STRATEGIC SUSTAINABILITY PERFORMANCE PLAN (SSPP)

Executive Order 13693
Planning for Federal Sustainability in the Next Decade



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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 seventh 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, EPAct05, 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. Theses 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 finished FY 2016 at a 22.2% reduction in GHG Scope 1 & 2 emissions and is on track in meeting its FY25 reduction target of 31.2%. In addition, TVA finished FY 2016 at a 24.5% reduction in GHG Scope 3 emissions and has exceeded its FY 2025 reduction target of 20.7%.

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 FY 2005 baseline, but we continued to make progress in FY 2016.

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 FY 2013 and the database is now in production status.

Goal 2: Sustainable Buildings

Progress **-** TVA finished FY 2016 at 4.7% reduction in energy intensity exceeding the 2.5% reduction goal and invested $3.0M on improvements resulting in $360,000 in annual savings, 3,786 MWh in energy consumption savings at both covered and non-covered facilities. TVA finished FY 2016 at 4.8% based on gross square feet for building meeting the Sustainable Guiding Principles (SGP).

Challenges **-** TVA continues to apply the SGPs to its two largest office complexes and to date, 85% of the SGP requirements have been completed at both complexes. If partial credit would be given for this work the agency would have already exceeded the 15% by FY 2025 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 SGP projects that were previously underway. TVA plans to continue 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. TVA will continue to review all new building designs and major renovations for incorporation of the new SGPs of its greater than 5,000 square feet buildings by FY 2025. TVA is

planning on implementing the SGPs at new buildings through new construction budgets and at existing buildings through project review during business planning. In order to meet the energy intensity reduction TVA continues to implement cost-effective energy saving projects in both goal subject and excluded buildings based on funding availability.

Goal 3: Clean & Renewable Energy

Progress - TVA exceeded last year's renewable energy goal of 10% finishing at 10.9% for FY 2016. TVA is on track toward meeting the 30% goal by FY 2025.

Challenges - No challenges are anticipated in meeting the clean energy or renewable energy goals.

Strategies & Planned Actions - TVA plans to maintain its current progress by continuing to make hydro modifications (HMODs) at its hydroelectric plants. HMODs increase the amount of energy generated by the turbine, by increasing the turbine's efficiency. This additional energy is considered to be renewable energy that is generated and used onsite by TVA buildings. TVA also plans on increasing the purchase of renewable energy certificates (RECs). TVA purchases RECs for its large office buildings through local power companies, which participate in TVA's Green Power Switch and Southeastern RECs program. These REC purchases are budgeted and funded through TVA's Facilities Management group, which also pays for TVA's utility bills.

Goal 4: Water Use Efficiency & Management

Progress - TVA finished FY 2016 with a 39.8% reduction in Gal/GSF compared to its FY 2007 base year. Water surveys were conducted at multiple TVA sites covering ~1.8 million square feet.

Challenges - No major challenges are foreseen considering TVA is already trending ahead of the annual water reduction 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. TVA plans to use water utility bills to monitor water usage and to identify large increases in usage that may be due to water leaks. Areas where potable water use can be diverted to non-potable water sources will continue to be identified.

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 2016, TVA's use of alternative fuel equaled 1.5% 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 13.3% above target, a reduction of 4% over FY 2015.

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. 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 FY 2017 was 86% and for the Second Quarter was 81%, as calculated by TVA's methodology. Biobased purchases were at 61% for each quarter, which surpasses established target of 50% of contracts in products to be delivered.

Challenges - Providing continuing education to our buyers and ensuring that all assigned green codes are accurate is a challenge. Barriers to increased adoption of Biobased Cleaning products were identified as reducing 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 FY 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 FY 2017 are $800,000 in spend on 200 purchase orders (or contracts).

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

Goal 7: Pollution Prevention & Waste Reduction

Progress - In FY 2016, TVA reported 12,233 tons of non-hazardous MSW of which 577 tons were recycled for a total waste diversion rate of 4.5%.

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 at each location to find ways to collect and transport recyclables to other locations. One new challenge that impacts TVA in meeting the waste diversion goal is the removal of source reduction. In the previous EO/waste guidance source reduction was allowed in helping agencies meet the waste diversion goal.

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 unites to ensure HFC recycling equipment/contracted services are available as appropriate.

Goal 8: Energy Performance Contracts

Progress - TVA awarded $22.9 million toward its FY 2016 performance contracting target of $22.5 million, exceeding its initial and revised targets and meeting the Presidential challenge ahead of schedule. TVA 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 projects totaling $2.5M for FY 2018 and $2.5M for FY 2019 for a total investment of $5.0M. 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.

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.

Goal 9: Electronics Stewardship & Data Centers

Progress - TVA has been able to maintain >95% compliance with the goal of acquiring EPEAT registered electronics. TVA has shifted primarily to Solid State storage in laptops purchased and is transitioning to Solid State storage for desktops. All eligible display devices are currently being managed for power settings through Microsoft Group Policy Objects 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 spot is large panel displays. TVA has a centralized investment recovery organization the 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 - TVA has shifted primarily to Solid State storage in laptops and we are transitioning to Solid State storage for desktops. This shift is resulting in reduced energy consumption. TVA is also re-establishing disposal of surplus electronics with certified recyclers, and we continue to monitor electronic equipment surplus process to look for additional opportunities for process improvement. TVA is also currently evaluating site data centers for opportunities to improve energy efficiency goals and seeking a more aggressive PC Power Management solution, which will allow us to manage more PC's in our fleet in a strategic fashion.

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 Assessmen*t 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.

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 FY 2013 to FY 2015, exceeding the agency's SSPP target of $22.5million. For FY 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 2018 and $2.5M for 2019. 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 directive of EO 13693, updated its *Statement on Climate Change*, *Adaptation Plan* and *High Level Vulnerability Assessmen*t consistent with the Third National Climate Assessment and EO 13783 related guidance.

SIZE & SCOPE OF AGENCY OPERATIONS

Agency Size and Scope	FY 2015	FY 2016
Total Number of Employees as Reported in the President's Budget	10,920	10,691
Total Acres of Land Managed	293,000	293,000
Total Number of Buildings Owned	2,617	2,511
Total Number of Buildings Leased (GSA and Non-GSA Lease)	22	14
Total Building Gross Square Feet (GSF)	29.182 million	28.921 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	2,561	2,570
Total Number of Fleet Vehicles Leased	0	0
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.)[1]	1,051	1,041
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

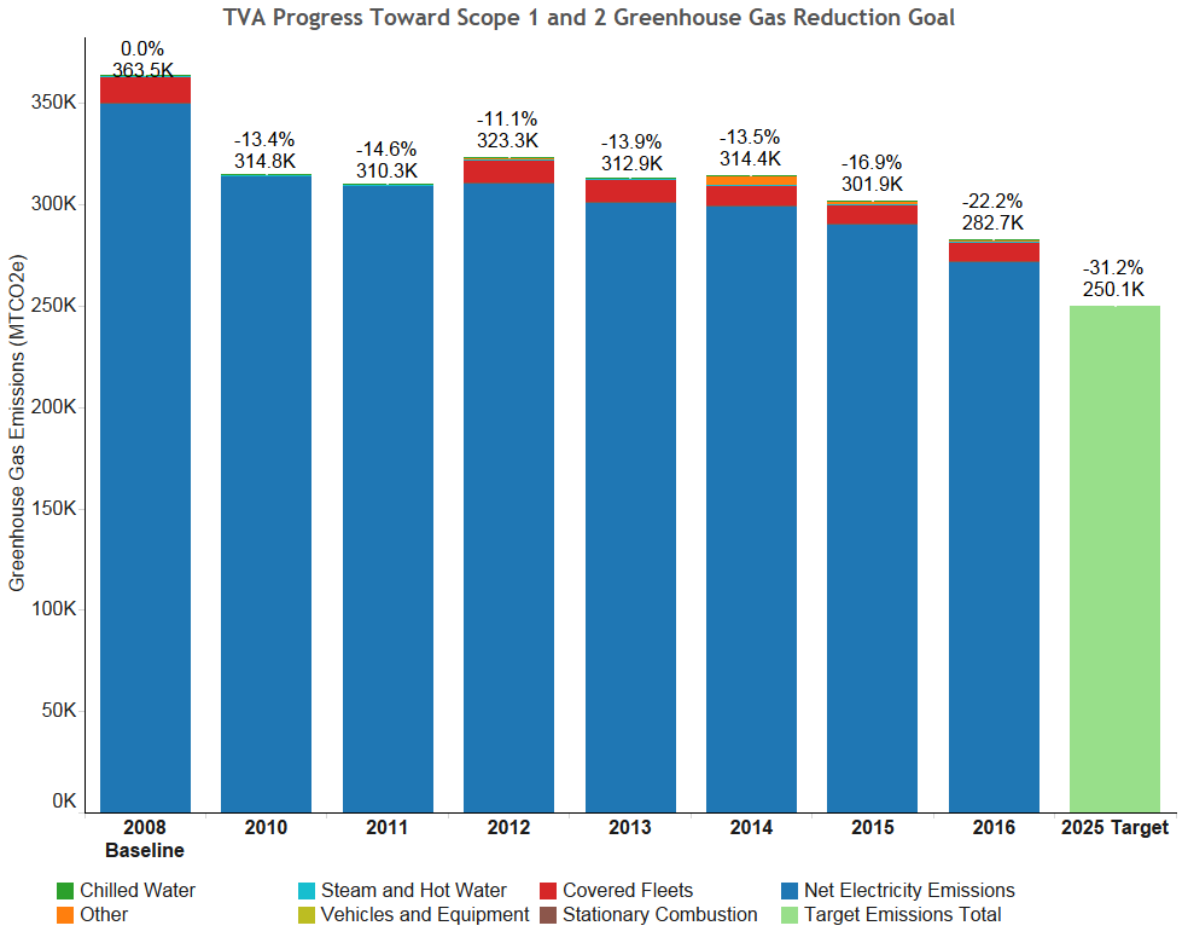
This section provides an overview of progress through FY 2016 on sustainability goals and agency strategies to meet the new and updated goals established by Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*.

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 FY 2025 Scope 1 & 2 GHG reduction target is 31.2% from its FY 2008 baseline.

Chart: Progress Toward Scope 1 & 2 GHG Reduction Goal



Building improvement efforts are paying off as related emissions are coming down. 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 1, 2 and 3 greenhouse gas emissions inventory, TVA has purchased an agency-wide commercial carbon accounting database in FY 2013 and is the software is now in production status.

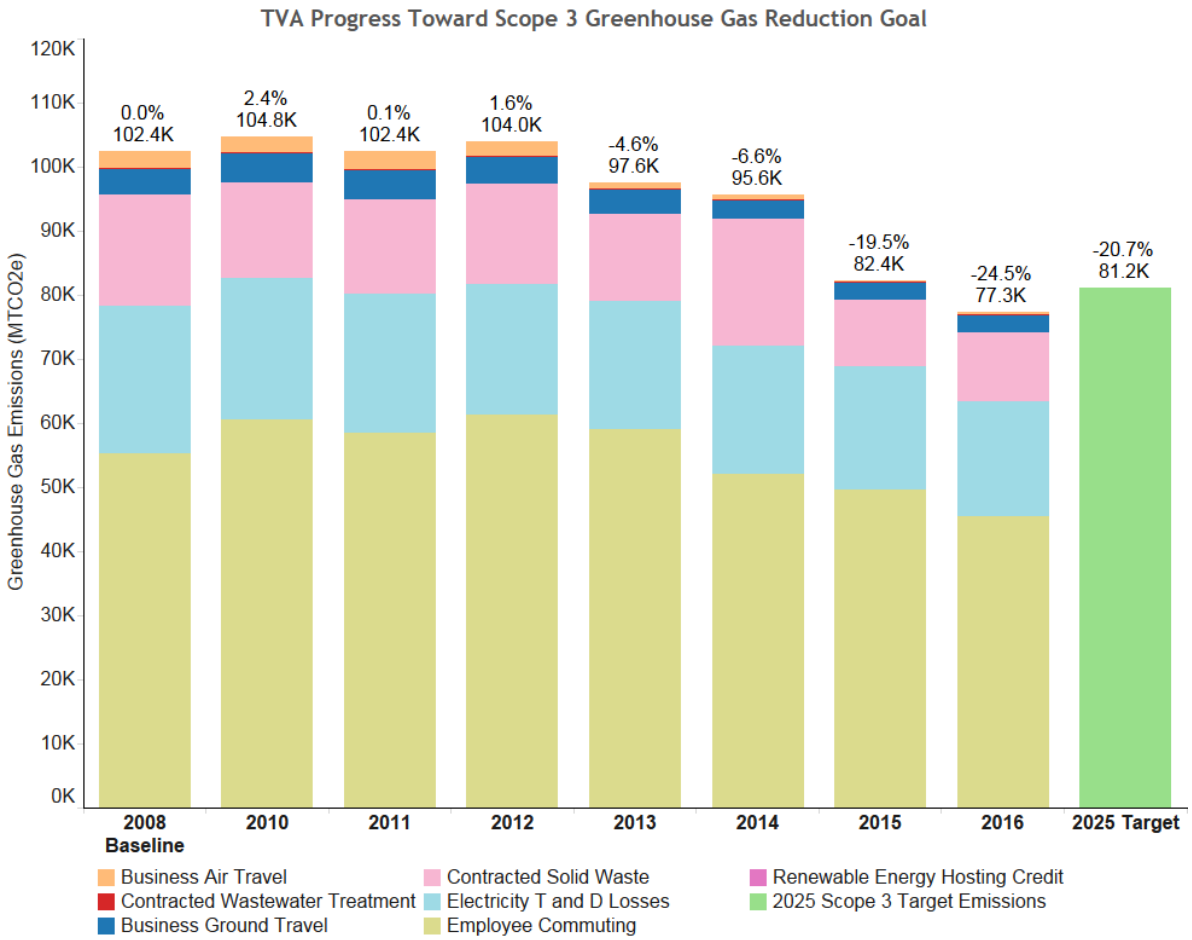
Scope 1 & 2 GHG Reduction Strategies

Strategy	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.	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.	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.
Given agency performance to date, determine whether current agency GHG target should be revised to a more aggressive/ambitious target.	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.	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.

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 FY 2025 Scope 3 GHG reduction target is 20.7%.

Chart: Progress Toward Scope 3 GHG Reduction Goal



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 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 alternate forms of transportation. Additionally, TVA agreed in FY 2013 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, but we continued to make progress.

Scope 3 GHG Reduction Strategies

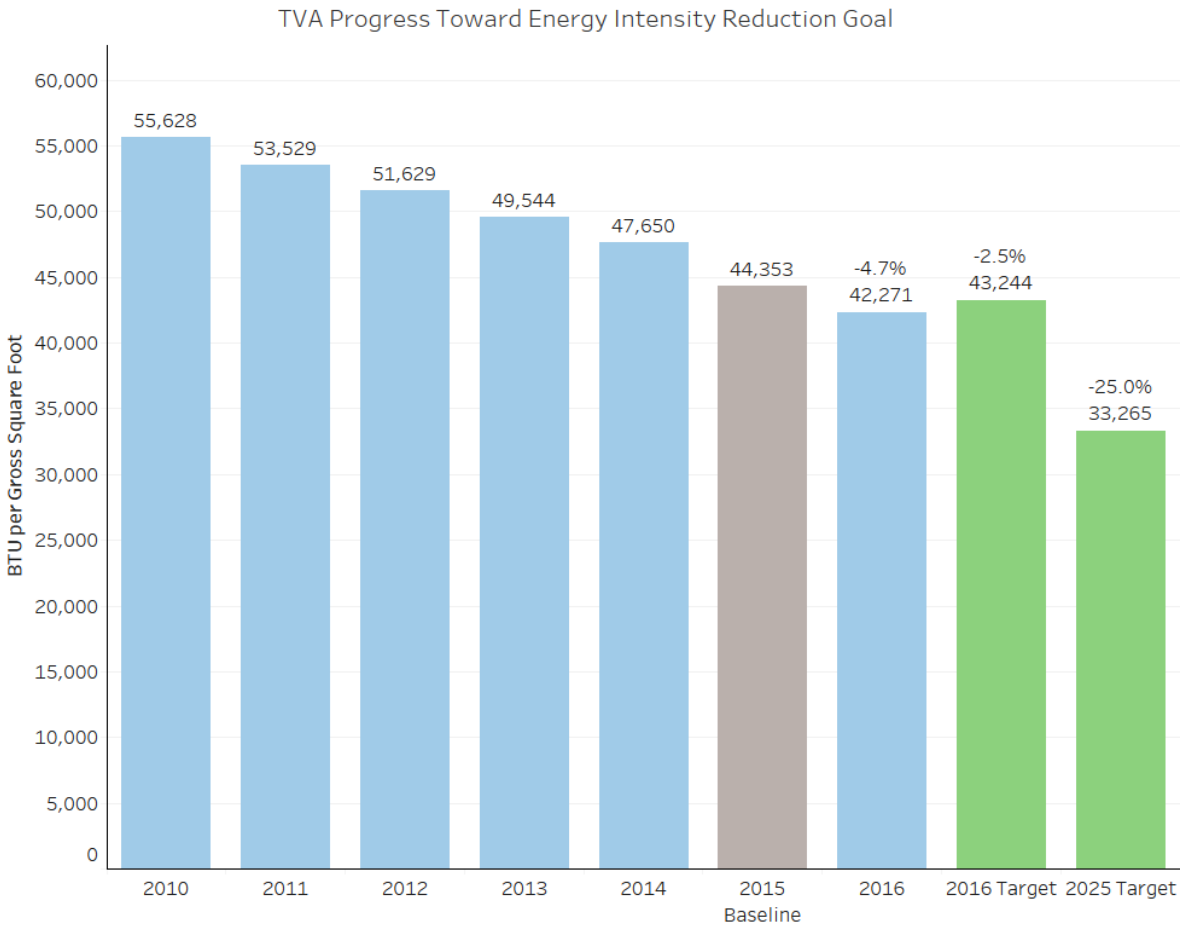
Strategy	Strategy Narrative	Targets and Metrics
Reduce employee business ground travel.	Continue to look into ways of using technology and better planning to reduce the need for employee business ground travel.	Targeting December 2016 for implementation of employee car share program. Refer to Goal - Fleet Management for more detail.
Reduce employee business air travel.	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.
Use an employee commuting survey to identify opportunities and strategies for reducing commuter emissions.	Conduct an employee survey every other year to update information used to estimate commuter travel.	Complete survey by June 2019.
Increase & track number of employees eligible for telework and/or the total number of days teleworked.	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.	TVA will consider implementing this strategy if deemed necessary.	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.	Report energy consumption for new leases as part the Annual GHG Data Report.	Complete by January 2019

Goal 2: Sustainable Buildings

Building Energy Conservation Goal

The Energy Independence and Security Act of 2007 (EISA) required 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	Strategy Narrative	Targets and Metrics
Make energy efficiency investments in agency buildings.	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	TVA will consider using this technology if feasible.	Evaluate remote building energy performance assessment auditing technologies currently available.
Incorporate Green Button data access system into reporting, data analytics, and automation processes.	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.
Identify opportunities to transition test-bed technologies to achieve energy reduction goals.	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 2018.
Install and monitor energy meters and sub-meters.	TVA 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.	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.	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 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.	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

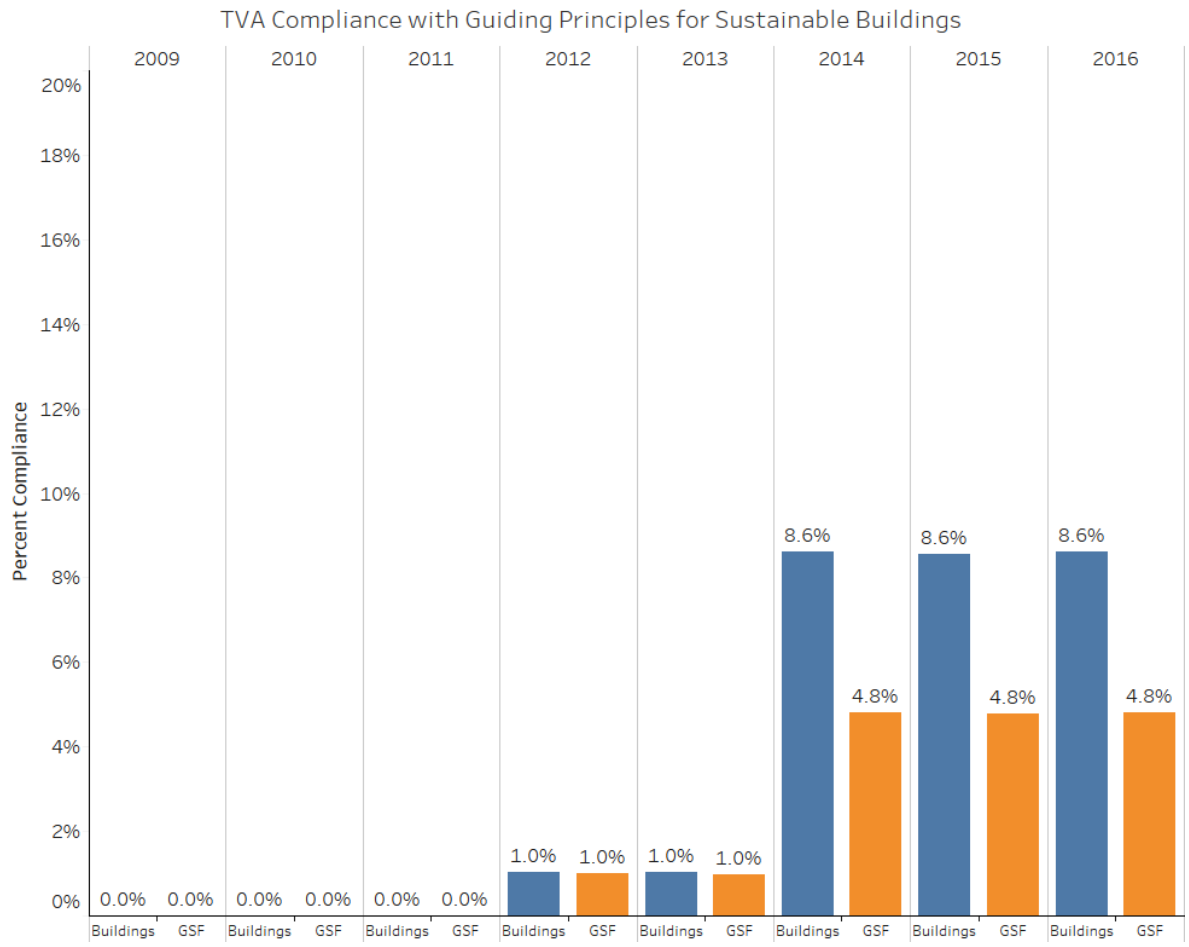
Section 3(h) of E.O. 13693 states that agencies will improve building efficiency, performance, and management and requires that agencies identify a percentage of the agency's existing buildings above 5,000 gross square feet intended to be energy, waste, or water net-zero buildings by FY 2025 and implementing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

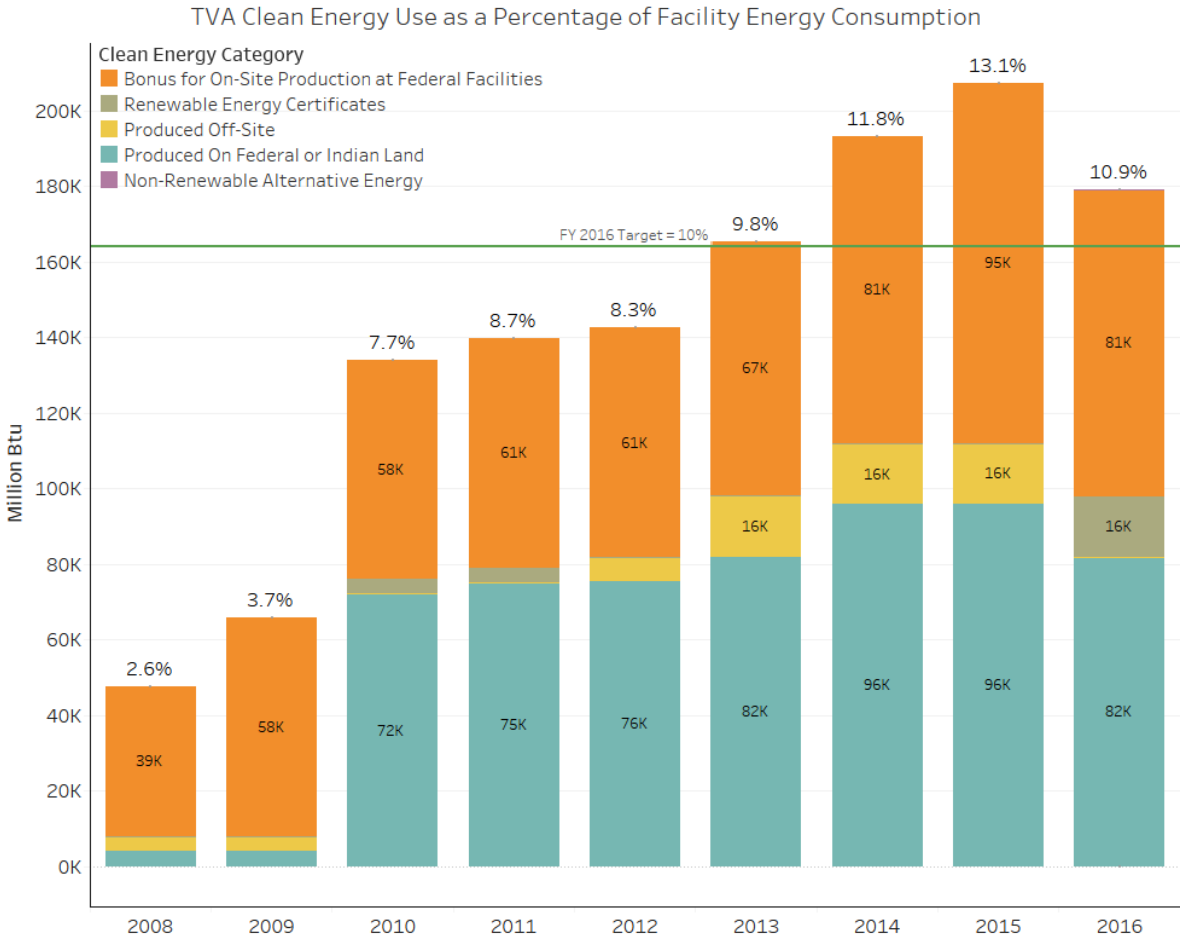
Strategy	Strategy Narrative	Targets and Metrics
In planning new facilities or leases, include cost-effective strategies to optimize sustainable space utilization and consideration of existing community transportation planning and infrastructure, including access to public transit.	TVA will incorporate into its internal SPP-05.21 - Resources Efficient Building Design Process.	Incorporate requirement into TVA-SPP-05.21 by September 2017.
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.	TVA will provide guidance to organizations on the future requirement to construct net-zero buildings by FY 2030 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.	TVA will incorporate into its internal SPP-05.21 - Resources Efficient Building Design Process.	Incorporate requirement into TVA-SPP-05.21 by September 2017.
Incorporate green building specifications into all new construction, modernization, and major renovation projects.	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.	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 2018.

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 clean energy (i.e., 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.

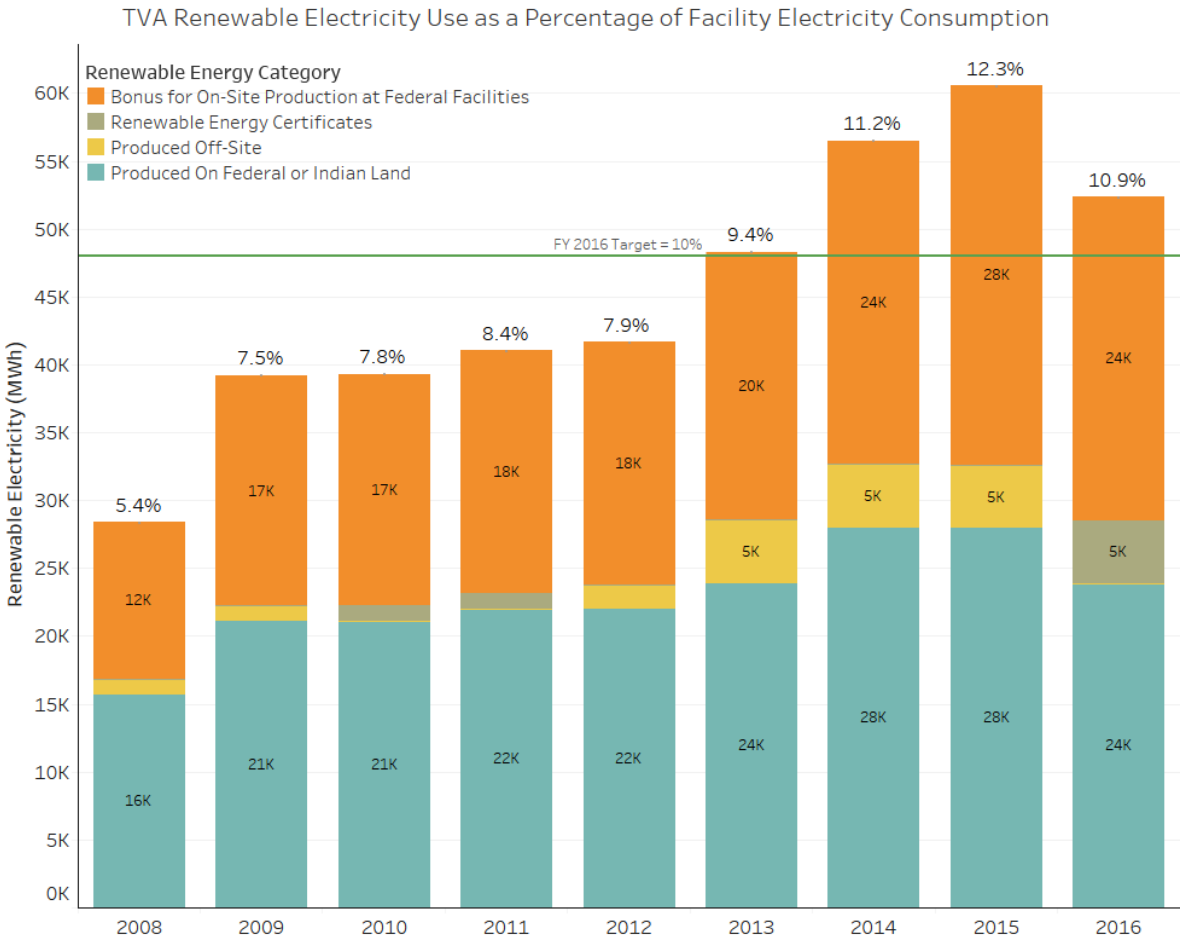
Chart: Use of Clean Energy as a Percentage of Total Electric Energy and Thermal Energy



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	Strategy Narrative	Targets and Metrics
Install agency-funded renewable on-site and retain corresponding renewable energy certificates (RECs).	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.
Purchase RECs to supplement installations and purchases of renewable energy, when needed to achieve renewable goals.	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.

Goal 4: Water Use Efficiency & Management

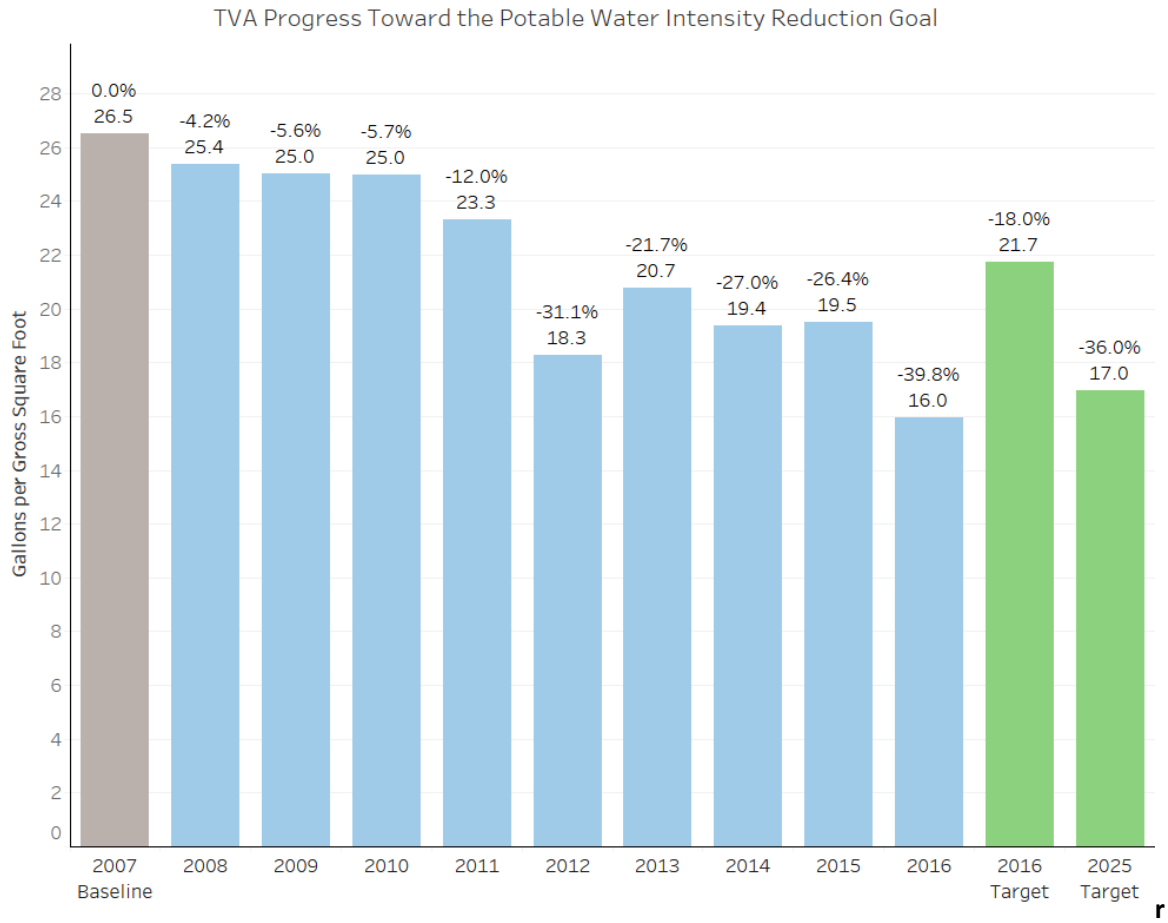
Potable Water Consumption Intensity Goal

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	Strategy Narrative	Targets and Metrics
Install and monitor water meters and utilize data to advance water conservation and management.	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. WaterSense fixtures.	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.
Ensure that planned energy efficiency improvements consider associated opportunities for water conservation.	TVA currently incorporates this strategy as part of its ongoing energy and water surveys.	Continue to identify energy savings associated with reduced water consumption.
Reduce non-potable water use through conversion of wet fly ash storage to dry storage	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 coal-fired plants. Complete retirement of Paradise Units 1-2 and the remaining units at Johnsonville by the end of FY 2017.

Goal 5: Fleet Management

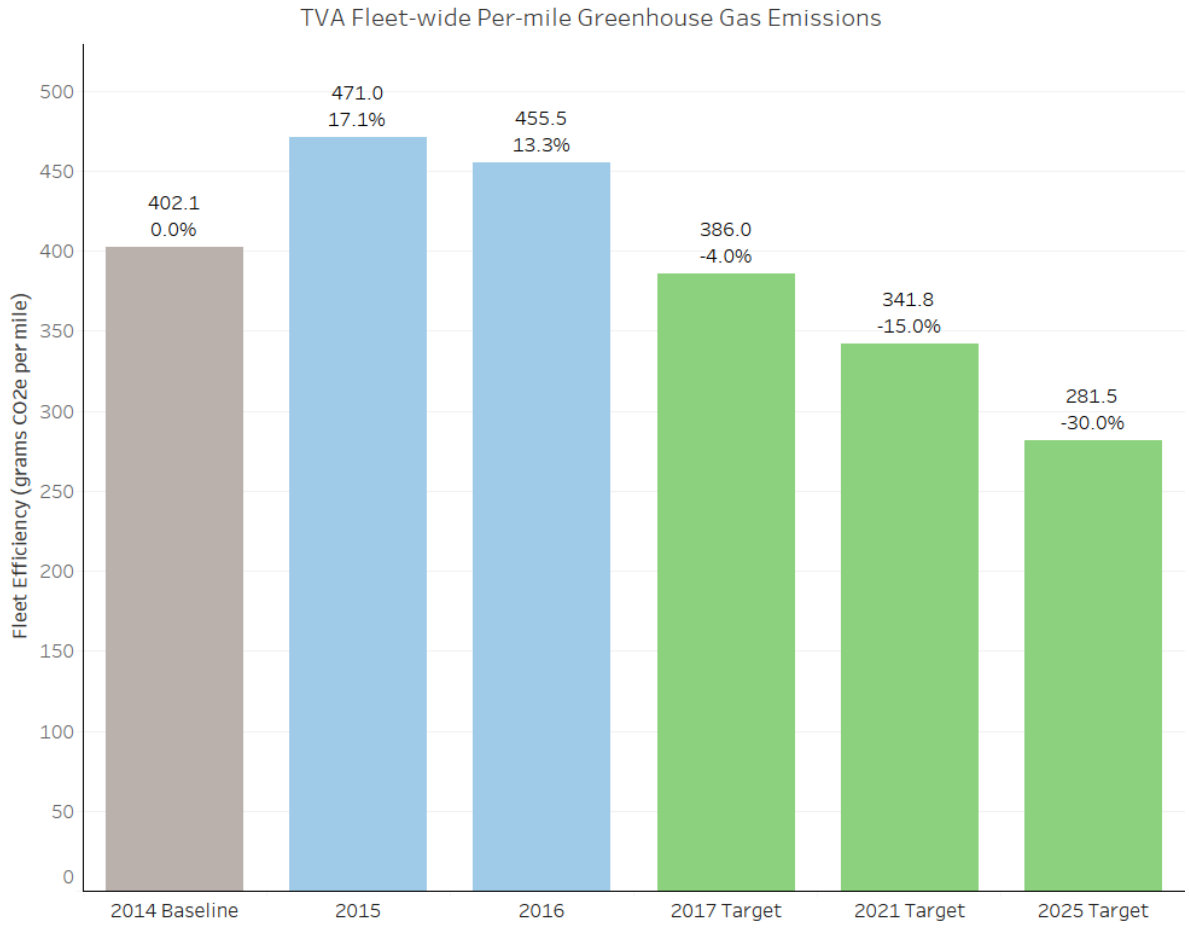
Fleet Petroleum Use Reduction Goal

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. TVA strived to accomplish this even with our budget constraints.

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 Alternative Fuel Consumption Goal
Agencies should have exceeded an alternative fuel use that is at least 5% of total fuel use. In addition the following federal objectives have been established:

- 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.
- The Energy Independence and Security Act 2007 (EISA) requires that, not later than October 1, 2015 and each year thereafter, that each Federal agency achieve a 10 percent increase in annual alternative fuel consumption, compared to a FY 2005 baseline.
- By FY 2016, agencies were to have increased alternative fuel use by 175.3% relative to FY 2005.
- OMB has asked all agencies to achieve a minimum of 5% alternative fuel use of their total fuel consumption.

In FY 2016, TVA's use of alternative fuel equaled 1.5% of total fuel use. TVA has increased its alternative fuel use by 368% since FY 2005.

TVA has effectively optimized the fleet since FY 2005. The number of vehicles has been reduced by 23% while rightsizing the type vehicle assigned to support TVA's mission. A totally optimized fleet based upon all federal fleet requirements is impacted by TVA's varied mission and the availability of products that meet functional requirements and budgetary constraints.

Fleet Management Strategies for Fiscal Year 2018

Strategy	Strategy Narrative	Targets and Metrics
Collect and utilize agency fleet operational data through deployment of vehicle telematics.	The previously planned 2017 implementation was paused for reevaluation.	
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.	(1) Implement FedFMS to support line level data for FAST reporting (2) FleetDASH previously implemented	1) September 2017
Increase acquisitions of zero emission and plug-in hybrid vehicles.	Zero emission vehicles will be purchased if commercially available and meets the intended mission.	FY 2018 - 3 FY 2019 - 5 FY 2020 - 10

Strategy	Strategy Narrative	Targets and Metrics
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.	Charging infrastructure will be installed, if not commercially available, for new zero emission vehicles placed into service.	TBD
Increase utilization of alternative fuel in dual-fuel vehicles.	TVA first seeks to purchase low GHG compliant vehicles if it meets functional requirements. If not available, a AFV vehicle will be purchased if commercially available and it meets functional requirements. FleetDash is used to identify missed opportunities.	Reduce missed opportunities in FY 2018 by 5%
Use a FMIS to track real-time fuel consumption throughout the year for agency-owned, GSA-leased, and commercially-leased vehicles.	TVA has an agency-wide fleet management system that meets current data requirements.	Fleet Management System
Implement vehicle idle mitigation technologies.	Agency has 8 units, only 2 in-service and 6 to be reinstalled in FY 2017. Results will be analyzed before adding additional units.	FY 2017 installation - 6 ROI analysis completed - FY 2018
Minimize use of law enforcement exemptions by implementing GSA Bulletin FMR B-33, *Motor Vehicle Management, Alternative Fuel Vehicle Guidance for Law Enforcement and Emergency Vehicle Fleets.*	TVA exempted vehicles have been approved by GSA and OMB.	N/A
Establish policy/plan to reduce miles traveled, e.g. through vehicle sharing, improving routing with telematics, eliminating trips, improving scheduling, and using shuttles, etc.	Seek support from business units to deploy a car share system provided by Enterprise (Zimride)	FY 2018

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.

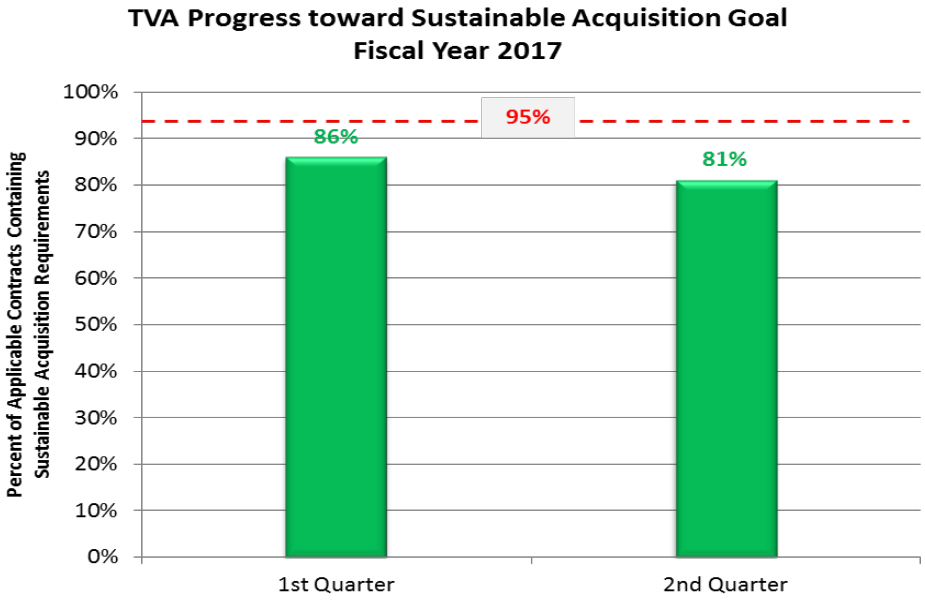
Biobased Purchasing Targets

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 FY 2017 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

# of Contracts Reviewed	Percentage Compliant
8292	81.1%



TVA's progress toward the Sustainable Acquisitions Goal increased from 81% and 77% in the first and second quarter of fiscal year 2016 to 86% and 81% in the first and second quarter of FY 2017 respectively. Additionally, the overall percentage of Biobased purchases increased from 57% to 61% when comparing the same period.

TVA's Sustainable Acquisition strategy for FY 2017 will continue to 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	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.	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.

Strategy	Strategy Narrative	Targets and Metrics
Include Biobased, other designated green products, and other sustainability clauses in all applicable and relevant purchase requests.	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.	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.
Practice strategic sourcing, such as blanket purchase agreements, for office products and imaging equipment, which include sustainable acquisition requirements.	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	TVA will conduct performance reviews for key suppliers where appropriate and practical.	Performance Review
Implement an agency wide initiative which encourages source reduction and the procurement and wide usage of 30% to 100% recycled paper.	TVA intends to continue both its paper acquisition program and reduction pilot project to also support Biobased purchases and recycling goals.	N/A

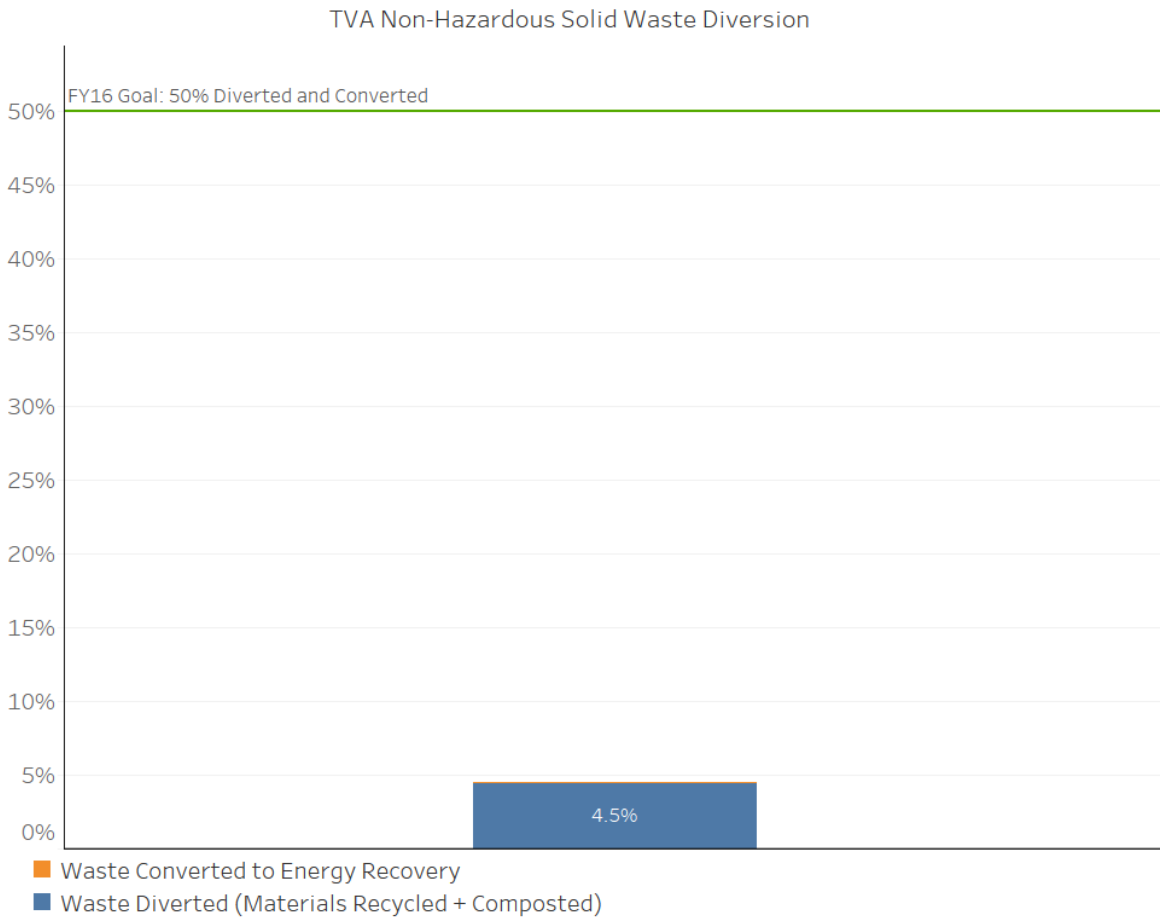
Goal 7: Pollution Prevention & Waste Reduction

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 2017.

Chart: Waste Diversion



Pollution Prevention & Waste Reduction Strategies

Strategy	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).	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.	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 decreased substantially.	TVA will continue the closure of some TVA fossil plants. The overall tons of hazardous waste continues to shrink below TVA's projected goals.
Eliminate, reduce, or recover refrigerants and other fugitive emissions.	TVA has set a Scope 1 & 2 GHG emissions reduction target of 17% by 2020, relative to the emissions in FY 2008	N/A
Reduce waste generation through elimination, source reduction, and recycling.	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.
Develop or revise Agency Chemicals Inventory Plans and identify and deploy chemical elimination, substitution, and/or management opportunities.	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.	N/A
Ensure HFC management training and recycling equipment are available.	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

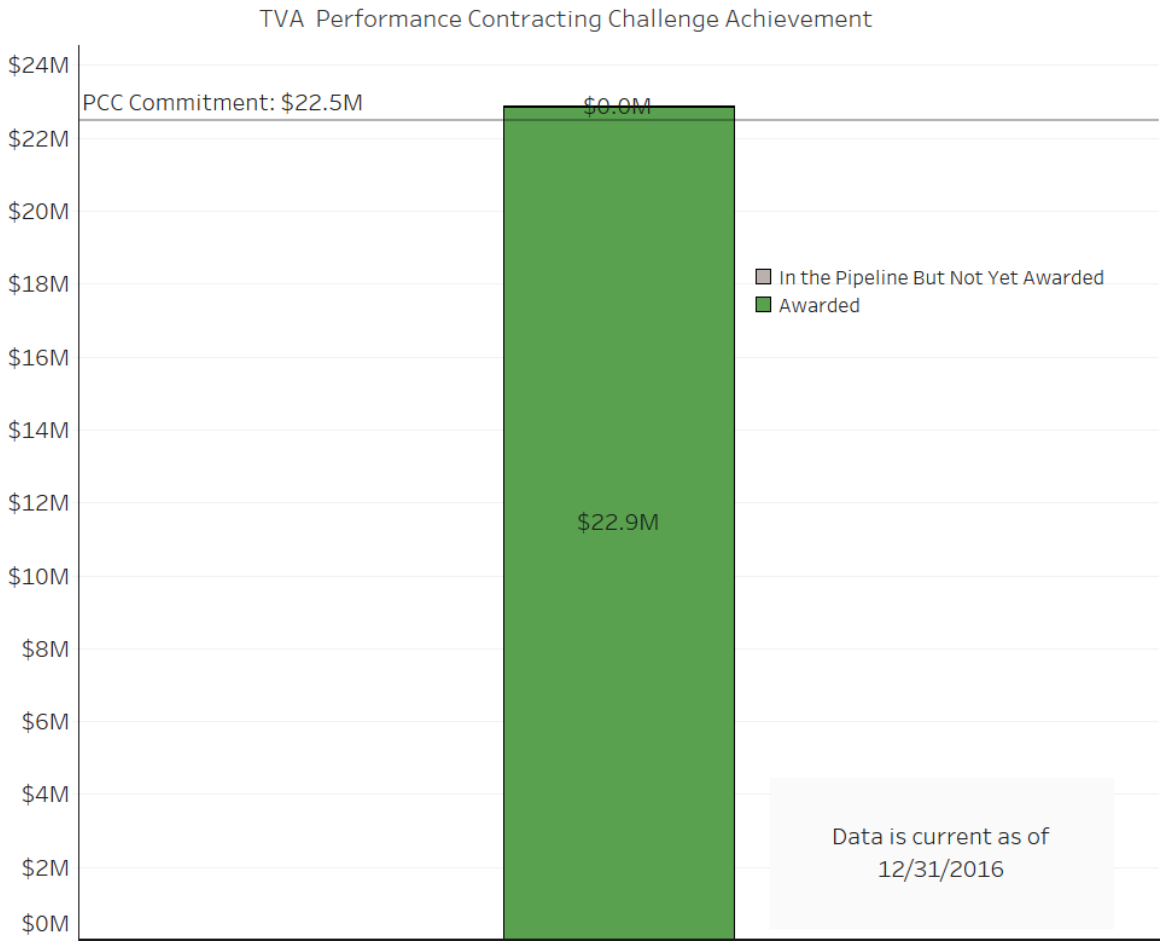
Performance Contracting Goal

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. Agency's targets for the next two fiscal years are:

FY 2018: $ 2.5M (This is TVA's previous target from the FY 2016 SSPP update.)
FY 2019: $ 2.5M (This is a new target for FY 2019.)

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	Strategy Narrative	Targets and Metrics

Strategy	Strategy Narrative	Targets and Metrics
Utilize performance contracting and incorporate use of ESPCs and UESCs into planning activities to meet identified energy & water efficiency and Administration objectives while deploying life-cycle cost effective infrastructure projects, with clean energy technology, energy and water & other savings measures.	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.
Evaluate the top 25% of agency's most energy intensive buildings for opportunities to implement comprehensive ESPC/UESC projects.	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 2018.
Prioritize top ten portfolio-wide projects which will provide greatest savings potential.	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.

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 2017 Progress to date: 97.95%

Power Management Goal:

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

FY 2017 Progress to date: 68% of equipment has power management enabled
32% 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 2017 Progress to date: 100%

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

Chart: Progress Electronic Stewardship (FY2016)

Electronics Stewardship

EPEAT	POWER MANAGEMENT	DISPOSITION
95.2%	66.0%	NA*
Percentage of monitors, PCs and laptops acquired by the agency that meet EPEAT-registry standards	Percentage of monitors, PCs and laptops with power management-enabled	Percentage of agency electronics disposed of using environmentally sound methods[1,2]

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	Strategy Narrative	Targets and Metrics
Use government-wide strategic sourcing vehicles to ensure procurement of equipment that meets sustainable electronics criteria.	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.	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.	TVA has concluded an 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 - 100% Default device settings to duplex - 100% Default device settings to monochrome - 0% User to device ratio - 7:1 Recycle toner cartridges - 100%

Strategy	Strategy Narrative	Targets and Metrics
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.	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.	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.
Improve tracking and reporting systems for electronics stewardship requirements through the lifecycle: acquisition and procurement, operations and maintenance, and end-of-life management.	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.	95% EPEAT and EnergyStar compliant.

Data Center Efficiency Strategies

Strategy	Strategy Narrative	Targets and Metrics
Develop, issue and implement policies, procedures and guidance for data center energy optimization, efficiency, and performance.	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.	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.	TVA is taking a deliberate approach to exploiting cloud opportunities. Applications are evaluated for suitability for hosting in a cloud environment.	
Identify, consolidate and migrate obsolete, underutilized and inefficient data centers to more efficient data centers or cloud providers; close unneeded data centers.	TVA's mission requires data centers be maintained locally to generating facilities in order to fulfill operational requirements.	

Strategy	Strategy Narrative	Targets and Metrics
Improve data center temperature and air-flow management to capture energy savings.	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).	TVA continues to investigate the requirements to obtain Data Center Energy Practitioner certification for key personnel but there are no plans to pursue in FY17.	

Electronics Stewardship (updated status as of June, 2017)

EPEAT	POWER MANAGEMENT	DISPOSITION
97.95%	68.0%	100%
Percentage of monitors, PCs and laptops acquired by the agency that meet EPEAT-registry standards	Percentage of monitors, PCs and laptops with power management-enabled	Percentage of agency electronics disposed of using environmentally sound methods[1,2]

**Agency Targets: 100% for all three categories. Green shading indicates achievement of 100% target. Yellow indicates greater than 90% achievement, and red indicates less than 90%. See more information about data sources in the Implementing Instructions, page 64.*

[1] *Disposition: Percentage based on agency Annual Executive Agency Reports on Excess and Exchange/Sale Personal Property (FMR B-27).*

[2] *Environmentally sound methods include: reuse through transfer, donation, and sales; and recycling through certified recyclers and manufacturer take-back programs using certified recyclers.*

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	Strategy Narrative	Targets and Metrics
Strengthen Agency external mission, programs, policies and operations (including grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change.	(1) Continued execution of Agency Implementation Plan for Executive Order 13690 (2) Continued participation in the AppLCC (3) Continued participation in US.S. EPA's Regional Monitoring Network (RMN) (4) Continued Participation in the Federal Interagency Floodplain Management Task Force	(1) Agency Floodplain Management Implementing Plan (2) Final NEPA procedures CY 2017 (3) CY 2016 Climate Change Sentinel Monitoring Report
Update and strengthen Agency internal mission, programs, policies, and operations to align with DOE Energy Resiliency Partnership Guidance.	(1) Continue participation in DOE's Partnership for Energy Sector Resilience (2) Participated in ORNL Pilot Study (3) Participating in EPRI Resiliency Supplemental Program	(1) Updated High Level Vulnerability Assessment and Adaptation Plan guidance, consistent with Partnership guidance (2) Assisted in DOE Partnership Case Study, "Assessing the Costs and Benefits of Investments in Climate Resilience" with DOE/ORNL (3) Participating in EPRI Resiliency Supplemental Program
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.	(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 and Adaptation Plan guidance, consistent with Partnership guidance. (2) Participation in the Interagency Forum on Climate Change Impacts and Adaptation (3) Participation in the Federal Climate Change Adaptation Community of Practice

Appendices

A. Fleet Management Plan and VAM Report

B. Multi-Modal Access Plan

C. Climate Adaptation Plan

D. TVA Sustainability Acquisition Report