high efficiency technologies, e.g. Water Sense fixtures.	Yes	TVA will continue to conduct EISA water surveys and identify water efficiency measures at its buildings and will continue to implement cost-effective measures.	Complete water efficiency projects as part of normal business planning if cost-effective.
Prepare and implement a water asset management plan to maintain desired level of service at lowest life cycle cost.	No	Consider if deemed necessary.	N/A
Minimize outdoor water use and use alternative water sources as much as possible.	N/A	Consider if deemed necessary.	N/A
Design and deploy water closed-loop, capture, recharge, and/or reclamation systems.	N/A	Consider if deemed necessary.	N/A
Install advanced meters to measure and monitor potable and ILA water use.	No	Consider if deemed necessary.	N/A
Develop and implement programs to educate employees about methods to minimize water use.	No	Consider if deemed necessary.	N/A

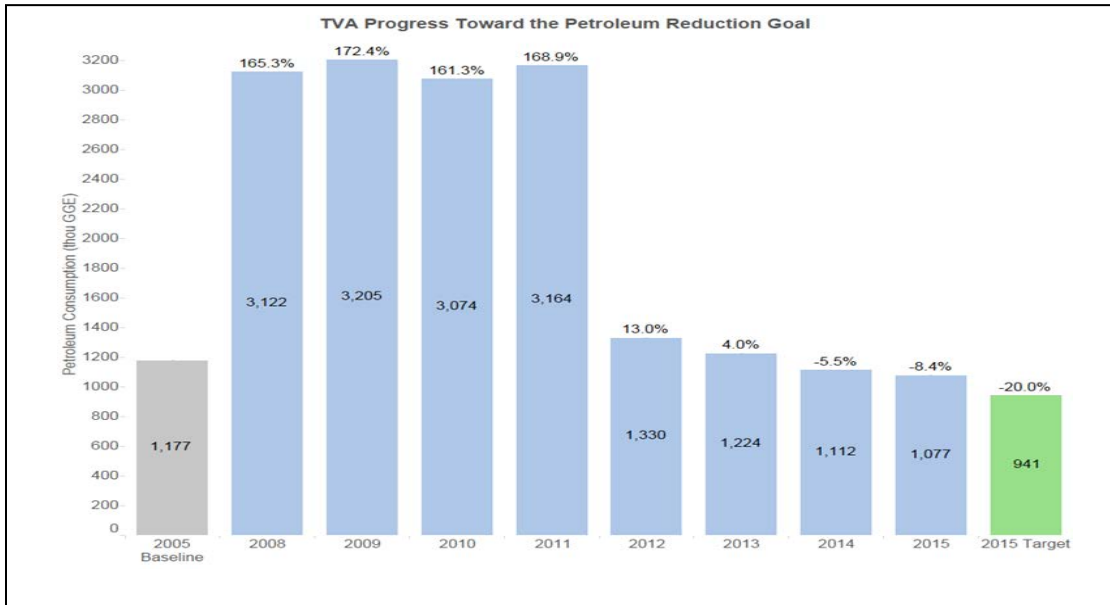
Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Assess the interconnections and dependencies of energy and water on agency operations, particularly climate change's effects on water which may impact energy use.	N/A	Consider if deemed necessary.	N/A
Consistent with State law, maximize use of grey-water and water reuse systems that reduce potable and ILA water consumption.	N/A	Consider if deemed necessary.	N/A
Consistent with State law, identify opportunities for aquifer storage and recovery to ensure consistent water supply availability.	No	Consider if deemed necessary.	N/A
Ensure that planned energy efficiency improvements consider associated opportunities for water conservation.	Yes	TVA currently incorporates this strategy as part of its ongoing energy and water surveys.	Continue to identify energy savings associated with reduced water consumption.
Where appropriate, identify and implement regional and local drought management and preparedness strategies that reduce agency water consumption	No	Consider if deemed necessary.	N/A
Reduce non-potable water use through conversion of wet fly ash storage to dry storage	Yes	TVA has developed plans to eliminate all wet ash and gypsum storage in the system, convert its 11 operating coal-fired power plants to dry storage and to retire coal-fired plant units. The movement away from wet fly ash systems will significantly reduce the overall use of non-potable water in TVA power generation facilities.	Continue to show progress in completing wet fly ash to dry ash conversions at plants. Complete full retirement of Widows Creek and Colbert Steam Plant by September 2017.

Goal 5: Fleet Management

Fleet Petroleum Use Reduction Goal

E.O. 13514 and the Energy Independence and Security Act of 2007 (EISA) required that by FY 2015 agencies reduce fleet petroleum use by 20% compared to a FY 2005 baseline.

Chart: Progress Toward the Petroleum Reduction Goal



Fleet Alternative Fuel Consumption Goal

Agencies should have exceeded an alternative fuel use that is at least 5% of total fuel use. In addition, E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, required that agencies increase total alternative fuel consumption by 10% annually from the prior year starting in FY 2005. By FY 2015, agencies must have increased alternative fuel use by 159.4%, relative to FY 2005.

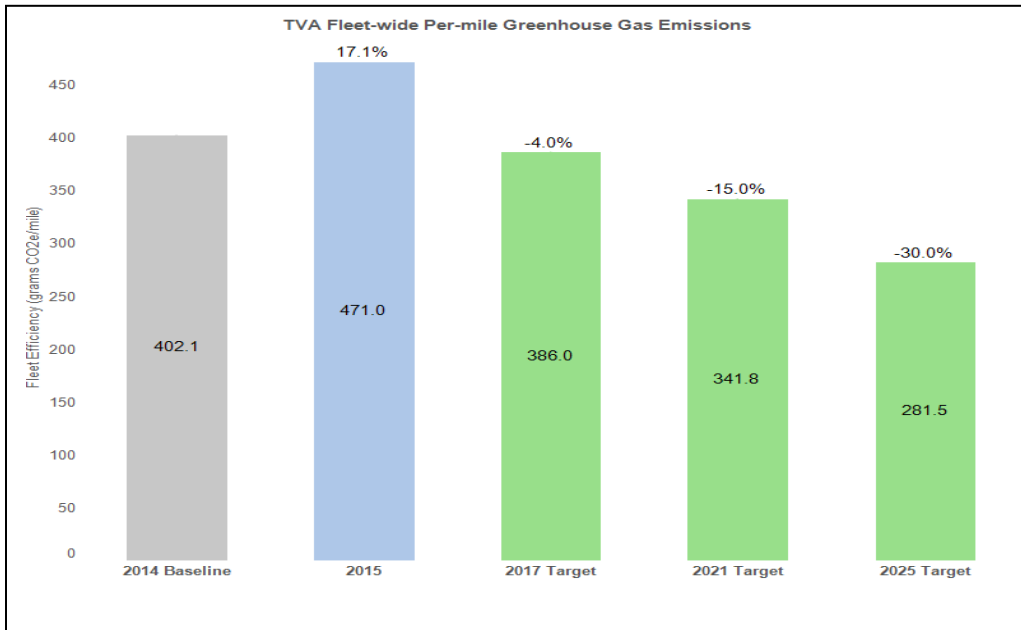
In FY 2015, TVA's use of alternative fuel equaled 1% of total fuel use. TVA's alternative fuel use has increased 368% since FY 2005.

Fleet Per-Mile Greenhouse Gas (GHG) Emissions Goal

E.O. 13693 Section 3(g) states that agencies with a fleet of at least 20 motor vehicles will improve fleet and vehicle efficiency and management. E.O. 13693 section 3(g)(ii) requires agencies to reduce fleet-wide per-mile GHG emissions from agency fleet vehicles relative to a FY 2014 baseline and sets new goals for percentage reductions: not less than 4% by FY 2017; not less than 15 % by FY 2020; and not less than 30% by FY 2025.

E.O. 13693 Section 3(g)(i) requires that agencies determine the optimum fleet inventory, emphasizing eliminating unnecessary or non-essential vehicles. The Fleet Management Plan and Vehicle Allocation Methodology (VAM) Report are included as appendices to this plan.

Chart: Fleet-wide Per-mile GHG Emissions



Fleet Management Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Collect and utilize agency fleet operational data through deployment of vehicle telematics.	Yes	TVA is currently conducting a telematics proof of concept (POC) to evaluate providers. The POC will be used to develop an implementation strategy across the fleet.	(1) Review POC, develop implementation and communication plans - August 2016 (2) Telematics fully implemented in targeted vehicles - September 2018
Ensure that agency annual asset-level fleet data is properly and accurately accounted for in a formal Fleet Management Information System as well as submitted to the Federal Automotive Statistical Tool reporting database, the Federal Motor Vehicle Registration System, and the Fleet Sustainability Dashboard (FLEETDASH) system.	Yes	(1) Implement FedFMS to support line level data for FAST reporting (2) FleetDASH previously implemented	(1) September 2016

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Increase acquisitions of zero emission and plug-in hybrid vehicles.	Yes	(1) Establish cross-functional team to identify operational opportunities and gain executive level guidance and funding. (2) Interview VAM survey respondents who indicated interest in using ZEV and PHEV vehicles. (3) Reposition existing ZEV vehicles to increase utilization	(1) November 2016 (2) September 2016 (3) December 2016
Issue agency policy and a plan to install appropriate charging or refueling infrastructure for zero emission or plug-in hybrid vehicles and opportunities for ancillary services to support vehicle-to-grid technology.	Yes	Establish cross-functional team to develop options to present to leadership for approval and funding.	June 2017
Optimize and right-size fleet composition, by reducing vehicle size, eliminating underutilized vehicles, and acquiring and locating vehicles to match local fuel infrastructure.	Yes	VAM survey results and telematics will be utilized to adjust fleet size and composition.	September 2017
Increase utilization of alternative fuel in dual-fuel vehicles.	Yes	Promote the use of FleetDASH to increase awareness and location of E85.	Show a 15% increase in E-85 use over FY 2015 by September 2017.
Use a FMIS to track real-time fuel consumption throughout the year for agency-owned, GSA-leased, and commercially-leased vehicles.	No	TVA has an agency-wide fleet management system that meets current data requirements.	
Implement vehicle idle mitigation technologies.	No	Agency has 8 units in-service and will continue to analyze results before adding additional units.	

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Minimize use of law enforcement exemptions by implementing GSA Bulletin FMR B-33, <i>Motor Vehicle Management, Alternative Fuel Vehicle Guidance for Law Enforcement and Emergency Vehicle Fleets</i> .	No	TVA exempted vehicles have been approved by GSA and OMB.	
Where State vehicle or fleet technology or fueling infrastructure policies are in place, meet minimum requirements.	No		
Establish policy/plan to reduce miles traveled, e.g. through vehicle sharing, improving routing with telematics, eliminating trips, improving scheduling, and using shuttles, etc.	Yes	Seek support from business units to deploy a car share system provided by Enterprise (Zimride)	December 2016

Goal 6: Sustainable Acquisition

Sustainable Acquisition Goal

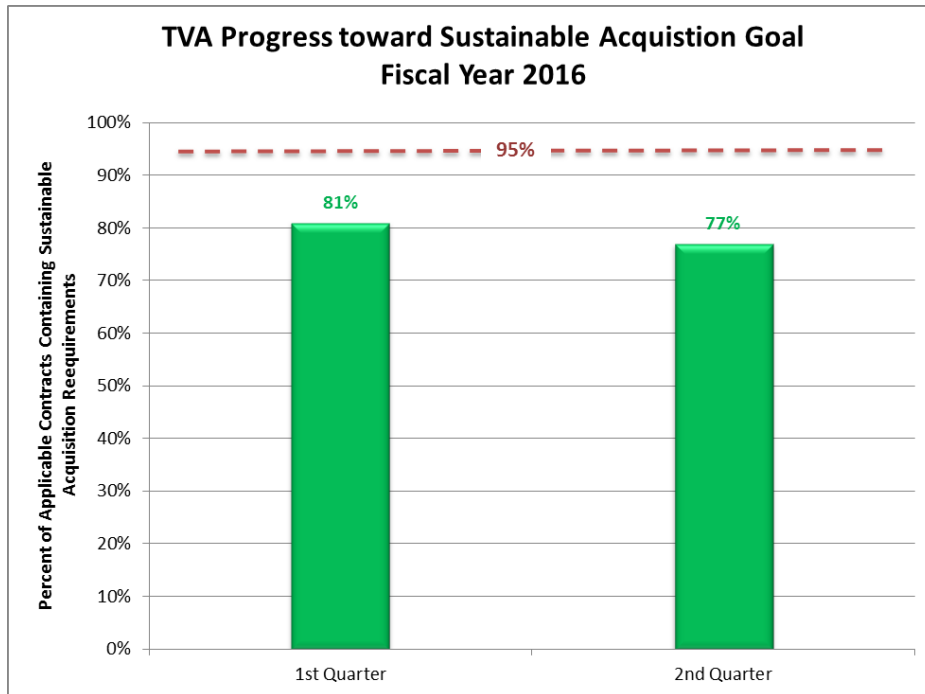
E.O. 13693 section 3(i) requires agencies to promote sustainable acquisition by ensuring that environmental performance and sustainability factors are considered to the maximum extent practicable for all applicable procurements in the planning, award and execution phases of acquisition.

Biobased Purchasing Targets

The Agricultural Act of 2014 requires that agencies establish a targeted Biobased-only procurement requirement. E.O. 13693 section 3(iv) requires agencies to establish an annual target for increasing the number of contracts to be awarded with BioPreferred and Biobased criteria and the dollar value of BioPreferred and Biobased products to be delivered and reported under those contracts in the following fiscal year.

For Fiscal Year 2017, TVA has established a target of 50% of contracts in products to be delivered. Biobased targets for FY17 are \$800,000 in spend on 200 purchase orders. (NOTE: TVA reports sustainable acquisitions based on purchase order lines which this target represents.)

Chart: Percent of Applicable Contracts Containing Sustainable Acquisition Requirements



A pilot of Biobased cleaning products was conducted in the Chattanooga Office Complex during the Third and Fourth Quarters of Fiscal Year 2015. Although cooperation from the Custodial Staff was excellent, three barriers to increased adoption of Biobased Cleaning products were identified: 1) reduced effectiveness of products used in place of "disinfecting" chemicals, and associated loss of confidence from Custodial Staff; 2) higher cost of Biobased alternatives; 3) lack of knowledge concerning Biobased attributes and certifications by vendor sales staff, leading to inaccurate claims on cost and potential acceptability.

TVA's "Sustainable Acquisition Training" course was updated and deployed through TVA's Learning Management System during the Second Quarter Fiscal Year 2016. The overall mandatory audience for the training was significantly curtailed on the recommendation of TVA Technical Training to reduce the overhead cost produced by the time requirement of the formerly large group required to take the training.

TVA's Sustainable Acquisition strategy for Fiscal Year 2017 will focus on review and update of TVA policies, programs, and standard terms and conditions in our purchase request and contracting processes. TVA will review our office furniture purchasing processes. Additionally, TVA will provide visibility to promote the purchase of Biobased and other designated green products in alignment with federal and agency goals.

Sustainable Acquisition Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Review and update agency procurement policies, programs, and standard terms and conditions to ensure designated federally mandated sustainable products are included in all relevant procurements and services.	Yes	TVA will continue to review and provide necessary updates to procurement policies, programs, and standard terms and conditions to ensure purchases provide for federally mandated sustainable products in all relevant contracts where appropriate and practical.	TVA will review and update as needed, procurement processes and the terms and conditions authoring tool to ensure inclusion of contract clauses and promotion of green products. TVA will review office furniture purchasing processes and programs to ensure adherence to internal sustainable acquisition policies.
Include Biobased, other designated green products, and other sustainability clauses in all applicable and relevant purchase requests.	Yes	TVA will continue to promote the inclusion of Biobased, other designated green products, and sustainability clauses where appropriate and practical in Request for Proposals and Request for Quotes.	TVA will review Request for Proposal and Request for Quote processes to ensure inclusion of contract clauses which provide for and promote Biobased and other designated green product purchases.
Provide visibility of agency's sustainable acquisition policies, programs, and goals to promote adherence and compliance.	Yes	TVA will provide internal reporting to track purchases of applicable Biobased and other designated green products with regards to agency's goals.	TVA will review purchase order transactions based on green product codes to verify sustainable acquisition criteria is being met.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Practice strategic sourcing, such as blanket purchase agreements, for office products and imaging equipment, which include sustainable acquisition requirements.	Yes	TVA will leverage partnerships with internal business partners to create awareness and identify ways to increase use of office products and printer cartridges that are sustainable products, including Biobased products and other designated green products.	TVA will continue to work with our office supply blanket contract holder and printer cartridge blanket contract holder to ensure sustainable products are supplied whenever possible.
Report on sustainability compliance in contractor performance reviews	<i>Ongoing Effort</i>	TVA will conduct performance reviews for key suppliers where appropriate and practical.	N/A
Implement an agency wide initiative which encourages source reduction and the procurement and wide usage of 30% to 100% recycled paper.	<i>Ongoing Effort</i>	TVA intends to continue both its paper acquisition program and reduction pilot project to also support Biobased purchases and recycling goals.	N/A

Goal 7: Pollution Prevention & Waste Reduction

Pollution Prevention & Waste Reduction Goal

E.O. 13693 section 3(j) requires that Federal agencies advance waste prevention and pollution prevention and to annually divert at least 50% of non-hazardous construction and demolition debris. Section 3(j)(ii) further requires agencies to divert at least 50% of non-hazardous solid waste, including food and compostable material, and to pursue opportunities for net-zero waste or additional diversion.

Reporting on progress toward the waste diversion goal will begin with annual data for FY 2016.

Pollution Prevention & Waste Reduction Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Report in accordance with the requirements of sections 301 through 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C 11001-11023).	Yes	TVA coal and nuclear facilities submit annual reports to their local emergency planning commission with list of known hazardous chemicals and their quantities onsite. TVA gas and hydro facilities also share their annual chemical inventory even though these sites do use or store hazardous chemicals onsite.	TVA meets the emergency planning and community right to know requirements of section 301 - 313, and continues to meet inform local, state, and EPA on this part of its Environmental Program.
Reduce or minimize the quantity of toxic and hazardous chemicals acquired, used, or disposed of, particularly where such reduction will assist the agency in pursuing agency greenhouse gas reduction targets.	Yes	During 2nd quarter 2014, TVA implemented direct ship program to Waste Management Emelle, Alabama RCRA landfill. The direct ship program has eliminated additional handling and storage of hazardous waste at TVA's Muscle Shoals facility. Overall, waste generation has decrease substantially.	Even with the closure of some TVA fossil plants, the overall tons of hazardous waste continues to shrink below TVA's projected goals.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Eliminate, reduce, or recover refrigerants and other fugitive emissions.	No	TVA has set a Scope 1 & 2 GHG emissions reduction target of 17% by 2020, relative to the emissions in FY 2008	NA
Reduce waste generation through elimination, source reduction, and recycling.	Yes	TVA will continue to promote source reduce and recycling practices through outreach and awareness efforts	Coordinate with Supply Chain Acquisition to encourage source reduction and recycling in contracts. Develop employee focused messaging on benefits of recycling and reduction.
Implement integrated pest management and improved landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals and materials.	No	TVA will consider as practical	NA
Develop or revise Agency Chemicals Inventory Plans and identify and deploy chemical elimination, substitution, and/or management opportunities.	No	TVA Supply Chain will target corporate facilities to promote bio based cleaning products. TVA will increase sustainable acquisition through enhanced training., meetings with business units, and developing task focused collaborations with internal stakeholders.	NA
Inventory current HFC use and purchases.	No	TVA will be including HFC data in agency-wide carbon accounting database	NA
Require high-level waiver or contract approval for any agency use of HFCs.	No	TVA will consider this strategy as practical and necessary.	NA

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Ensure HFC management training and recycling equipment are available.	Yes	TVA will continue to implement HFC management training as part of its Technical Training Programs. Measures will be taken to ensure recycling equipment/contracted services are available at appropriate locations.	Continue EPA Technical Training Certification for refrigerants to appropriate personnel. Coordinate with appropriate business unites to ensure HFC recycling quip/contracted services are available as appropriate.

Goal 8: Energy Performance Contracts

Performance Contracting Goal

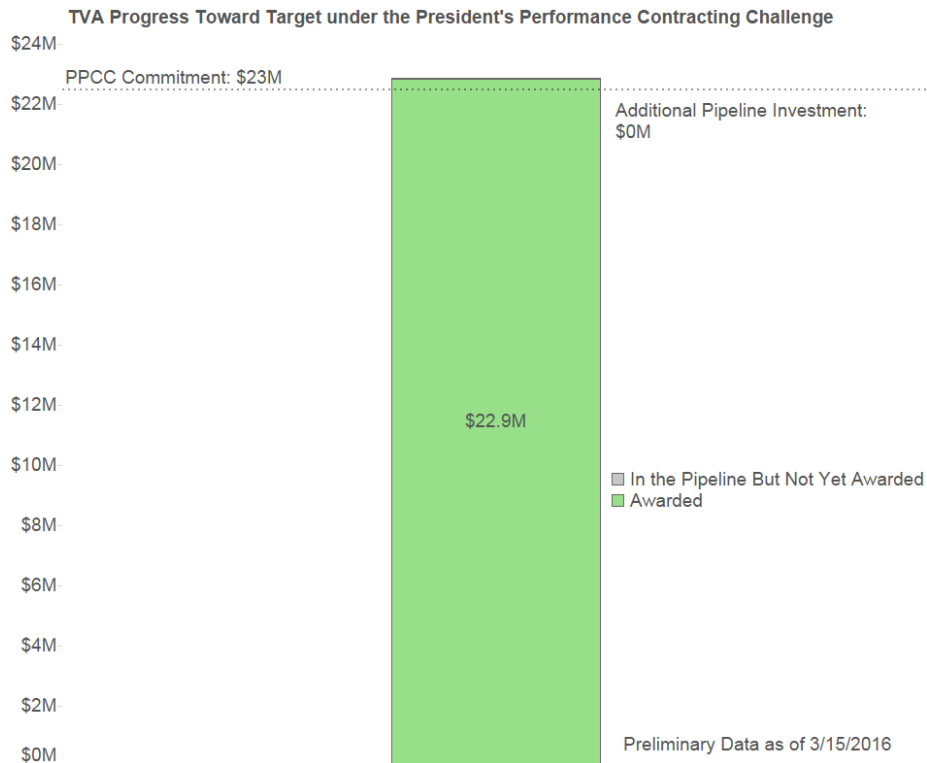
E.O. 13693 section 3(k) requires that agencies implement performance contracts for Federal buildings. E.O. 13693 section 3(k)(iii) also requires that agencies provide annual agency targets for performance contracting. TVA's commitment under the President's Performance Contracting Challenge is \$5.5 M in contracts awarded by the end of calendar year 2016. TVA's targets for the next two fiscal years are:

FY 2017: \$2.5 M

FY 2018: \$2.5 M

TVA has set its targets for the next two fiscal years based on an estimate for the amount of investment required to meet the energy and water goals.

Chart: Progress Toward Target under the President's Performance Contracting Challenge



Performance Contracting Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Utilize performance contracting to meet identified energy efficiency and management goals while deploying life-cycle cost effective energy and clean energy technology and water conservation measures.	Yes	TVA, as an energy provider, has its own Federal Energy Services Program that provides Utility Energy Service Contracts (UESC) to Federal direct serve and Federal non-direct serve customers in its region at special request by the local power distributor. As such, TVA recognizes the value in these contracts and has chosen to self-fund its own projects to provide more value.	TVA as a provider of utility based ESPCs will continue to self-fund its own energy, water and sustainability projects.
Fulfill existing agency target/ commitments towards the PPCC by the end of CY16.	Yes	TVA has committed to awarding \$22.5 M in energy, water and sustainability projects toward the 2016 PPCC.	TVA has met its 2016 PPCC target ahead of schedule by awarding \$22.9 M and will continue to implement cost effective projects as part of its normal business planning process.
Evaluate 25% of agency's most energy intensive buildings for opportunities to use ESPCs/UESCs to achieve goals.	Yes	TVA's Internal Energy Management Program will lead the EISA energy and water surveys to identify cost-effective measures that may be implemented.	Complete surveys that total 25% of TVA's most energy intensive buildings by June 2017.
Prioritize top ten portfolio wide projects which will provide greatest energy savings potential.	Yes	TVA will continue to prioritize projects that have the greatest energy savings potential. This strategy has been used in the past to help efficiently allocate funds to the best projects.	Maintain an updated list of potential conservation measures identified through ongoing surveys.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Identify and commit to include onsite renewable energy projects in a percentage of energy performance contracts.	No	Consider if deemed necessary.	N/A
Submit proposals for technical or financial assistance to FEMP and/or use FEMP resources to improve performance contracting program.	N/A	Consider if deemed necessary.	N/A
Work with FEMP/USACE to cut cycle time of performance contracting process, targeting a minimum 25% reduction.	N/A	Consider if deemed necessary.	N/A
Ensure agency legal and procurement staff are trained by the FEMP ESPC/UESC course curriculum.	N/A	Consider if deemed necessary.	N/A

Goal 9: Electronics Stewardship & Data Centers

Electronics Stewardship Goals

E.O. 13693 Section 3(l) requires that agencies promote electronics stewardship, including procurement preference for environmentally sustainable electronic products; establishing and implementing policies to enable power management, duplex printing, and other energy efficient or environmentally sustainable features on all eligible agency electronic products; and employing environmentally sound practices with respect to the agency's disposition of all agency excess or surplus electronic products.

Agency Progress in Meeting Electronics Stewardship Goals

Procurement Goal:

At least 95% of monitors, PCs, and laptops acquired meets environmentally sustainable electronics criteria (EPEAT registered).

FY 2015 Progress: 97.4%

Power Management Goal:

100% of computers, laptops, and monitors has power management features enabled.

FY 2015 Progress: 60% of equipment has power management enabled
40% of equipment has been exempted

End-of-Life Goal:

100% of electronics disposed using environmentally sound methods, including GSA Xcess, Computers for Learning, Unicor, U.S. Postal Service Blue Earth Recycling Program, or Certified Recycler (R2 or E-Stewards).

FY 2015 Progress: 100%

100% of electronics are redeployed, donated, sold or disposed using environmentally approved Recyclers.

Data Center Efficiency Goal

E.O. 13693 Section 3(a) states that agencies must improve data center efficiency at agency facilities, and requires that agencies establish a power usage effectiveness target in the range of 1.2-1.4 for new data centers and less than 1.5 for existing data centers.

Electronics Stewardship Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Use government-wide strategic sourcing vehicles to ensure procurement of equipment that meets sustainable electronics criteria.	No	TVA utilizes in-house sourcing vehicles that ensure procurement of equipment that meets sustainable electronics criteria. This allows TVA to obtain better pricing and comply with provisions of the TVA Act related to economic development by working primarily with businesses in the service area.	
Enable and maintain power management on all eligible electronics; measure and report compliance.	Yes	Use Microsoft Group Policy Objects to effect power management on managed computers and laptops.	Manage all computers and laptops through Group Policy settings.
Implement automatic duplexing and other print management features on all eligible agency computers and imaging equipment; measure and report compliance.	Yes	TVA is continuing the agency wide rollout of the Print Smart initiative to improve productivity and efficiency. The key elements of the initiative are: default device settings to duplex default device settings to monochrome increase user to device ratio from the previous 3:1 to the current 6:1 and continue to increase recycling all toner cartridges	Agency-wide rollout of Print Smart - 60% Default device settings to duplex - 100% Default device settings to monochrome - 0% User to device ratio - 6:1 Recycle toner cartridges - 100%

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
<p>Ensure environmentally sound disposition of all agency excess and surplus electronics, consistent with Federal policies on disposal of electronic assets, and measure and report compliance.</p>	<p>Yes</p>	<p>TVA has previously utilized certified recyclers for the disposal of surplus electronics. On February 6, 2014 TVA entered into a Memorandum of Understanding with 5R Processing LTD in Morristown, TN to recycle any IT surplus that TVA's Investment Recovery organization was unable to redeploy, donate, or sell. Sales are accomplished either through negotiated sales, consignment, or public auctions. Since one initial truckload of IT surplus was sent to 5R Processing for recycling, Investment Recovery has been able to redeploy, donate, or sell 100 percent of the IT surplus.</p>	<p>Continue to pursue redeploying, donating, or selling 100 percent of the IT surplus. Only after all possible avenues to reuse the electronic equipment has been exhausted shall the approved recycler be utilized.</p>

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
<p>Improve tracking and reporting systems for electronics stewardship requirements through the lifecycle: acquisition and procurement, operations and maintenance, and end-of-life management.</p>	<p>Yes</p>	<p>TVA has a standard lifecycle for standard PCs and Laptops. Desktops are replaced at 5 years and laptops are replaced at 4 years. These standard devices make up about 95% of our computing purchases. Nonstandard computing devices are reviewed individually for EPEAT and Energy Star compliance. Currently, our biggest EPEAT hard spots is monitors. NEC, our monitor partner for several years has recently withdrawn from the EPEAT registry, so we have been testing different manufacturers to replace NEC. Other than monitors, we plan to shift primarily to Solid State storage in laptops purchased after April 2016, resulting in reduced energy consumption.</p>	<p>95% EPEAT and EnergyStar compliant.</p>

Data Center Efficiency Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Develop, issue and implement policies, procedures and guidance for data center energy optimization, efficiency, and performance.	Yes	TVA has implemented Data Center standards from Power delivery, Cooling, monitoring, equipment racks, top of rack networking, PDUs, temp sensors, DCIM tool, HVAC units (Three phase fans), Liebert ICOM controls, Kodlock panels, cold isle floor panels, Hot/Cold Isle, cold Containment, Ceiling hot air plenum inside our core Data Centers. All these standards help provide lower power use, cooling cost, and operation cost of these data centers.	Continue to provide reliable power and lowest cooling cost core data centers. Advance metering being implemented to help trending and monitoring overall power usage.
Install and monitor advanced energy meters in all data centers (by fiscal year 2018) and actively manage energy and power usage effectiveness.	Yes	TVA is currently testing new APC Powerlogic 5300 meters for more data points into power used by data center power panels. These units have network connectivity into our DCIM tool for advanced monitoring and trending. Currently tested two new meters in HVAC panels.	Provide better overall cooling power loads to assist getting accurate PUE numbers and trending.
Minimize total cost of ownership in data center and cloud computing operations.	Yes	TVA is taking a deliberate approach to exploiting cloud opportunities. Applications are evaluated for suitability for hosting in a cloud environment.	

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Identify, consolidate and migrate obsolete, underutilized and inefficient data centers to more efficient data centers or cloud providers; close unneeded data centers.	No	TVA's mission requires data centers be maintained locally to generating facilities in order to fulfill operational requirements.	
Improve data center temperature and air-flow management to capture energy savings.	Yes	TVA is currently using Three phase fans (HVAC), Liebert ICOM controls, Hot/Cold isle, filler panels, direct air flows panels, temp sensors in every rack, ceiling plenum, cold aisle containment, Kodlock panels, top of rack networking all used to insure proper air delivery and eliminate air mixture inside data centers. This allows us to provide the correct cold air where needed and remove the hot air. This allows eliminating wasted energy.	All our standards that have been implemented will result in lower measured cooling. We will monitor tools for verification and levels.
Assign certified Data Center Energy Practitioner(s) to manage core data center(s).	No	TVA will investigate the requirements to obtain Data Center Energy Practitioner certification for key personnel but there are no plans to pursue in FY17.	

Goal 10: Climate Change Resilience

E.O. 13653, *Preparing the United States for the Impacts of Climate Change*, outlines Federal agency responsibilities in the areas of supporting climate resilient investment; managing lands and waters for climate preparedness and resilience; providing information, data and tools for climate change preparedness and resilience; and planning.

E.O. 13693 Section 3(h)(viii) states that as part of building efficiency, performance, and management, agencies should incorporate climate-resilient design and management elements into the operation, repair, and renovation of existing agency buildings and the design of new agency buildings. In addition, Section 13(a) requires agencies to identify and address projected impacts of climate change on mission critical water, energy, communication, and transportation demands and consider those climate impacts in operational preparedness planning for major agency facilities and operations. Section 13(b) requires agencies to calculate the potential cost and risk to mission associated with agency operations that do not take into account such information and consider that cost in agency decision-making.

The goal of TVA's adaptation planning process is to ensure the Agency continues "to achieve its mission and program goals and to operate in a secure, effective and efficient manner in a changing climate."

TVA continued its efforts to ensure climate change adaptation is integrated into both agency-wide and regional planning efforts, in coordination with other Federal agencies as well as state and local partners, Tribal governments and private stakeholders. Examples include:

- The Change Sentinel Monitoring (CCSM) program started in April 2013 with 18 stations is monitored by TVA and partners throughout the Tennessee River watershed. The goal of the program is to assess potential biological, ecological, and hydrological responses of aquatic ecosystems related to climate change.
- TVA participates in the Appalachian Landscape Conservation Cooperative (AppLCC) and communicates the findings of the AppLCC climate resilience assessment for aquatic habitats through the Tennessee River Basin Biodiversity Network (TRBBN).
- TVA is one of 18 electric utilities participating in DOE's *Partnership for Energy Sector Climate Resilience*. This Partnership is an initiative to enhance U.S. energy security by improving the resilience of energy infrastructure to extreme weather and climate change impacts.

Climate Change Resilience Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
<p>Strengthen agency <i>external</i> mission, programs, policies and operations (including grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change.</p>	<p>Yes</p>	<p>1) Continued execution of Agency Implementation Plan for Executive Order 13690 2) continued participation in the Appalachian Landscape Conservation Cooperative 3) continued participation in U.S. EPA’s Regional Monitoring Network (RMN) 2) continued participation in the Federal Interagency Floodplain Management Task Force</p>	<p>1) finalized agency Floodplain Management Implementing Plan 2) revised NEPA procedures with CEQ concurrence; released updated procedures for comment; issued final procedures CY17 3) CY15 Climate Change Sentinel Monitoring Report</p>
<p>Update and strengthen agency <i>internal</i> mission, programs, policies, and operations to align with the Guiding Principles, including facility acquisition, planning, design, training, and asset management processes, to incentivize planning for and addressing the impacts of climate change.</p>	<p>Yes</p>	<p>Continue participation in DOE’s Partnership for Energy Sector Climate Resilience</p>	<p>1) updated Agency High Level Vulnerability Assessment to also meet DOE Partnership guidance 2) updated Agency Adaptation Plan, consistent with Partnership guidance 3) assisted in DOE Partnership Phase 1 Case Study, “Assessing the Costs and Benefits of Investments in Climate Resilience” with DOE/ORNL</p>

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Update emergency response, health, and safety procedures and protocols to account for projected climate change, including extreme weather events.	Yes	Maintain Agency Emergency Response Plan (AERP) and the Continuity of Operations (COOP) Plan. These plans establish policy and provide guidance to the Business Units and sites to establish and revise their specific emergency response and COOP Plans	1) Agency Emergency Response Plan (AERP) and the Continuity of Operations (COOP) Plan are both reviewed and revised annually. 2) COOP Business Units review in CY16
Ensure climate change adaptation is integrated into both agency-wide and regional planning efforts, in coordination with other Federal agencies as well as state and local partners, Tribal governments, and private stakeholders.	Yes	1) continued participation in DOE's Partnership for Energy Sector Climate Resilience 2) continued participation in the Interagency Forum on Climate Change Impacts and Adaptation 3) continued participation in the Federal Climate Change Adaptation Community of Practice	1) updated Agency High Level Vulnerability Assessment to also meet DOE Partnership guidance 2) updated Agency Adaptation Plan, consistent with Partnership guidance
Ensure that vulnerable populations potentially impacted by climate change are engaged in agency processes to identify measures addressing relevant climate change impacts.	Yes	1) continued execution of Agency Implementation Plan for Executive Order 13690	1) finalized agency Floodplain Management Implementing Plan 2) revised NEPA procedures with CEQ concurrence; released updated procedures for comment; issued final procedures; final procedures and rule targeted for March 2017

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Identify interagency climate tools and platforms used in updating agency programs and policies to encourage or require planning for, and addressing the impacts of, climate change.	Yes	1) continued participation in DOE's Partnership for Energy Sector Climate Resilience 2) continued participation in the Interagency Forum on Climate Change Impacts and Adaptation 3) continued participation in the Federal Climate Change Adaptation Community of Practice	1) updated Agency High Level Vulnerability Assessment to also meet DOE Partnership guidance 2) updated Agency Adaptation Plan, consistent with Partnership guidance

Appendices

- A. Fleet Management Plan*
- B. Multimodal Action Plan*
- C. Climate Adaptation Plan*