

# Tennessee Valley Authority Strategic Sustainability Performance Plan

Executive Order 13514

*Federal Leadership in Environmental, Energy, and Economic Performance*

*Prepared by:*



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## POLICY STATEMENT

Since its inception, the people of the Tennessee Valley Authority (TVA) have maintained a proud history of environmental leadership. On May 18, 1933, the President signed the TVA Act into law to create an Agency that serves the Valley through its energy, environment, and economic development mission. To this day, TVA remains committed to leading the way in environmental sustainability. 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 proactive environmental stewardship in a balanced and ecologically sound manner. TVA's pursuits in these areas benefit the well-being of its employees and customers, the people being served, and the natural resources it stewards.

In August 2010, the TVA Board of Directors adopted a renewed vision, to be "one of the Nations' leading providers of low-cost and cleaner energy by 2020." This vision will help 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.

TVA manages many environmental sustainability programs, including technology innovation, environmental stewardship and compliance, a growing renewable energy portfolio, and a comprehensive economic development program. TVA works to integrate the goals of Executive Order (E.O.) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* and to understand and address climate change adaptation in its existing innovative programs and new efforts. Pursuant to the E.O., this comprehensive Strategic Sustainability Performance Plan (SSPP) addresses key aspects of TVA's energy, environmental, economic, and social resources and responsibilities in the 21<sup>st</sup> century.

As part of this SSPP, TVA has established specific goals. TVA will periodically measure and report its progress toward each of these goals. TVA's SSPP will be driven not only by the goals set forth in E.O. 13514, but also by the TVA Vision, TVA Environmental Policy, and the TVA Integrated Resource and Natural Resource plans. These environmental goals will be an integral part of how TVA does business, and will be tracked along with its other business objectives.

TVA's budget for meeting the TVA SSPP goals is based upon non-appropriated dollars; therefore, this plan and all proposed goals and projects hereunder shall be subject to the availability of funding as TVA, at its discretion, deems appropriate and practicable.

To conclude, this SSPP is intended for the internal management of TVA only and is not intended to, nor does, create any right or benefits, substantive or procedural, enforceable at law or equity against TVA or the United States, or their officials, employees, or agents or any other person.

Signed,



Dr. Joseph J. Hoagland  
Senior Sustainability Officer

# EXECUTIVE SUMMARY

## OVERVIEW

Section 8 of Executive Order (E.O.) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, 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 third annual update to the Plan.

## SECTION 1: VISION

The TVA Mission includes serving the Tennessee Valley through energy, environment, and economic development. These areas of service have a direct, clear relationship with environmental sustainability, so achieving the E.O. 13514 goals directly supports the broader TVA Mission.

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

The TVA Environmental Policy and commitment to cleaner energy correlates exactly with the environmental aspect of sustainability. TVA efforts to manage natural resources responsibly, reduce emissions, explore 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 good jobs for the people 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.

## SECTION 2: LEADERSHIP

TVA implementation of the Sustainability Plan will be accomplished by the following key staff:

- Joe Hoagland, Ph.D. – TVA Senior Vice-President of Policy and Oversight and TVA Senior Sustainability Officer.
- John Myers – under Policy and Oversight, TVA Director, Environmental Policy and Regulatory Affairs.
- Robert M. Balzar – under Policy and Oversight, TVA Vice-President, Energy Efficiency and Demand Response.
- Laura M. Duncan – under Environmental Policy and Regulatory Affairs, TVA Sustainability Program Manager.
- David R. Zimmerman – under Energy Efficiency and Demand Response, TVA Chief Energy Manager and Manager of TVA Internal Energy Management Program (IEMP).

TVA maintains a staff of dedicated professionals to provide leadership and focus for its environmental sustainability efforts, including the TVA-designated Chief Energy Manager, as required by past E.O.s and legislation. The Director, Environmental Policy and Regulatory Affairs, is the TVA point of contact with the Office of Management and Budget (OMB) and Council on Environmental Quality (CEQ) on sustainability reporting.

A goal 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 goal by issuing and maintaining the TVA SSPP, directing the TVA Sustainability team, increasing awareness and engaging employees on sustainability, and implementing actions to reduce TVA's internal environmental footprint through cross-organizational collaboration.

TVA has set up a governance structure that includes the Energy and Environmental Sustainability Committee (EESC) which develops and prioritizes projects to coordinate energy-saving and sustainability efforts throughout the agency. This governance structure includes representatives across TVA business units that manage TVA facilities, buildings, vehicles and information technology (IT) assets. Representatives report and communicate about sustainability goals and accomplishments and also serve on subcommittees as needed. The EESC will serve as the required role of an Agency Energy Management Committee by past E.O.s and legislation. The EESC membership includes Sustainability Program staff, goal area leads, Federal Working Group members, and representatives from pertinent TVA Business Units.

Accountability for accomplishing the SSPP can be managed through TVA's Integrated Performance Management (IPM) system. The system is a five-step process designed to improve individual employee performance by providing clear goals, support for learning and development, ongoing coaching and feedback, and periodic performance reviews. The overall goal of the IPM is to promote excellence in business performance and public service through high-performing and fully engaged employees. Through the system, employees clearly see how their individual performance objectives support their Business Unit performance plans, which then support the TVA Critical Success Factors. All employees involved in accomplishing E.O.s can align their efforts with the TVA Critical Success Factors to continue to reduce the impacts of TVA operations on the environment.

### **SECTION 3: PERFORMANCE REVIEW**

#### **Goal 1: Greenhouse Gas Reduction and Maintenance of Agency Comprehensive Greenhouse Gas Inventory**

##### **a. INTEGRATION**

TVA is continuing to improve the quality and accuracy of its Greenhouse Gas Inventory. Greenhouse gas reductions occur as a result of improved performance across Goals 2-9.

##### **b. EVALUATION MEASURES**

TVA compiles its Greenhouse Gas Inventory data in a manner consistent with the *Federal Greenhouse Gas Reporting Guidance*.

##### **c. SUCCESSES**

TVA is meeting its Scope 1 & 2 reduction target. TVA is continuing to evaluate facilities to identify potential Energy Conservation Measures (ECMs) as required by EPCAct05 and EISA 2007. During FY 2012, TVA surveyed 22 covered facilities accounting for 3,984,000 square feet. TVA's covered facilities are mostly excluded buildings under EPCAct05, but TVA has continued to survey and make energy/water improvements at goal subject buildings as well. In FY 2012, TVA implemented \$8.9M dollars worth of improvements resulting in \$890,900 dollars in annual savings, 10,480 MWh in energy consumption savings, and 16,300,000 gallons in water consumption savings at both covered and non-covered facilities.

#### **d. CHALLENGES**

Scope 3 GHG emissions data for employee commuting is a challenge. In FY 2012, TVA began a process to improve its Scope 3 commuter data through the implementation of a workforce engagement platform that tracks employee actions which contribute to Scope 3. The increased use of advanced Federal greenhouse gas accounting Scope 3 methodologies, instead of the Federal default methodologies (which are heavily dependent on the number of employees) will allow for more accurate commuter data and strategic actions directed at meeting Goal 1 targets.

Additionally, TVA's vehicle fleet has been historically excluded from past requirements due to the nature of its make-up, use, and its connection to “the operation and maintenance of the TVA power system.” Going forward, TVA has agreed to apply the petroleum reduction goal and alternative fuel requirements to its light duty vehicles. Because TVA just recently became subject to fleet goals, it finds it difficult to catch up with the current requirement of a 14 percent reduction from 2005 baseline, but it is making its best effort.

#### **e. LESSONS LEARNED**

Reliance on the default Federal Greenhouse Gas Reporting Guidance methodologies make it difficult to accurately show progress. TVA is behind in meeting the Scope 3 emissions goal mostly due to the need for better accounting of employee commuting. The standard methodologies used assume set distances and an average type of vehicle used. Collecting better data would enable a more accurate calculation for personal vehicle use and further enable TVA to account for employees using alternative forms of transportation.

#### **f. PLANNED ACTIONS**

For Scope 1 & 2 GHG emissions related to buildings, TVA plans to continue EISA 2007 and goal subject energy/water surveys and project upgrades to help meet its GHG reduction targets. For Scope 1 GHG emissions related to fleet vehicles, TVA will reduce petroleum use in fleet vehicles by increasing utilization of alternative fuel and optimizing its fleet size. For Scope 3 GHG emissions related to commuter travel, TVA will be creating a survey and making use of web based software to collect better data and increase awareness of the environmental and financial benefits of using alternative modes of commuting. For Scope 1, 2, & 3 GHG emissions inventory, TVA will continue its efforts to design and deploy an agency-wide carbon accounting database, as well as efforts to improve data quality, and is on track to completing this initial effort by September 30, 2013.

### **Goal 2: Buildings, ESPC Initiative Schedule, and Regional & Local Planning**

#### **a. INTEGRATION**

TVA will continue to review all new building designs and major renovations for incorporation of the Sustainable Guiding Principles (SGPs) and work toward retrofitting the SGPs into 15 percent of its greater than 5,000 square feet buildings by FY 2015. TVA recognizes that this work helps meet Goal 1 - GHG reduction through reduced building energy use; Goal 4 - water reduction; Goal 5 - pollution prevention and waste reduction through recycling of construction and demolition debris and recycling installed in new and existing buildings; Goal 6 - through the purchase of recycle content, biobased content and energy/water efficient products used in new and renovated buildings; Goal 7 - electronic stewardship and data centers through the purchase and installation of EPEAT compliant computers, monitors and imaging equipment installed in buildings; Goal 8 - renewable energy through the use of HMOD, RECs and other renewable sources when found to be cost-effective; and Goal 9 - climate change resilience through reduced energy use reducing GHG emissions. TVA is budgeting SGP work through existing budgets dedicated to new building construction and project review and approval through the EESC for existing building SGP upgrades.

## **b. EVALUATION MEASURES**

TVA is using the Energy Star Portfolio Manager Sustainable Check List to track SGP progress and its own database to track building energy/water use.

Note that “Total Number of Buildings Owned,” and “Total Building Gross Square Feet” (GSF) reported in the Agency Size and Scope table are from the TVA database and are the same as reported in the 2012 Annual Energy Management Report. Last year’s Federal Real Property Profile (FRPP) reporting was done from the legacy IEMP database. The 2013 FRPP reporting will transition to TVA’s new database so as to be consistent.

## **c. SUCCESSES**

TVA will be completing the last of its evaluations and design work on a total of 40 smaller buildings by the end of FY 2013. Three buildings have already been reported complete and TVA is working to complete six more this Scorecard period ending June 30, 2013. TVA will continue to work towards the 15 percent requirement by FY 2015 but has funding limitations and has encountered problems meeting some SGP requirements at some sites. TVA has consistently met the goal subject building energy reduction goal, the EISA 2007 survey requirements and Scope 1 & 2 GHG goal. TVA is continuing to implement cost-effective energy-saving projects in both goal subject and excluded buildings.

## **d. CHALLENGES**

TVA has been challenged in meeting the short term yearly goals due to TVA having initially made plans to upgrade its two largest office buildings that represented 21 percent of its applicable square footage (to date there has been no avenue to obtain partial credit through FRPP reporting), but then had to switch to multiple smaller buildings with OMB's emphasis on numbers of buildings accounting starting in 2010. TVA has continued to apply the SGPs to its two largest office buildings; the Knoxville Office Complex (KOC) and the Chattanooga Office Complex (COC). Together, these two buildings represent 21 percent of TVA goal subject buildings (as defined by EPAAct05) using square footage accounting. To date, 58 percent of the SGP requirements have been completed in the KOC and 77 percent have been completed in the COC. If TVA could receive partial credit for this work the agency would be at 10.1 percent towards the 15 percent by FY 2015 requirement. TVA has also turned its attention to retrofitting a greater number of smaller buildings to try to meet the goal through numbers of buildings accounting. TVA continues to be challenged by reduced funding as TVA is self funded and receives no appropriated dollars to meet these goals.

## **e. LESSONS LEARNED**

TVA has learned that implementing recycling in many of its smaller buildings at remote locations has been challenging due to the lack of local recycling infrastructure and available markets. Ten buildings have been delayed in meeting this last requirement. TVA is working with facility maintenance personnel and even employees on-site to find ways to collect and transport recyclables to other locations with recycling infrastructure in place.

## **f. PLANNED ACTIONS**

TVA plans to complete all SGP requirements on 15 of the total 40 buildings in the next 12 month period and revisit and update past SGP training to create an instruction/guide for those TVA personnel involved in the application of SGPs to both new and existing buildings.

### **Goal 3: Fleet Management**

#### **a. INTEGRATION**

TVA recognizes that reduction of light duty vehicles and petroleum supports the Goal 1 requirement to reduce GHG emissions. TVA has developed and continually revises comprehensive vehicle specifications to ensure that appropriate vehicles are utilized to support their intended mission.

#### **b. EVALUATION MEASURES**

TVA tracks purchases of E85 fuel, to the best of its ability and is implementing a database system, FleetDash, in March 2014 to improve tracking and reporting for all fleet fuel consumption.

#### **c. SUCCESSES**

While behind in the overall requirement to reduce petroleum use, TVA was successful in reducing the light duty fleet by 158 units during FY 2012. A car share program was also implemented to support the reduction of underutilized sedans. Petroleum consumption is declining and the usage of E85 is on the rise due to increased driver awareness and the monitoring of missed opportunities. Additionally, TVA alone has deployed 30 publicly accessible battery assisted solar charging stations to help provide some of the needed charging infrastructure to support a shift toward greater use of electricity as a transportation fuel. Working in collaboration with EPRI, ORNL and Nissan North America, over 125 battery backed solar charging stations have been installed across the state of Tennessee and TVA plans to continue leveraging future projects when appropriate to build-out the necessary public charging infrastructure to facilitate electric transportation in the Valley.

TVA has also maintained a Ridesharing Service's Vanpool Program since June 1974. The program was developed in response to the energy crisis, to alleviate traffic congestion and parking problems in the downtown Knoxville area. The program operates throughout the TVA region, and continues to operate for the purpose of reducing energy consumption, reducing traffic congestion, alleviating parking problems, and improving air quality. TVA's Ridesharing Program is regarded as one of the oldest, largest and most successful in the nation.

#### **d. CHALLENGES**

TVA's light duty vehicles are spread across a seven-state service area and are often required to travel in rural areas outside the major metropolitan areas where alternative fuels are not readily available. Industry coding of alternative fuels also impacts correctly capturing all E85 purchases.

#### **g. LESSONS LEARNED**

TVA is working to ensure that flex-fuel vehicles are stationed and utilized in areas where E85 is available to facilitate increased use of E85.

#### **h. PLANNED ACTIONS**

TVA will continue to focus on increasing the usage of E85 and research ways to increase the use of other alternative fuels for its light duty fleet. TVA plans on further reductions in agency owned vehicles and will focus on car sharing and carpooling when possible.

## **Goal 4: Water Use Efficiency and Management**

### **a. INTEGRATION**

TVA considers water management plans as part of its normal operation and maintenance activities. It has several avenues to fund water improvements, which includes several business units. 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, related to heating demands, helping to meet Goal 1 - GHG targets.

### **b. EVALUATION MEASURES**

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

### **c. SUCCESSES**

TVA finished FY 2012 with a 31 percent reduction in Gal/GSF compared to its FY 2007 base year. TVA has well exceeded the water reduction goal through the closing of its Muscle Shoals water plant, major water leak repairs and water efficiency retrofits. During FY 2012, water surveys were conducted at multiple TVA sites covering 3.9 million square feet. TVA consumed 547.4 million gallons of potable water in FY 2012. To date, TVA has identified projects, from covered facilities surveyed, with a potential water savings of 19.28 million gallons.

### **d. CHALLENGES**

TVA does not foresee any major challenges to meeting this goal considering it has already exceeded the goal. However, TVA's water use could fluctuate due to its aging water infrastructure that is prone to leaking. If major leaks are not found and repaired it could impact TVA's current progress.

### **e. LESSONS LEARNED**

TVA has made several changes over the past several years that have improved the tracking and reduction of water use at its buildings. In FY 2011, TVA moved all of its building energy and water data from its IEMP database to a new commercially available, comprehensive database, which provided more accurate accounting and reporting flexibility. During this move, TVA combined its building data with TVA's facilities group so that all of TVA will be using the same basic building inventory data. TVA also undertook an extensive audit of all water data, looking at each month's data for each building for FY 2007 and FY 2011, making needed corrections. TVA has also been focusing on fixing major potable water leaks at its sites to reduce water consumption.

### **f. PLANNED ACTIONS**

TVA will continue to implement cost-effective water-saving projects in its buildings to further reduce water use. TVA will strive to identify and repair major potable water leaks. TVA will also identify areas where potable water use can be diverted to non-potable water sources.

## **Goal 5: Pollution Prevention and Waste Reduction**

### **a. INTEGRATION**

TVA will continue to implement recycling programs and seek opportunities for source reduction to work towards 50 percent Non-hazardous Municipal Solid Waste (MSW) and Construction and Demolition (C&D) debris diversion rates by FY 2015. TVA recognizes that this work helps meet Goal 1 - GHG reduction through reduced waste generated and landfilled; Goal 2 - through recycling of construction and demolition debris and recycling installed in new and existing buildings; and Goal 6 - through efforts to identify and reduce waste streams and promote the elimination, substitution, and/or management opportunities for chemical acquisition.



## **b. EVALUATION MEASURES**

Both MSW and C&D diversion rates are measured by conducting quarterly assessments of TVA's disposal log provided by TVA's primary service provider. Additionally, the MSW diversion rate has been added to TVA's internal Environmental Report Card to improve visibility and ensure consistent tracking of TVA's progress towards a 50 percent diversion rate. TVA continues to improve data collection for C&D projects where waste disposal is not handled by its primary service provider.

## **c. SUCCESSES**

In FY 2011, TVA assessed its recycling program and identified facilities where recycling programs are needed. As a result, TVA implemented recycling programs at fifteen facilities in FY 2012, which improved the agency's recycling rate from 3.2 to 6.2 percent.

## **d. CHALLENGES**

The two main challenges for TVA's achievement of a 50 percent MSW diversion are 1) the number of facilities and 2) employee engagement for both source reduction and recycling practices. Additionally, TVA faces the challenge of limited C&D recycling facilities within a practical transportation vicinity to most TVA facilities.

## **e. LESSONS LEARNED**

TVA has utilized a single contract source for disposal and recycling of all non-hazardous municipal solid waste. Several benefits of a single contract have been realized: consistent and reliable data, manageable pricing, and identification of operational and cost-saving efficiencies. Additionally, maintaining routine communication with employees has proven to be a critical role to the success of both MSW and C&D diversion processes.

## **f. PLANNED ACTIONS**

TVA will continue to implement recycling in its offices and plants where cost-effective and practical. As more recycling programs are implemented, TVA will continue to see an improvement in its MSW diversion rate due to the improved data capture system through its primary service provider. Additionally, through increased communications and employee engagement events, TVA will work to improve its MSW diversion rate.

TVA will continue to work to identify practical and cost-effective opportunities to recycle C&D debris. The TVA Sustainability Program and Supply Chain have initiated collaborative projects to improve communication for C&D recycling goals; as well as, targeted source reduction efforts for office paper and wood pallets.

## **Goal 6: Sustainable Acquisition**

### **a. INTEGRATION**

Goal 6 achievements significantly contribute to and support Goal 1 - GHG Reduction, Goal 2 - Building Energy Intensity, Goal 3 - Fleet Management, Goal 5 - Waste Reduction, and Goal 7 - Electronic Stewardship.

As a corporate member of the Electric Utility Industry Sustainable Supply Chain Alliance (the Alliance), TVA serves on the Alliance's workgroup called the Voluntary Environmental Standards (VES). The workgroup is currently uncovering guidelines, standards, metrics, and best practices for both Electric Utility Supply Chain organizations and suppliers.

TVA participated in the Center for Advanced Procurement and Supply (CAPS) Research and Electric Utility Industry Sustainability Supply Chain Alliance (EUISSCA) annual survey to measure suppliers' commitment to environmental sustainability. The survey response rate for TVA Suppliers was 54 percent compare to the average 34 percent achieved by the other participating utilities. The survey results will provide critical input for developing resources, workshops, pilots and programs to help suppliers implement GHG reduction plans.

As a corporate sponsor for the Green Supplier Network (GSN), TVA is working to sponsor suppliers annually to participate in GSN's on-site Lean and Clean Reviews designed to help suppliers improve environmental performance and sustainable business practices while supporting TVA's priorities of improving efficiency, performance and reducing costs.

#### **b. EVALUATION MEASURES**

TVA Supply Chain conducts internal compliance reviews of agency sustainable acquisition policies, contract actions, documentation, and contractual language inclusion in order to assure practices and policies fully comply with E.O. requirements.

Additionally, the agency size and scope table has been updated to reflect that TVA does not use the Federal Procurement Data System (FPDS) as all TVA biobased and other sustainable acquisitions are coded and tracked in TVA's Maximo system, which is the system of record for all TVA purchases of goods and services.

#### **c. SUCCESSES**

TVA ended FY 2012 with its highest quarterly compliant rating of 98 percent. After only achieving 94 percent compliance in the first quarter of FY 2012, TVA implemented a corrective action plan to increase sustainable purchasing awareness through enhanced training, data management improvements, green campaigns and supplier collaborations in order to fully demonstrate federal sustainable purchasing compliance.

#### **d. CHALLENGES**

As a federal agency with power generating plants, TVA has strict chemical traffic control requirements for each site which identifies products posing a threat to employee safety and plant operations. The policy represents a potential barrier to increasing sustainable and biobased products. Liquid-based products require a stringent testing and approval procedure in order to gain approval for use. TVA's Supply Chain group is meeting with environmental and engineering personnel to identify and promote biobased product commodities which are less likely to pose a threat.

#### **e. LESSONS LEARNED**

(See "Challenges")

#### **f. PLANNED ACTIONS**

TVA will work to increase biobased purchases through enhanced training, meetings with technical peer groups, and developing task-focused collaborations with internal stakeholders during the next 12 months. Additionally, a targeted purchasing initiative will be implemented for selected nuclear and fossil sites within the next 12 months to support increased biobased acquisitions.

TVA will expand both its paper acquisition program and reduction pilot project to also support biobased purchases and agency recycling goals.

TVA Supply Chain will continue to conduct random samples to ensure that all appropriate and new contracts contain required biobased and sustainability clauses; as well as, participation in internal compliance reviews to ensure sustainable acquisition practices and policies fully comply with E.O. directives.

### **Goal 7: Electronic Stewardship and Data Centers**

#### **a. INTERGRATION**

Goal 7 achievements significantly contribute to and support Goal 1 - GHG Reduction, Goal 2 - Building Energy Intensity and Goal 6 - Sustainable Acquisition.

#### **b. EVALUATION MEASURES**

TVA tabulates all Information Technology (IT) electronic item purchases to provide detailed EPEAT and Energy Star purchase data. TVA is implementing comprehensive PC Power Management reporting. TVA records shipments to Oak Ridge National Labs R2 certified recycling center.

#### **c. SUCCESSES**

In FY 2012, TVA purchased 6,179 environmentally preferred (EPEAT registered) PC's and monitors, achieving a 99.4 percent EPEAT purchase rate. Additionally, TVA donated or recycled 100 percent of its end-of-life electronic equipment using the R2 certified Oak Ridge National Lab facility. TVA initiated automated power management of electronic devices in 2004 and currently power manages 65 percent of devices. TVA uses agency-wide policies and procedures to procure and configure agency printers to print in duplex mode.

#### **d. Challenges**

Technical complexity, evolving infrastructure, and agency security requirements have added cost and time to the completion of TVA's enterprise PC Power Management project. TVA is on track to have all eligible devices power managed when its enterprise power management project for PC's is fully deployed during FY 2014.

#### **e. Lessons learned**

To achieve its 99 percent plus EPEAT purchase rate, TVA IT initiated additional pre-purchase reviews by technical staff.

#### **f. Planned actions**

TVA IT will test and deploy technical provisions to support PC Power Management on the new agency PC operating system and will complete final on-site contract engagement with the Power Management software vendor to maintain progress to achieve 90 percent PC Power Management by December 2013 and attain agency-wide implementation during FY 2014.

### **Goal 8: Renewable Energy**

#### **a. 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 to HMOD, TVA also purchases renewable power (RECs) for many of TVA's 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.

## **b. EVALUATION MEASURES**

TVA's Reservoir Operations and Renewables Group implements and tracks HMOD improvements at its various hydro sites and provides HMOD 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. The TVA Renewables Group is currently investigating the purchase of a dedicated database program to account for all renewable energy used both internally and externally by TVA customers to better account for all renewables.

## **c. SUCCESSES**

TVA well exceeded last year's renewable energy goal of 5 percent finishing at 7.9 percent for FY 2012. TVA is on track to exceed the FY 2013 goal of 7.5 percent.

## **d. CHALLENGES**

TVA does not anticipate any challenges in meeting the renewable energy goal.

## **e. LESSONS LEARNED**

TVA has recognized the need to evolve from the practice of using multiple spreadsheets for accounting of renewables to the use of a more efficient database program, as mentioned above, to track all renewables and streamline reporting.

## **f. PLANNED ACTIONS**

TVA's planned actions are to maintain current progress having already exceeded the FY 2013 renewable goal.

### **Goal 9: Climate Change Resilience**

(See Section 4)

## **SECTION 4: PROGRESS ON ADMINISTRATION PRIORITIES**

### **CLIMATE CHANGE ADAPTATION PLAN**

TVA has completed all CEQ adaptation planning requirements, including a Climate Change Action Plan. A 60-day public comment period occurred from February 8, 2013 to April 8, 2013. TVA received two comments: 1) Joint Comments by the Southern Alliance for Clean Energy, Tennessee Clean Water Network and the Tennessee Chapter of the Sierra Club; and 2) Defenders of Wildlife:

1. The Joint Comment groups encouraged TVA to always use the most recent climate modeling, adaptive water policies and strategies. They recommend TVA use the June 2012 [IPCC "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation"](#). These groups also requested that TVA update its Internal Study in order to establish the most effective adaptation measures and policies that will protect its reservoir, hydropower, and nuclear systems.
2. The Defenders of Wildlife Comments expressed concern with the specific impacts of climate change to terrestrial and aquatic habitats and species. The comments requested TVA clearly communicate how it intends to standardize the consideration of climate change impacts in its planning effort.

Implementation of TVA's 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 is working with the Southeast Monitoring Network to select long term-monitoring stations and establish agreed upon monitoring protocols for the program. The goal of the program is

to assess potential biological, ecological, and hydrological responses of aquatic ecosystems related to climate change. This program will assist TVA's compliance with E.O. 13514, which directs federal agencies to participate in a nationally integrated strategy towards sustaining quality of life considering risks related to climate change. Further, CCSM is a component of TVA's Natural Resources Plan, which outlines TVA's resource stewardship responsibilities for the future.

#### **FLEET MANAGEMENT PLANS**

TVA has reduced its fleet size and will continually analyze the size and cost to operate a light duty fleet. Due to TVA's mission and infrastructure, drastic reductions cannot be sought; however, TVA is working diligently to reduce the consumption of petroleum and increase the consumption of alternative fuels.

#### **ENERGY SAVINGS PERFORMANCE CONTRACTS**

TVA has completed all milestones to date towards meeting its goal of awarding \$17 million commitment in energy, water and sustainable project commitments. Please note that TVA, as a provider of utility based Energy Savings Performance Contracts (ESPCs), will self-fund its projects. Over the 24-month period ending on December 31, 2013, TVA plans on meeting its \$17 million commitment in energy, water and sustainable projects through its own implementation process.

#### **BIOBASED PURCHASING STRATEGIES**

TVA is working on developing and executing an agency-wide sustainability communication strategy with a comprehensive, leadership driven focus and messaging to support TVA's overall SSPP goals. The communication strategy will feature an integrated biobased purchasing awareness campaign with actionable messaging to enhance employees, contractors, business partners, and suppliers' engagement and support.

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## SIZE & SCOPE OF AGENCY OPERATIONS

**Table 1: Agency Size & Scope**

Agency Size and Scope	FY 2011	FY 2012
Total Number of Employees as Reported in the President's Budget	12,457	12,696
Total Acres of Land Managed	328,000	335,549
Total Number of Buildings Owned <sup>1</sup>	2,304	2,549 <sup>2</sup>
Total Number of Buildings Leased (GSA and Non-GSA Lease)	35	35
Total Building Gross Square Feet (GSF)	28,512,948	29,982,264 <sup>2</sup>
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	1,966	1,808
Total Number of Fleet Vehicles Leased	0	0
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.)	140	67
Total Amount Contracts Awarded as Reported in FPDS (\$Millions)	N/A	N/A <sup>3</sup>

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<sup>1</sup> Building information should be consistent with FY 2011 and FY 2012 data submitted into the Federal Real Property Profile (FRPP).

<sup>2</sup> TVA is utilizing an internal database to manage its building assets; this information is consistent with the 2012 Annual Energy Management Report. TVA will be updating the Federal Real Property Profile (FRPP) in 2013.

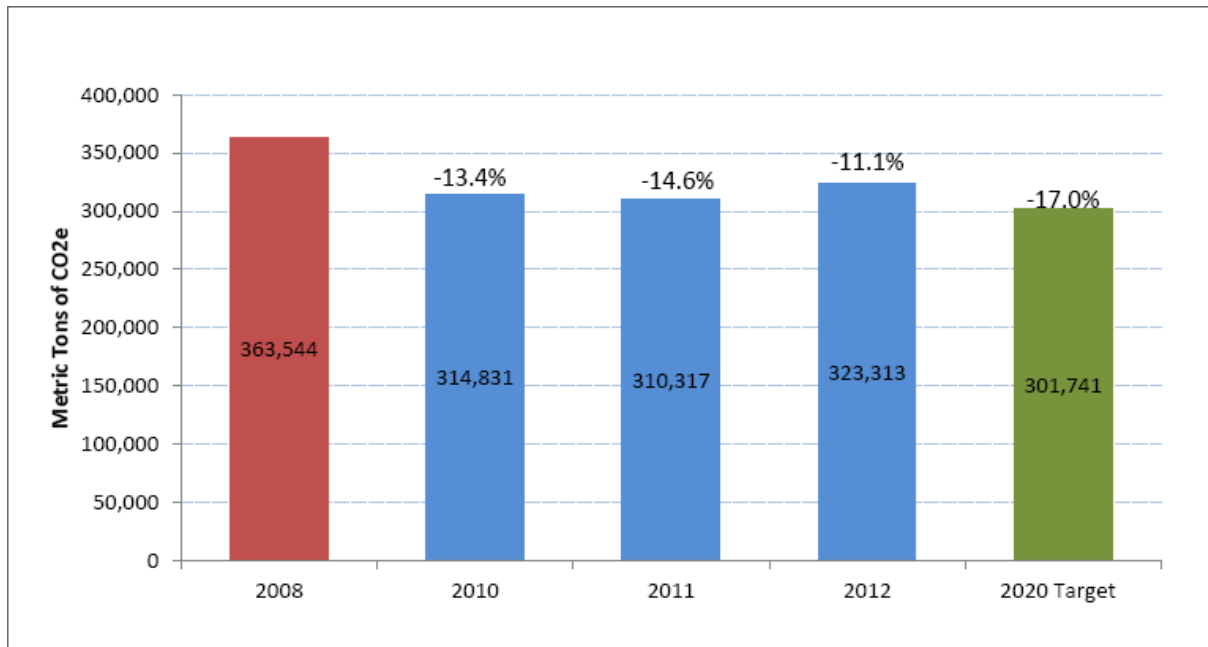
<sup>3</sup> TVA does not use the FPDS as all TVA biobased and other sustainable acquisitions are coded and tracked in TVA's Maximo system.

## GOAL 1: GREENHOUSE GAS (GHG) REDUCTION

### Agency Progress toward Scope 1 & 2 GHG Goal

E.O. 13514 requires each agency establish a Scope 1 & 2 GHG emission reduction target to be achieved by FY 2020. The red bar represents the agency's FY 2008 baseline. The green bar represents the FY 2020 target reduction. The blue bars represent annual agency progress towards achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2008 baseline. A negative percentage value indicates that the emissions have decreased compared to the 2008 baseline.

**Figure 1-1**





**Table 1-1: Goal 1 Strategies – Scope 1 & 2 GHG Reductions**

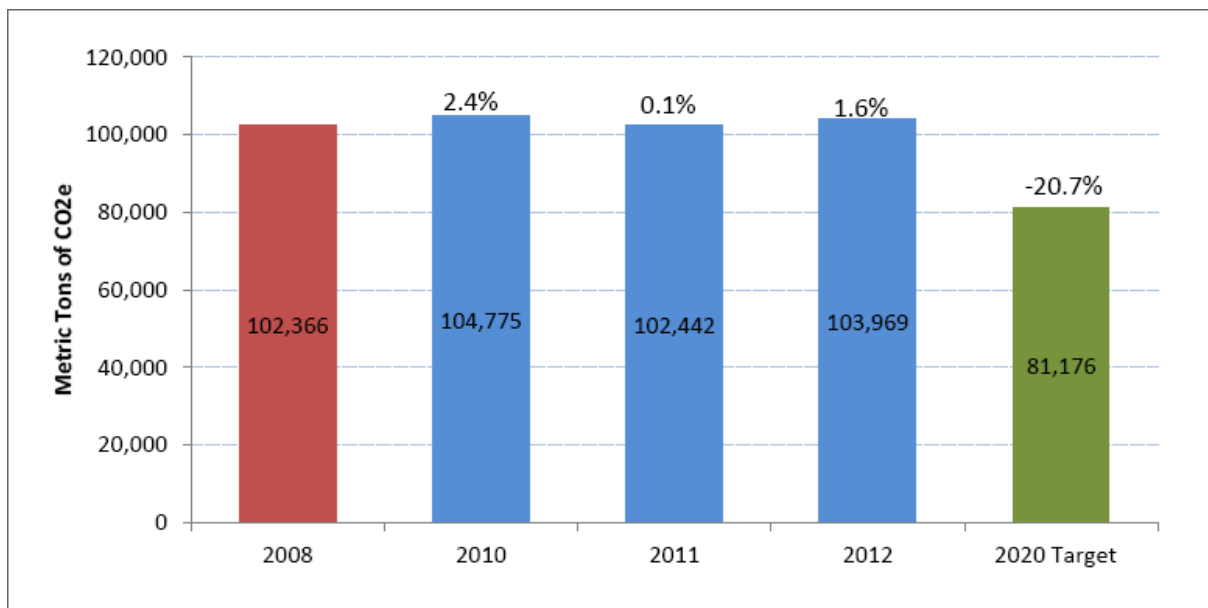
<p><b>Will the agency implement the following strategies to achieve this goal?</b></p>	<p><b>Top Five?</b> Yes/No/NA</p>	<p><b>Strategy Narrative</b></p>	<p><b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b></p>
<p>Use the FEMP GHG emission report to identify/target high emission categories and implement specific actions to resolve high emission areas identified.</p>	<p>Yes</p>	<p>TVA will continue to design and deploy an agency-wide carbon accounting database; as well as efforts to improve data quality.</p>	<p>1) Complete initial carbon accounting database effort by September 30, 2013. 2) Improve Scope 3 commuter data through the 2013 Commuter Campaign. 3) Increase use of advanced Scope 3 reporting methodologies instead of the Federal GHG accounting default methodologies (which are heavily dependent on the number of employees).</p>
<p>Ensure that all major renovations and new building designs are 30% more efficient than applicable code.</p>	<p>Yes</p>	<p>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.</p>	<p>1) TVA does not build many new buildings each year, but for those that are planned; design and construction will be reviewed for incorporation of applicable Sustainable Guiding Principles (SGPs).</p>

Implement in EISA 432 covered facilities all lifecycle cost-effective ECMs identified.	Yes	TVA plans to continue EISA 2007 surveys and project upgrades to help meet its GHG reduction targets.	1) Complete new/follow-up EISA surveys for 25 % of covered facilities to verify past performance and identify any new projects. 2) Implement cost-effective projects totaling \$5M over the 12 month period ending June 30, 2014.
Reduce on-site fossil-fuel consumption by installing more efficient boilers, generators, furnaces, etc. and/or use renewable fuels.	Yes	TVA will continue to purchase RECs and to make hydro modifications (HMODs) as this has proven to be cost-effective to the agency. Additionally, TVA plans to reduce natural gas consumption by implementing cost-effective projects identified by EISA 2007 surveys and goal subject building surveys.	1) Replace large boiler at Norris Engineering Labs for centralized steam service; estimated savings of 51mmBtu/year. 2) TVA's current rate of purchases combined with renewables generated and used on site has exceeded the 7.5% goal.
Reduce grid-supplied electricity consumption by improving/upgrading motors, boilers, HVAC, chillers, compressors, lighting, etc.	Yes	TVA will continue to do this as part of its EISA 2007 and goal subject building energy and water surveys.	1) see -"Implement in EISA 432 covered facilities all lifecycle cost-effective ECMs identified" target above.
Employ operations and management best practices for energy consuming and emission generating equipment.	No	Consider if needed.	NA
Install building utility meters and benchmark performance to track energy and continuously optimize performance.	Yes	TVA is close to completing metering of applicable buildings.	NA
Reduce petroleum use in Scope 1 fleet vehicles.	Yes	TVA plans to reduce petroleum use in fleet vehicles by increasing utilization of alternative fuel and optimizing its fleet size.	(1) Show a 50% increase in alternative fuel use over FY 2012 by October 2013. (2) Enhance car sharing program.

## Agency Progress toward Scope 3 GHG Goal

E.O. 13514 requires each agency establish a Scope 3 GHG emission reduction target to be achieved by FY 2020. The red bar represents the agency's FY 2008 baseline. The green bar represents the FY 2020 reduction target. The blue bars represent annual agency progress on achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2008 baseline. A negative percentage value indicates that the emissions have been decreased compared to the FY 2008 baseline.

**Figure 1-2**



**Table 1-2: Goal 1 Strategies – Scope 3 GHG Reductions**

Will the agency implement the following strategies to achieve this goal?	Top Five? Yes/No/NA	Strategy Narrative	Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
Reduce employee business ground travel.	Yes	TVA plans to develop a program to increase carpooling between corporate offices and when possible for general business travel.	1) Develop program and seek funding approval.
Reduce employee business air travel.	Yes	TVA will increase communication to employees as to the importance of reduced business air travel.	NA
Develop and deploy employee commuter reduction plan.	No	TVA is currently focused on data collection and improving data accuracy to assess commuter program needs.	NA
Use employee commuting survey to identify opportunities and strategies for reducing commuter emissions.	Yes	TVA will begin conducting annual commuting surveys to assess employee behaviors and barriers to alternative commuting modes.	1) Conduct FY 2013 survey in July 2013.
Increase number of employees eligible for telework and/or the total number of days teleworked.	No	TVA is currently focused on improving the Telework Program's implementation and documentation of participants in order to assess program needs.	NA

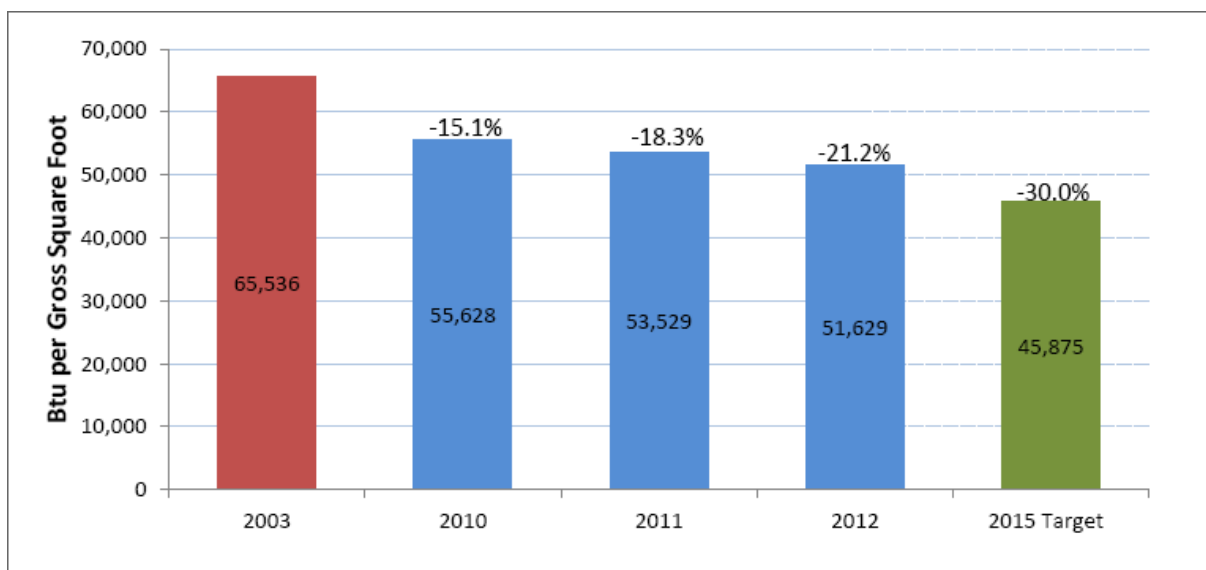
Develop and implement bicycle commuter program.	No	TVA will continue to offer bicycle commuter benefits and reimbursements as a means to support this healthy activity and mode of alternative transportation; however, an official program will not be developed at this time.	NA
Provide bicycle commuting infrastructure.	Yes	TVA will continue to maintain its bicycle infrastructure by annually assessing physical condition and utilization.	<p>1) Include question on adequate bicycle infrastructure in commuting survey.</p> <p>2) Collaborate with Facilities to maintain waiting list and to promote utilization.</p> <p>3) Collaborate with Facilities to improve or upgrade facilities as identified through visual assessments and user notifications.</p>
Reduce contracted waste disposal.	Yes	Reduce MSW generated through strategic source reduction programs and reduce domestic wastewater (sewage) disposal.	1) Achieve a 50% MSW reduction by FY 2015.

## GOAL 2: SUSTAINABLE BUILDINGS

### Agency Progress toward Facility Energy Intensity Reduction Goal

E.O. 13514 Section 2 requires that agencies consider building energy intensity reductions. Further, the Energy Independence and Security Act of 2007 (EISA) requires each agency to reduce energy intensity 30 percent by FY 2015 as compared to the FY 2003 baseline. Agencies are expected to reduce energy intensity by 3 percent annually to meet the goal. The red bar represents the agency's FY 2003 baseline. The green bar represents the FY 2015 target reduction. The blue bars show annual agency progress on achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2003 baseline. A negative percentage value indicates that the energy intensity has been increased compared to the FY 2003 baseline.

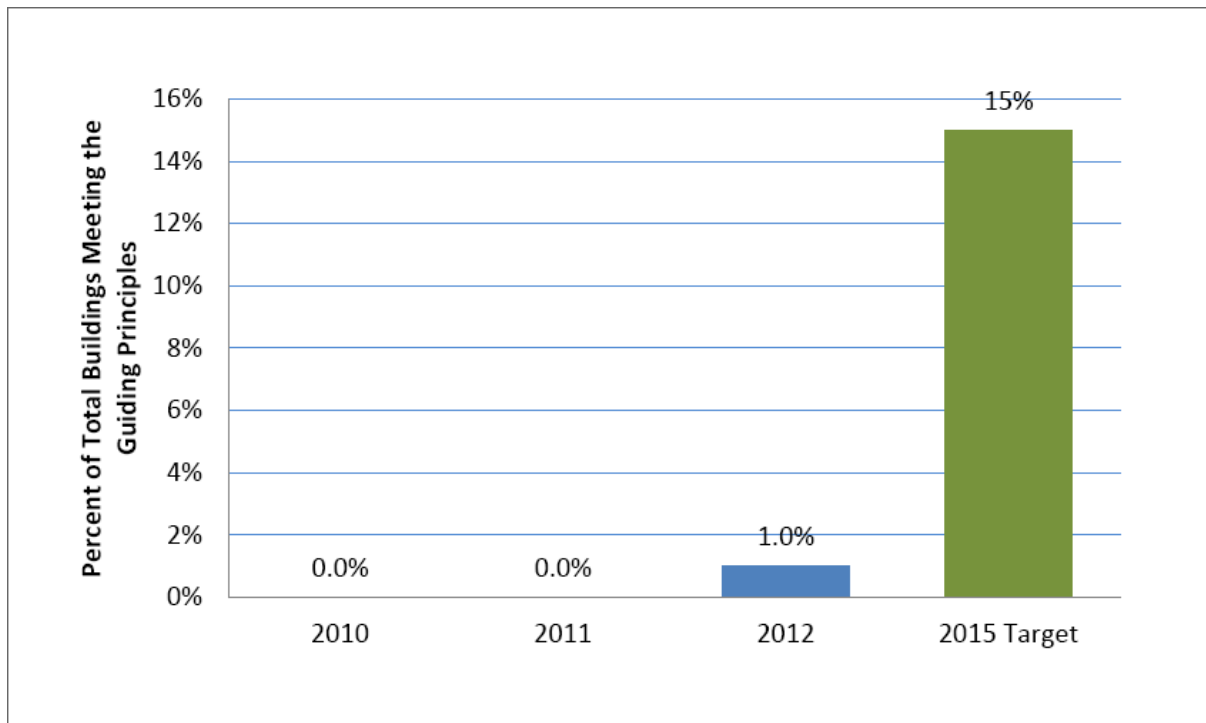
Figure 2-1



## Agency Progress toward Total Buildings Meeting the Guiding Principles

E.O. 13514 requires that by FY 2015, 15 percent of agencies' new, existing, and leased buildings greater than 5,000 square feet meet the Guiding Principles. In order to meet the FY 2015 goal, agencies should have increased the percentage of conforming buildings by approximately 2 percent annually from their FY 2007 baseline. The green bar represents the FY 2015 target. The blue bars represent annual agency progress on achieving this target.

**Figure 2-2**



**Table 2: Goal 2 Strategies – Sustainable Buildings**

<p><b>Will the agency implement the following strategies to achieve this goal?</b></p>	<p><b>Top Five?</b> Yes/No/NA</p>	<p><b>Strategy Narrative</b></p>	<p><b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b></p>
<p>Incorporate green building specification into all new construction and major renovation projects</p>	<p>Yes</p>	<p>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.</p>	<p>1) 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 SGPs.</p>
<p>Redesign or lease interior space to reduce energy use by daylighting, space optimization, sensors/control system installation, etc.</p>	<p>Yes</p>	<p>TVA is in the process of upgrading 40 buildings to incorporate the SGPs to meet the 15% retrofit requirement. TVA is doing this by a process of evaluation, followed by design changes needed to meet SGP requirements, followed by construction modifications.</p>	<p>1) Complete all SGP requirements on 15 of the 40 total buildings in the next 12 month period.</p> <p>2) By the end of FY 2015 TVA anticipates having all 40 buildings completed through the design phase.</p>



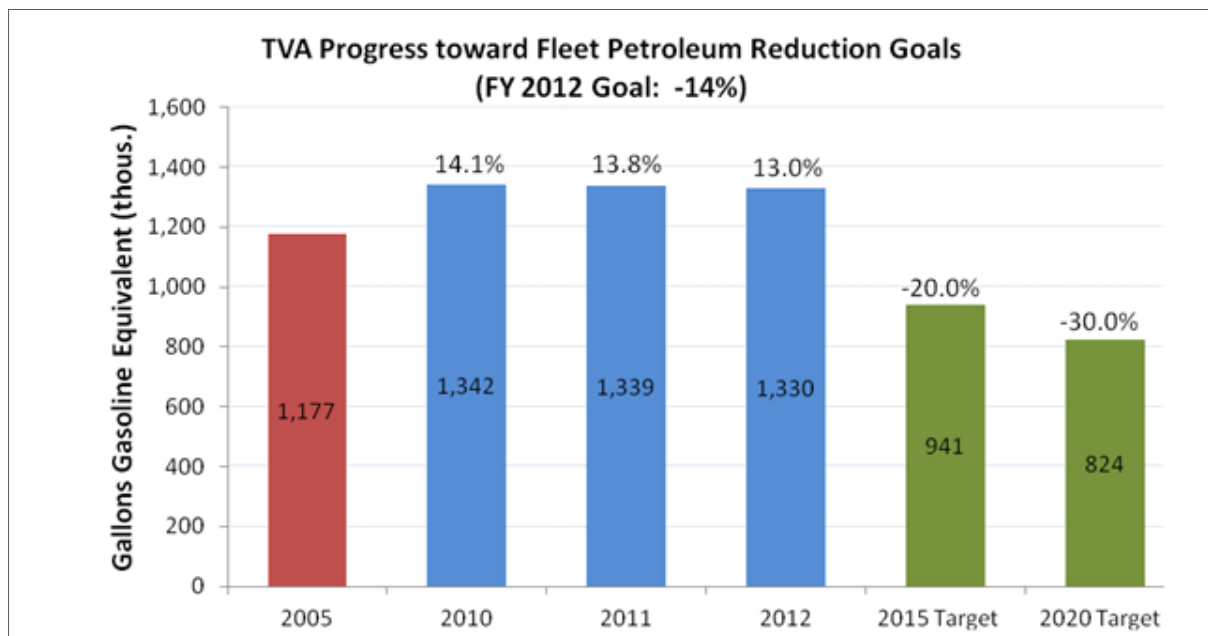
Deploy CEQ's Implementing Instructions -Sustainable Location for Federal Facilities.	NA	The majority of new buildings are built at plant sites to support the TVA mission. The sustainable location for Federal Facilities will be considered for non-power plant located buildings.	NA
Include in every construction contract all applicable sustainable acquisition requirements for recycled, biobased, energy efficient and environmentally preferable products.	Yes	TVA will continue to ensure that federally-mandated sustainable acquisitions are included in all relevant procurements and services.	1) Continue green procurement training to all applicable personnel.
Develop and deploy energy and sustainability training for all facility and energy managers.	Yes	TVA will continue to conduct sustainable building training for TVA project managers, architects and interior designers involved in new construction and renovation.	1) Review and update past training and provide updated instructions to applicable personnel.

## GOAL 3: FLEET MANAGEMENT

### Agency Progress toward Fleet Petroleum Use Reduction Goal

E.O. 13514 and the Energy Independence and Security Act of 2007 (EISA) require that by FY 2015 agencies reduce fleet petroleum use by 20 percent compared to a FY 2005 baseline. Agencies are expected to achieve at least a 2 percent annual reduction and a 30 percent reduction is required by FY 2020. The red bar represents the agency's FY 2005 baseline. The green bars represent the FY 2015 and FY 2020 target reductions. The blue bars represent annual agency progress on achieving these targets. The percentage at the top of each bar represents the reduction or increase from the FY 2005 baseline. A negative percentage indicates a decrease in fleet petroleum use.

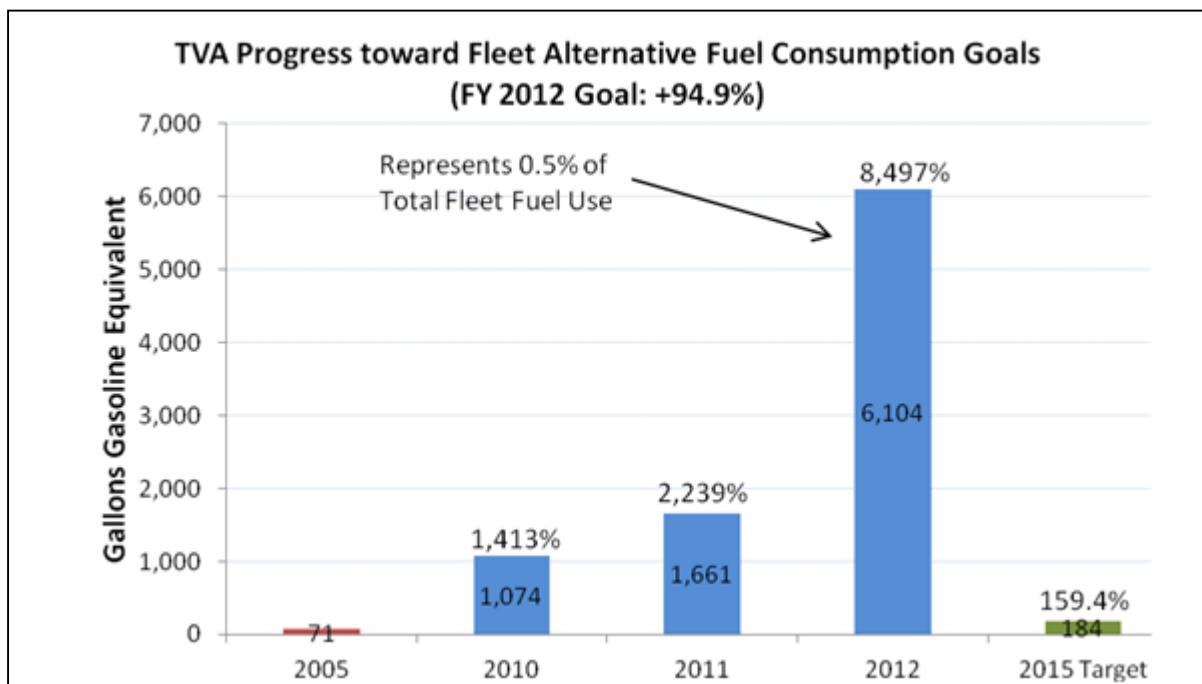
Figure 3-1



## Agency Progress toward Fleet Alternative Fuel Consumption Goal

E.O. 13423 requires that agencies increase total alternative fuel consumption by 10 percent annually from the prior year starting in FY 2005. By FY 2015, agencies must increase alternative fuel use by 159.4 percent, relative to FY 2005. The red bar represents the agency's FY 2005 baseline. The green bar represents the FY 2015 target. The blue bars represent annual agency progress on achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2005 baseline. A negative percentage indicates a decrease in fleet alternative fuel use.

Figure 3-2



**Table 3: Goal 3 Strategies – Fleet Management**

Will the agency implement the following strategies to achieve this goal?	Top Five? Yes/No/NA	Strategy Narrative	Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
Optimize/Right-size the composition of the fleet (e.g., reduce vehicle size, eliminate underutilized vehicles, acquire and locate vehicles to match local fuel infrastructure).	Yes	TVA Fleet Management Program plans to develop utilization standards by vehicle class, enhance current car sharing program, acquire vehicles consistent with local fuel infrastructure, and evaluate the NREL Optimal Vehicle Acquisition Analysis program.	<ol style="list-style-type: none"> <li>1) Seek approval of proposed vehicle utilization standards.</li> <li>2) Enhance car sharing program.</li> <li>3) Develop fuel profile by location.</li> <li>4) Complete vehicle acquisition analysis.</li> </ol>
Reduce miles traveled (e.g., share vehicles, improve routing with telematics, eliminate trips, improve scheduling, use shuttles, etc.).	Yes	TVA intends to work to increase carpooling between corporate offices and when possible for general business travel.	<ol style="list-style-type: none"> <li>1) Develop program and seek funding approval.</li> </ol>
Acquire only highly fuel-efficient, low greenhouse gas-emitting vehicles and alternative fuel vehicles (AFVs).	No	TVA only purchases AFV and low GHG vehicles if available and is exploring addition of more AFV (including EVs).	NA
Increase utilization of alternative fuel in dual-fuel vehicles.	Yes	TVA will work to increase utilization of E85 in flex-fuel vehicles and locate dual-fuel vehicles in areas with E85.	<ol style="list-style-type: none"> <li>1) Show a 50% increase in alternative fuel use over FY 2012 by October 2013.</li> <li>2) Locate 45% of dual fuel vehicles within 5 miles of E85 stations by June 2014.</li> <li>3) Implement FleetDash by March 2014.</li> </ol>

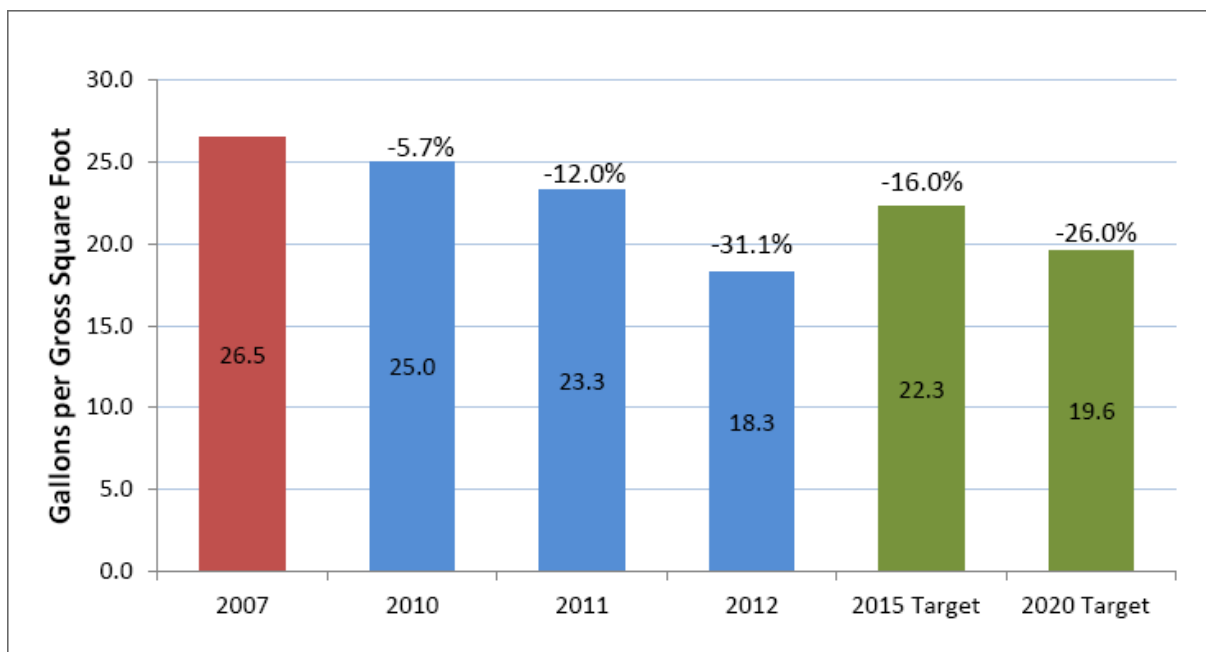
<p>Use a Fleet Management Information System to track fuel consumption throughout the year for agency-owned, GSA-leased, and commercially-leased vehicles.</p>	<p>NA</p>	<p>TVA has an agency-wide fleet management information system.</p>	<p>NA</p>
<p>Increase GSA leased vehicles and decrease agency-owned fleet vehicles, when cost-effective.</p>	<p>Yes</p>	<p>TVA plans to evaluate GSA vehicle leasing program for light duty vehicles.</p>	<p>1) Complete assessment by December 2013.</p>

## GOAL 4: WATER USE EFFICIENCY & MANAGEMENT

### Agency Progress toward Potable Water Intensity Reduction Goal

E.O. 13514 requires agencies to reduce potable water intensity by 2 percent annually through FY 2020 compared to an FY 2007 baseline. A 16 percent reduction is required by FY 2015 and a 26 percent reduction is required by FY 2020. The red bar represents the agency's FY 2007 baseline. The green bars represent the FY 2015 and FY 2020 target reductions. The blue bars represent annual agency progress on achieving these targets. The percentage at the top of each bar represents the reduction or increase from the FY 2007 baseline. A negative percentage value indicates that potable water use intensity has decreased compared to the FY 2007 baseline.

**Figure 4-1**



**Table 4: Goal 4 Strategies – Water Use Efficiency & Management**

<p><b>Will the agency implement the following strategies to achieve this goal?</b></p>	<p><b>Top Five?</b> Yes/No/NA</p>	<p><b>Strategy Narrative</b></p>	<p><b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b></p>
<p>Purchase and install water efficient technologies (e.g., Waterwise, low-flow water fixtures and aeration devices).</p>	<p>Yes</p>	<p>TVA will continue to conduct EISA water surveys and identify water efficiency measures at its buildings and will continue to implement cost-effective measures.</p>	<p>1) Complete five water efficiency projects.</p>
<p>Develop and deploy operational controls for leak detection including a distribution system audit, leak detection, and repair programs.</p>	<p>Yes</p>	<p>TVA plans to develop a leak detection plan and continue to perform leak detection assessments. To date, TVA has completed 2 leak detection assessments.</p>	<p>1) Develop a leak detection plan. 2) Complete one leak detection assessment at a TVA power plant site.</p>
<p>Design, install, and maintain landscape to reduce water use.</p>	<p>NA</p>	<p>Consider if needed.</p>	<p>NA</p>
<p>Design and deploy water closed-loop, capture, recharge, and/or reclamation systems.</p>	<p>NA</p>	<p>Consider if needed.</p>	<p>NA</p>
<p>Install meters to measure and monitor (non-potable) industrial, landscaping and, agricultural water use.</p>	<p>NA</p>	<p>The vast majority of TVA non-potable water is already metered.</p>	<p>NA</p>
<p>Reduce non-potable water use through conversion of wet fly ash storage to dry storage.</p>	<p>Yes</p>	<p>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.</p>	<p>1) John Sevier Fossil Shutdown: Based on the current retirements John Sevier Fossil will result in a forecasted reduction of 2,190 MGY.</p>

## GOAL 5: POLLUTION PREVENTION & WASTE REDUCTION

### Agency Progress toward Pollution Prevention & Waste Reduction

E.O. 13514 requires that Federal agencies promote pollution prevention and eliminate waste. The E.O. requires agencies to minimize the use of toxic and hazardous chemicals and pursue acceptable alternatives. It also requires agencies minimize waste generation through source reduction, increase diversion of compostable materials, and by the end of FY 2015 divert at least 50 percent of non-hazardous and 50 percent of construction and demolition debris.

**Table 5: Goal 5 Strategies – Pollution Prevention & Waste Reduction**

Will the agency implement the following strategies to achieve this goal?	Top Five? Yes/No/NA	Strategy Narrative	Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
Eliminate, reduce, or recover refrigerants and other fugitive emissions.	No	TVA has set a Scope 1 and 2 GHG emissions reduction target of 17% by FY 2020, relative to the emissions in FY 2008.	NA
Reduce waste generation through elimination, source reduction, and recycling.	Yes	TVA will continue to reduce waste generation through targeted source reduction initiatives for office paper and wood pallets. Additionally, TVA plans to reduce waste landfilled by increasing non-hazardous municipal solid waste recycling programs.	<ol style="list-style-type: none"> <li>1) Collaborate with TVA Supply Chain's Paper Acquisition Program to encourage source reduction and recycling.</li> <li>2) Implement pilot project to reduce paper purchasing up to 1% at corporate sites.</li> <li>3) Increase TVA's paper recycling by 2%.</li> <li>4) Establish collaborate working group through TVA Supply Chain to explore wood pallet source reduction opportunities.</li> </ol>



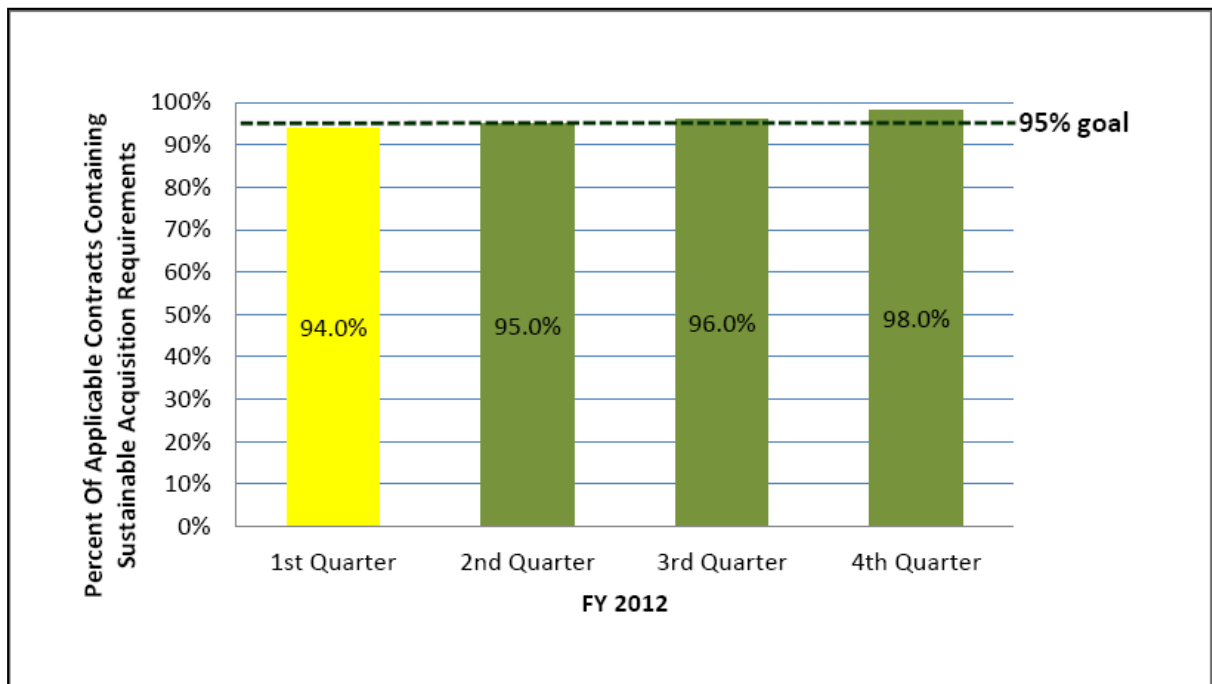
Implement integrated pest management and improved landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals/materials.	No	Consider as practical.	NA
Establish a tracking and reporting system for construction and demolition debris.	Yes	TVA plans to incorporate construction and demolition debris into the internal Waste Dashboard.	<p>1) Increase awareness of construction and demolition debris data needs through communication with Facilities and Plant Project Managers.</p> <p>2) Provide manual data entry system for Waste Dashboard for all disposals not reported by primary waste management vendor.</p>
Develop/revise Agency Chemicals Inventory Plans and identify and deploy chemical elimination, substitution, and/or management opportunities.	Yes	TVA plans to address barriers to increasing power plants' sustainable acquisitions, with an emphasis on biobased, by aligning TVA's chemical traffic requirements at one or more sites with sustainable acquisition criteria.	<p>1) Collaborate with Supply Chain to increase awareness of chemical elimination or biobased substitutions through communication with selected nuclear and fossil sites within the next 12 months.</p>
Implement non-hazardous municipal solid waste recycling programs.	Yes	TVA will continue to implement recycling programs at TVA power plant sites and office buildings.	<p>1) Implement recycling upgrades at the Chattanooga Office Complex.</p> <p>2) Conduct recycling assessment at six locations and prepare recycling plans.</p> <p>3) Achieve 16% MSW recycling rate for FY 2013.</p>

## GOAL 6: SUSTAINABLE ACQUISITION

### Agency Progress toward Sustainable Acquisition Goal

E.O. 13514 requires agencies to advance sustainable acquisition and ensure that 95 percent of applicable new contract actions meet federal mandates for acquiring products that are energy efficient, water efficient, biobased, environmentally preferable, non-ozone depleting, recycled content, or are non-toxic or less toxic alternatives, where these products meet performance requirements. To monitor performance, agencies perform quarterly reviews of at least 5 percent of applicable new contract actions to determine if sustainable acquisition requirements are included.

**Figure 6-1**



**Table 6: Goal 6 Strategies – Sustainable Acquisition**

<p><b>Will the agency implement the following strategies to achieve this goal?</b></p>	<p><b>Top Five?</b> Yes/No/NA</p>	<p><b>Strategy Narrative</b></p>	<p><b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b></p>
<p>Update and deploy agency procurement policies and programs to ensure that federally- mandated designated sustainable products are included in all relevant procurements and services.</p>	<p>Yes</p>	<p>TVA plans to review and provide necessary updates to procurement policies and programs to ensure that federally- mandated designated sustainable products are included in all relevant contracts where appropriate and practical.</p>	<p>1) Participate in internal compliance reviews, including self-assessments of policies, contract actions, documentation, and contractual language inclusion in order to ensure sustainable acquisition practices and policies fully comply with E.O. requirements.</p>
<p>Deploy corrective actions to address identified barriers to increasing sustainable procurements with special emphasis on biobased purchasing.</p>	<p>Yes</p>	<p>TVA plans to address barriers to increasing power plants’ sustainable acquisitions, with an emphasis on biobased, by aligning TVA’s chemical traffic requirements at one or more sites with sustainable acquisition criteria.</p>	<p>1) Implement a targeted purchasing initiative for selected nuclear and fossil sites within the next 12 month to drive biobased acquisitions by 10%.</p>
<p>Include biobased and other agency sustainability clauses in all applicable and relevant contracts.</p>	<p>Yes</p>	<p>TVA Supply Chain plans to update and promote the usage of check lists to ensure all applicable RFPs and RFQs, as well as appropriate contracts include biobased and sustainability clauses where appropriate and practical.</p>	<p>1) Increase biobased purchases through enhanced training, meetings with technical peer groups, and developing task-focused collaborations with internal stakeholders over the next 12 months.  2) Conduct random 5% samples to ensure that all appropriate and new contracts contain required biobased and sustainability clauses.</p>




Review and update agency specifications to include and encourage biobased and other designated green products to enable meeting sustainable acquisition goals.	NA	TVA will continue to review and provide necessary updates to procurement policies and programs to ensure that federally-mandated biobased products are included relevant contracts where appropriate and practical.	NA
Use Federal Strategic Sourcing Initiatives, such as Blanket Purchase Agreements (BPAs) for office products and imaging equipment, which include sustainable acquisition requirements.	NA	TVA will continue outreach efforts and leverage partnerships with business development agencies to create awareness and identify ways to increase sustainable products, including biobased products, from small businesses.	NA
Report on sustainability compliance in contractor performance reviews.	NA	TVA will continue quarterly comprehensive performance reviews for Tier 1 Suppliers.	NA
Implement an agency-wide initiative which encourages source reduction and the procurement and wise-usage of 30% to 100% recycled and/or biobased paper.	Yes	TVA intends to expand both its paper acquisition program and reduction pilot project to also support biobased purchases and agency recycling goals.	<p>1) Increase recycled and biobased paper purchases up to 3%.</p> <p>2) Implement pilot project to reduce paper purchasing up to 1% at corporate sites.</p> <p>3) Increase TVA's paper recycling by 2%.</p>

## GOAL 7: ELECTRONIC STEWARDSHIP & DATA CENTERS




### Agency Progress toward EPEAT, Power Management & End of Life Goals

E.O. 13514 requires agencies to promote electronics stewardship by: ensuring procurement preference for EPEAT-registered products; implementing policies to enable power management, duplex printing, and other energy-efficient features; employing environmentally sound practices with respect to the disposition of electronic products; procuring Energy Star and FEMP designated electronics; and, implementing best management practices for data center operations.




**Figure 7-1**

EPEAT	POWER MANAGEMENT	END-OF-LIFE	COMMENTS
			Power Management compliance unknown.




**EPEAT:**

	95% or more Monitors and PCs/Laptops purchased in FY 2012 was EPEAT Compliant Agency-wide
	85-94% or more Monitors and PCs/Laptops purchased in FY 2012 was EPEAT Compliant Agency-wide
	84% or less Monitors and PCs/Laptops purchased in FY 2012 was EPEAT Compliant Agency-wide

**Power Management:**

	100% Power Management Enabled Computers, Laptops and Monitors Agency-wide
	90-99% Power Management Enabled Computers, Laptops and Monitors Agency-wide
	89% or less Power Management Enabled Computers, Laptops and Monitors Agency-wide

End-of-Life:

	100% of Electronics at end-of-life disposed through GSA Xcess, CFL, Unicorn or Certified Recycler (R2, E-Stewards)
	100% of Electronics at end-of-life disposed through GSA Xcess, CFL, Unicorn and/or non-Certified Recycler
	Less than 100% of Electronics at end-of-life disposed through GSA Xcess, CFL, Unicorn or non-Certified Recycler

**Table 7: Goal 7 Strategies – Electronic Stewardship & Data Centers**

<b>Will the agency implement the following strategies to achieve this goal?</b>	<b>Top Five? Yes/No/NA</b>	<b>Strategy Narrative</b>	<b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Identify agency “Core” and “Non-Core” Data Centers.	Yes	TVA’s Core Data Centers currently reside in Knoxville and Chattanooga.	1) TVA has completed identification of Core and Non-Core Data Centers.
Consolidate 40% of agency non-core data centers.	No	The complexity of TVA’s mission requires data centers located at generating plants, which cannot be consolidated.	NA
Optimize agency Core Data Centers across total cost of ownership metrics.	Yes	TVA plans to develop T-block componentized computer infrastructure containing server, network, and storage in one rack for rapid deployment, reduced Total Cost of Operations, and better cooling and power utilization.	1) Complete development and build prototype summer 2013. 2) Deploy as standard FY 2014 onward.

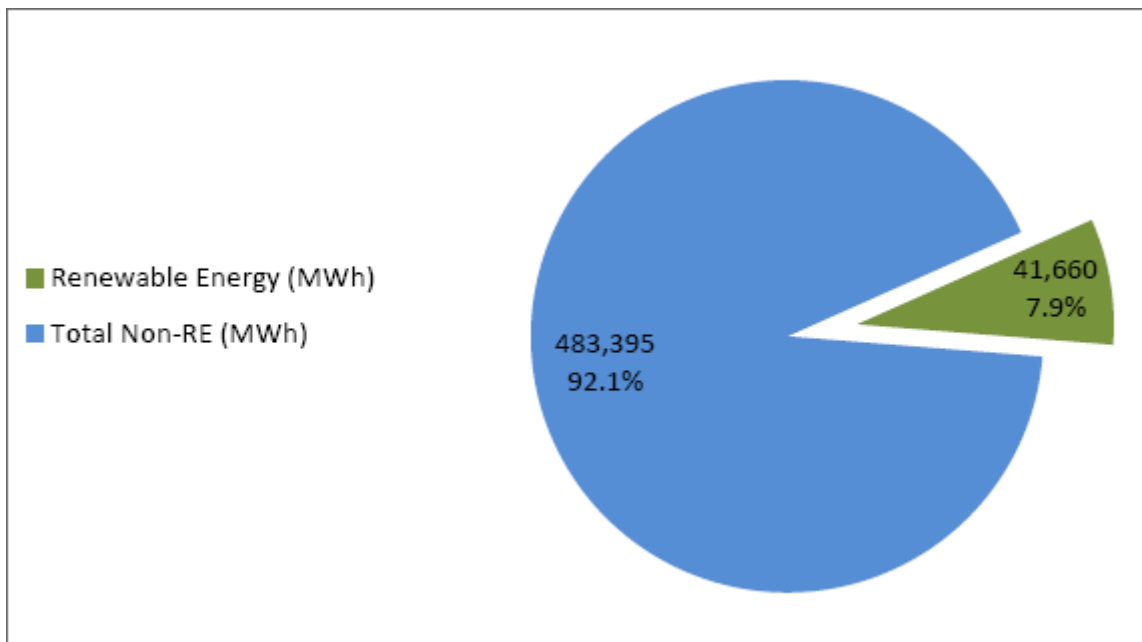
<p>Ensure that power management, duplex printing, and other energy efficiency or environmentally preferable options and features are enabled on all eligible electronics and monitor compliance.</p>	<p>Yes</p>	<p>Deploy badged printing throughout agency, initiative already begun in Chattanooga and Knoxville. Complete vendor deployment consulting engagement for enterprise PC Power Management project.</p>	<p>1) In FY 2013, deploy badged printing at Nashville and nuclear plants. 2) Planned implementation of badged printing at remaining TVA locations in FY 2014. 3) Verify and report completion of Power Management project during FY 2014.</p>
<p>Update and deploy policies to use environmentally sound practices for disposition of all agency excess or surplus electronic products, including use of certified eSteward and/or R2 electronic recyclers, and monitor compliance.</p>	<p>Yes</p>	<p>TVA will continue to utilize R2 certified recyclers using environmentally sound disposition processes.</p>	<p>1) TVA will monitor the amount of electronic equipment surplus and record shipments sent to recycler.</p>
<p>Ensure acquisition of 95% EPEAT registered and 100% of ENERGY STAR qualified and FEMP designated electronic office products.</p>	<p>Yes</p>	<p>TVA Supply Chain has standard contract language requiring EPEAT and ENERGY STAR compliance for electronic purchases. TVA IT additionally reviews and approves non-standard purchases.</p>	<p>1) Exceptions to EPEAT and ENERGY STAR compliant devices will be noted and reported.</p>

## GOAL 8: RENEWABLE ENERGY

### Agency Renewable Energy Percentage of Total Electricity Usage

E.O. 13514 requires that agencies increase use of renewable energy. Further, EPACT 2005 requires agencies to increase renewable energy use such that 7.5 percent of the agency's total electricity consumption is generated by renewable energy sources for FY 2013 and beyond. For FY 2012, the required target was 5 percent of an agency's total electricity consumption.

**Figure 8-1**





**Table 8: Goal 8 Strategies – Renewable Energy**

Will the agency implement the following strategies to achieve this goal?	Top Five? Yes/No/NA	Strategy Narrative	Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
Purchase renewable energy directly or through Renewable Energy Credits (RECs).	Yes	TVA will continue to purchase RECs.	1) TVA’s current rate of purchases combined with renewables generated and used on site has exceeded the 7.5%.
Install on-site renewable energy on federal sites.	Yes	TVA will continue to make hydro modifications (HMOD) as this has proven to be cost-effective to the agency.	1) TVA’s current rate of purchases combined with renewables generated and used on site has exceeded the 7.5%.
Lease land for renewable energy infrastructure.	No	Consider as needed.	NA
Develop biomass capacity for energy generation.	No	Consider as needed.	NA
Utilize performance contracting methodologies for implementing ECMs and increasing renewable energy.	NA	TVA, as a provider of utility based ESPCs. is self financing ECMs to meet the President's Challenge. The renewable goal has already been met through the purchase of RECs and use of on-site renewable energy (HMOD).	NA
Work with other agencies to create volume discount incentives for increased renewable energy purchases.	No	Consider as needed.	NA

## GOAL 9: CLIMATE CHANGE RESILIENCE

### Agency Climate Change Resilience

E.O. 13514 requires each agency to evaluate agency climate change risks and vulnerabilities to identify and manage the effects of climate change on the agency’s operations and mission in both the short and long term.

**Table 9: Goal 9 Strategies – Climate Change Resilience**

Will the agency implement the following strategies to achieve this goal?	Top Five? Yes/No/NA	Strategy Narrative	Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
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	TVA’s NRP Strategic Partnership Planning Program focuses on building strong partnerships with other Federal agencies, States, and regional NGOs, to address stewardship issues of mutual importance and drive measurable improvement of health of the region’s natural resources.	1) Develop and maintain a list of existing partnerships that collaboratively advance TVA’s water resource improvements, and also serve as potential sources of shared funding.
Update agency emergency response procedures and protocols to account for projected climate change, including extreme weather events.	NA	Consider as needed.	NA
Ensure workforce protocols and policies reflect projected human health and safety impacts of climate change.	NA	Consider as needed.	NA

<p>Update agency external programs and policies (including grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change.</p>	<p>Yes</p>	<p>TVA's NRP Water Resource Outreach Campaign Program focuses on increasing public awareness and involvement through the promotion of water resource protection and improvement best practices.</p>	<ol style="list-style-type: none"> <li>1) Create a matrix of public outreach topics, materials (existing or to be developed) and target audiences.</li> <li>2) Update existing and prepare new outreach materials and presentations.</li> <li>3) Develop and follow an integrated plan for delivering water resource outreach.</li> </ol>
<p>Ensure agency principals demonstrate commitment to adaptation efforts through internal communications and policies.</p>	<p>Yes</p>	<p>Identify processes necessary to ensure the needed capacity and organizational structures to effectively assess agency specific climate change risks and opportunities and to implement appropriate actions.</p>	<ol style="list-style-type: none"> <li>1) Creation and maintenance of a high-level process map.</li> <li>2) Identify internal processes to coordinate internal adaptation planning with partners.</li> </ol>
<p>Identify vulnerable communities that are served by agency mission and are potentially impacted by climate change and identify measures to address those vulnerabilities where possible.</p>	<p>NA</p>	<p>Consider as needed.</p>	<p>NA</p>
<p>Ensure that agency climate adaptation and resilience policies and programs reflect best available current climate change science, updated as necessary.</p>	<p>Yes</p>	<p>Continue to implement TVA's NRP Climate Sentinel Monitoring Program. TVA has also recently coordinated research efforts with EPRI to evaluate ecosystem services models on land management programs and their general use in the electric utility industry.</p>	<ol style="list-style-type: none"> <li>1) Continue TVA NRP Climate Sentinel Monitoring. Program metrics: percent samples completed; and timely annual report.</li> <li>2) Continue to evaluate potential application of ecosystem services concepts relative to adaptation.</li> </ol>

<p>Design and construct new or modify/manage existing agency facilities and/or infrastructure to account for the potential impacts of projected climate change.</p>	<p>Yes</p>	<p>Continue Implementation of TVA's Internal Energy Management Program.</p>	<p>1) Building water and energy use reductions.</p> <p>2) Continue to apply Sustainable Guiding Principles to new/existing a building which reduces greenhouse gas emissions.</p> <p>3) For non-potable water, TVA's work to eliminate wet ash handling and storage will cut non-potable water use by 14.7% by FY 2014. The target for 2020 is 23,000 million cumulative gallons of reduced non-potable water consumption.</p>
<p>Incorporate climate preparedness and resilience into planning and implementation guidelines for agency-implemented projects.</p>	<p>NA</p>	<p>Consider as needed.</p>	<p>NA</p>

## APPENDICES

No appendices were submitted with this year's plan.