

SECTION 4

PROMOTING SUSTAINABLE
COUNTY OPERATIONS

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SECTION 4

4.1 Introduction

Fairfax County government has long been proactive in its environmental stewardship, as described in the preceding sections. This section describes several of the county's innovative and successful efforts to implement environmental and energy goals for county facilities and operations. It concludes with a discussion of the county's greenhouse gas emissions inventory and results.

Significant efforts have been made over time to reduce the county's operational demand for energy through efficiency, conservation and education. The basis for these efforts is Fairfax County's strategic direction and commitment to achieve environmental and energy goals, including those set forth in the board's 2004 Environmental Agenda, the 2007 Cool Counties Initiative, the 2009 Energy Policy and the county's Comprehensive Plan.

Two collaborative inter-agency committees - the Environmental Coordinating Committee and the Energy Efficiency and Conservation Coordinating Committee - are vital to achieving these goals. These committees help ensure coordinated action across county agencies, authorities and schools. Their meetings provide a forum for participants to share project updates, discuss emerging trends and technologies, candidly review their experiences with equipment and systems and raise issues of mutual interest.

4.2 Building Design and Construction

4.2.1 Green Building Policy for County Facilities

In 2008, the county Board of Supervisors adopted the Sustainable Development Policy for Capital Projects, which is applicable to the construction of new county buildings and renovations or additions to existing buildings. The policy requires buildings with more than 10,000 square feet to be constructed to meet or exceed minimum green building standards. The policy applies only to county government capital projects. County public school projects are designed using the Virginia-Collaborative for High Performance Schools criteria.

The county's government buildings are certified under established green building rating systems that recognize outstanding performance in several key areas:

- *Sustainable Sites* – discourages development on undeveloped land and seeks to minimize a building's environmental impacts.
- *Water Efficiency* – encourages the smarter use of water inside and out.
- *Energy & Atmosphere* – encourages the implementation of energy-wise strategies.
- *Materials & Resources* – encourages the use of sustainably produced materials and waste reduction, reuse and recycling strategies.
- *Indoor Environmental Quality* – promotes strategies that improve indoor air quality, acoustics and access to natural daylight.
- *Innovation in Design* – encourages the use of technologies and strategies that improve a building's performance.
- *Regional Priority* – encourages builders to consider and address local high-priority environmental concerns.

Currently, 22 county buildings have satisfied the certification criteria established by the Leadership in Energy and Environmental Design (LEED®) program of the U. S. Green Building Council; of these, 12 have been certified as LEED Gold buildings. Two buildings have received Green Globe certifications from the Green Building Initiative's environmental assessment and rating system for commercial buildings. There are 17 projects in design or construction that have the goal of achieving LEED Silver certification, and one project – the Huntington Levee project – is being designed to achieve a bronze-level rating under the Institute for Sustainable Infrastructure Envision rating system.

The Dolley Madison Library is one of the county's LEED Gold buildings.



The 19,000 square foot facility achieved LEED Gold certification in April 2012 following a renovation and expansion.

The library incorporates energy-saving features that are expected to reduce annual energy use by about 20 percent when compared to similarly-sized conventionally-designed facilities. The library's energy-saving features include natural lighting and a lighting control system that varies the amount of light from overhead lighting fixtures based on the level of daylight in the space. These design and building elements reduce the need for artificial lights that consume energy and generate heat. Other energy saving features include high-efficiency ENERGY STAR compliant mechanical equipment and a roofing system that uses a combination of a highly-reflective roofing material and a green roof that covers about one-third of the building's roof. Both the reflective material and green roof reduce the need for cooling during the summer. The green roof also reduces stormwater runoff.

The library includes other green building features. The installation of water-efficient plumbing fixtures such as low-flow, sensor-operated faucets and dual-flush toilets is expected to reduce annual water use by about 30 percent when compared to similarly-sized conventionally-designed facilities. More than 80 percent of the construction waste was recycled and more than 50 percent of the library's construction materials were purchased regionally (within 500 miles of the project) to reduce transportation energy costs.

Information about the county's green building policy for its capital facilities, including a list of green buildings and their key features, is available at http://www.fairfaxcounty.gov/living/environment/coolcounties/county_green_buildings.htm.

The county's green building policies for private sector development are discussed in Section 3.2.4. These policies are found in the Environment section of the Comprehensive Plan and are implemented through the zoning process.

4.2.2 Green Roofs

The Dolley Madison Library renovation is one of several county capital facility projects that have incorporated a green roof. Other projects incorporating a green roof include the West Ox Bus Operations Center, Merrifield Center, Providence Community Center, the Great Falls Volunteer Fire Station and the Herndon Fire Station.

A 5,000 square foot green roof is located on the upper level of the five-story Herrity Building parking garage in the Government Center complex. Its ability to absorb stormwater volume and related pollutants is monitored and compared to an unplanted area on the opposite side of the garage. This green roof – which can be seen from county offices that issue permits to developers and builders – also showcases the three varieties of green roofs.

Within the vegetated roof area, three different planting levels illustrate the three types of green roofs: extensive, semi-intensive and intensive. The largest area, which is planted predominantly with tiny, drought-tolerant plants called sedums, is of the extensive type. Extensive green roofs have shallow soil layers of three to four inches and are the most common, lightest and most low-maintenance type of green roof. Semi-intensive green roofs, like the shallow planters on the Herrity garage, have deeper soils – about four to eight inches – and support a greater variety of drought-tolerant plants, including shallow rooted perennials. Intensive green roofs are true roof-top gardens intended for public enjoyment, and can include water features, gardens and even trees and shrubs.

4.3 Purchasing and Supply Management



4.3.1 Green Purchasing Program

Fairfax County spends over \$700 million annually on goods and services. The Environmentally Preferable Purchasing Policy (EPP Policy) directly supports the Board of Supervisors' Environmental Agenda. The EPP Policy acts as a guiding form of reference and encourages county departments to consider the environmental impacts of the goods and services they purchase without compromising on quality or cost.

The Department of Procurement and Material Management (DPMM) manages the EPP Policy through the Green Purchasing Program. Using the competitive procurement process, county departments can partner with innovative contractors to help lower the county's operational impact on the environment while reducing cost. DPMM maintains a catalog of over 40 contracts for goods and services with demonstrated environmental benefits. The catalog includes LEED-compatible furniture, energy- and paper-saving copiers, water recycling car wash and services and carpet recycling. DPMM strives to choose materials with an inherently lower impact on the environment, such as materials from sustainably managed renewable resources, and to use recycled materials wherever possible without compromising quality. The program also includes a focus on

responsible equipment disposal, which has resulted in cost savings and serves as a model for sustainable resource recovery.

The Green Purchasing Program promotes identifying opportunities and best practices for the procurement of products and services that maximize recyclability and include recycled content. Over 50 percent of the county's office supplies purchased in FY 2014 and FY 2015, including all copy paper, had recycled content or green attributes; this accomplishment exceeds the average among peer governments. Recycled options provide both environmental and financial benefits. For example, the use of "Natural Choice" sustainable copy paper will bring an estimated cost savings to the county and schools of \$100,000 over a three-year period.

Other highlights of the Green Purchasing Program include:

- Considering the life-cycles of products purchased and used by the county, including end-of-life reuse or recycling options.
- Establishing a new office supply contract that offers over 6,500 "green" products that are verified and certified by third-party organizations as meeting specific environmental standards.
- Purchasing and using environmentally-friendly cleaning products in county facilities, where feasible.
- Partnering with the Fairfax Employees for Environmental Excellence, an advisory group of employees who embrace and support efforts that promote environmental awareness.

In addition to promoting and enabling green purchasing within the county, DPMM supports the national market for green solutions. DPMM continues its work with U.S. Communities, which hosts the combined potential purchasing power of up to 90,000 public agencies, to strengthen green language in national solicitations. The National Association of Counties holds DPMM as a proven success story for its green purchasing accomplishments and continued growth in its sustainability efforts.

More information about the county's Environmentally Preferable Purchasing Policy is available at www.fairfaxcounty.gov/news/2009/environmentally-preferable-purchasing-policy.htm.

4.3.2 Surplus Equipment

DPMM promotes responsible reuse and disposal of surplus items through a variety of approaches, including:

- Expanding recycling options by using trade-in, "producer responsibility" and take-back clauses in vendor contracts.

- Marketing and selling surplus equipment on consignment and by on-line and sealed-bid auctions.
- Fostering strategic donations of surplus equipment to charities that further the county's mission.

DPMM's on-line *Reuse, Sale, Recycle* program to manage county-wide surplus property is a notable success in this area. Its use of e-auctions, which are open to the public, optimizes revenue from the sale of surplus sporting goods, office furniture, office equipment, industrial machinery, tools, household and industrial appliances, fleet vehicles and specialized vehicles such as fire trucks and trash trucks. In addition, the on-line reuse program allows employees to shop for surplus equipment from their desks and have items delivered, all at no direct cost to the requesting department. The *Reuse, Sale, Recycle* program has increased the reuse rate, decreased disposal costs and saved thousands on the purchase of new equipment. In FY 2015, the county redistributed or sold 91.4 percent of excess surplus property, achieving \$2.0 million in sales revenue.

The county's internal electronics recycling program, begun in 2011, continues to evolve and now encompasses any item with a circuit board. This program led to the recycling of over 165,000 pounds of electronics over the past two years. This year, DPMM issued a new e-cycling contract with robust recycling options that include de-manufacturing the equipment for recycling and refurbishing components for continued use in new manufacturing. Other recycling initiatives address cell phones, toner cartridges, batteries, scrap metal, used tires and spent oil.

Using its toolbox of options, DPMM promotes and leads collaborative and innovative approaches to reducing waste. These approaches also improve the county's bottom line by reducing disposal costs and generating revenue. More information about DPMM's environmentally-responsible surplus equipment programs is available at www.fairfaxcounty.gov/dpmm/surplus.htm.

4.4 Facilities and Site Management

Fairfax County's Facilities Management Department (FMD) portfolio is comprised of 244 properties, totaling over 10 million square feet of space. This space includes offices, libraries, residential treatment facilities and 24/7 facilities such as adult detention facilities, fire stations and police stations. FMD's portfolio does not include facilities operated by the Department of Public Works and Environmental Services, the Park

Authority, the Redevelopment and Housing Authority or the Fairfax County Public Schools.

4.4.1 Energy Efficiency Upgrades

Energy management is an important focus area for FMD. Over a decade ago, FMD established the goal of reducing energy use by one percent per year, as measured in one thousand British thermal units (kBtu) per square foot. Recent numbers show FMD meeting or exceeding its goal, despite a substantial increase in the square footage of its portfolio. By reducing energy consumption, FMD reduces both greenhouse gas emissions and energy costs. During the period FY2012 through FY2014, FMD saved over a million dollars on utility bills.

FMD undertakes a wide range of energy improvement projects to achieve energy savings. It installs energy management control systems, right-sizes heating, ventilating and air conditioning (HVAC) equipment, installs lighting controls and efficient lighting, including LEDs, and replaces aging roofs, caulking and window sealant.

Energy improvements completed by FMD since 2012 include:

- 34 HVAC and plumbing component replacement projects.
- 22 roof replacement projects.
- 18 projects to replace window and building caulking and sealant.
- 8 LED lighting projects.

FMD's LED lighting projects include the replacement of 950 T-8 fluorescent fixtures in the underground Government Center parking garage with 420 LED fixtures with motion sensors, and the conversion of 650 fluorescent lamps at the Adult Detention Center to LEDs providing 24/7 illumination. FMD's HVAC energy improvements include an FY2014 project at the Government Center that replaced or retrofitted 644 variable air volume (VAV) boxes and added direct digital controls. This project is expected to reduce electricity consumption by up to 15 percent, as compared to the conventional pneumatic system that was replaced.

FMD also has undertaken improvements to reduce water use. Part of a multi-phase two-year project at the Government Center replaced all restroom and locker room flush valves and faucets with low flow, infrared sensor-operated fixtures and replaced shower heads with low flow fixtures. This aspect of the project has reduced water consumption by more than 45 percent, as compared to the prior year's usage.

4.4.2 Energy Monitoring

With over 700 utility accounts, computerized energy monitoring and evaluation are essential elements of FMD's energy management practice. Monitoring and evaluation are facilitated by automated energy management control systems that have been installed in 98 county buildings. FMD also uses data available from its energy management software to measure and track energy and water consumption.

Monitoring allows the county to make adjustments based on real-time information, rather than relying on the historical records of past bills. These adjustments yield immediate and continuing savings. Monitoring also allows FMD to identify cost-saving opportunities due to leaks, equipment inefficiencies or problems with building controls. Further, using the data available from its systems, FMD can more precisely determine the costs of operating the facilities in its portfolio and can determine the greenhouse gas emissions associated with that portfolio's energy consumption. This information provides key inputs to the county's annual calculation of its greenhouse gas emissions.

4.5 Information Technology

4.5.1 IT Energy Efficiency Initiatives

Fairfax County's information technology (IT) infrastructure is designed to ensure the continuous delivery of quality services in a cost-effective and resource-efficient manner. Energy efficiency IT initiatives reduce the power consumption of IT equipment, decrease the emission of greenhouse gases and reduce the county's carbon footprint.

Virtualization and cloud-computing technologies are the foundation of the county's agile enterprise infrastructure architecture. Elements of this strategic approach include consolidating and standardizing IT resources while still ensuring visibility, security and accountability. The county's server virtualization and consolidation initiative, which was established in FY 2007-2008, was funded in part by an FY 2010 federal stimulus award for energy efficiency projects. This initiative reduced the need for physical servers from 870 to fewer than 300.

The FY 2010 federal stimulus award also helped accelerate the deployment of a personal computer (PC) power management program. The "NightWatchman" program automatically shuts down almost 11,200 end-user PCs across 55 offices when not in operation. In 2015, reductions in PC-related electricity use saved \$240,228 in electricity costs and

avoided the emission of 5.19 million pounds of carbon dioxide. The NightWatchman program also supports the county’s virtualization initiative. Because it measures server workloads, the program helps determine which servers are underutilized and thus good candidates for virtualization and consolidation.

Both the virtualization initiative and PC power management programs have been nationally recognized for achieving carbon reductions and operational efficiencies. More information about Fairfax County’s IT program and initiatives is available at <http://www.fairfaxcounty.gov/dit/itplan/>.

4.6 Waste Management

4.6.1 Landfill Gas Recovery and Reuse

Landfill gas (LFG) is essentially an equal mixture of methane and carbon dioxide that is a by-product of the decomposition of organic matter buried in sanitary landfills. Fairfax County recovers LFG from several hundred gas wells at the county’s two landfills and, after conditioning, uses the LFG to produce electricity, incinerate bio-solids and heat maintenance facilities. The county’s LFG use prevents the release of an estimated 260,000 tons (CO2 equivalents) of greenhouse gases annually.



Electricity Generation – The county’s LFG operations began in 1990 at the I-95 Landfill Complex. This landfill complex is one of the largest LFG wellfield and electrical generation networks in the Commonwealth of Virginia. Although it has been operating for more than 20 years,

approximately 2,000 cubic feet/minute (cfm) of LFG is captured from the I-95 landfill. About 1,600 cfm is used to fuel generators at the site. In 2015, these generators produced approximately 4.5 megawatts of electricity – enough to power about 2,450 homes in Fairfax County, given current standards that assume average monthly residential electric use of 1,172 kilowatt hours per month. This electricity is sold directly to wholesale electric market, helping keep the Solid Waste Management Program a self-funded agency.

Incineration – A three-mile pipeline transmits LFG from the I-95 landfill to the nearby Noman M. Cole, Jr. Pollution Control Plant at a rate of up to 700 cfm. The LFG is used in the plant’s incineration process to destroy bio-solids and to fuel afterburners that reduce hydrocarbon emissions. The plant’s use of LFG from the I-95 landfill saves Fairfax County about \$160,000 per year that it would otherwise spend on natural gas.

Heating – At the I-66 Transfer Station site, LFG is used to provide heating at an on-site maintenance shop, at the truck wash and at a 10-bay vehicle garage nearby. Savings from these heating projects at the I-95 and I-66 facilities is estimated at approximately \$35,000 annually.

In 2005, the U. S. Environmental Protection Agency designated Fairfax County as ***Landfill Methane Outreach Program Community Partner of the Year***. More information about Fairfax County’s LFG projects is available at <http://www.fairfaxcounty.gov/dpwes/trash/dispmethrvc.htm>.

4.6.2 Waste-to-Energy



The Energy Resource Recovery Facility (ERRF) uses municipal solid waste to generate enough electricity to power about 40,000 homes plus the facility itself.

In a multi-step process, the heat from burning waste produces steam that turns turbines capable of generating over 80 megawatts of electricity. With four industrial boilers that can burn over 3,000 tons per day of solid waste – or about 1.1 million tons per year – the ERRF is one of the largest waste-to-energy facilities in the country. The ERRF, which is located adjacent to the I-95 Landfill Complex, has been in operation since 1990.

Using solid waste to generate electricity avoids both the cost and emissions of using a fossil fuel to produce the electricity. Since 1990, energy production by the ERRF has replaced the equivalent of approximately two million barrels of crude oil per year. Incineration of municipal solid waste at the ERRF has other environmental benefits.

- As a result of pre-incineration sorting, enough metal is recycled each year to build over 20,000 automobiles.
- Incineration reduces waste by up to 90 percent in volume, leaving an ash product that is landfilled.
- Incineration prevents one-half ton of greenhouse gas emissions from entering the atmosphere for every ton of garbage incinerated, making the county's waste-to-energy operation carbon-neutral to negative.

The ERRF is heavily regulated, subject to continuous emissions monitoring, and Covanta Fairfax is required to report to regulators if the ERRF exceeds emissions limits.

The Energy Resource Recovery Facility is privately owned and operated by Covanta Fairfax, Inc., a subsidiary of Covanta Energy, under contract to Fairfax County. More information about the facility is available at <http://www.fairfaxcounty.gov/dpwes/trash/dispomsf.htm>.

4.6.3 Water Reuse



Fairfax County's Water Reuse Program delivers clean but non-potable water from the Noman M. Cole Jr. Pollution Control Plant to non-residential customers for irrigation and industrial purposes. Reusing water conserves valuable treated drinking water and reduces the amounts of nitrogen and phosphorus that reach the Chesapeake Bay. Water reuse also generates revenue for the county.

The program sells water that is not safe for drinking but is safe for other uses, such as watering lawns. Prior to delivery, the water is extensively filtered and disinfected and thoroughly treated to remove harmful organisms and substances, including bacteria, viruses and heavy metals. The Pollution Control Plant continuously monitors and tests the quality of this reclaimed water to ensure it exceeds strict state and federal requirements.

To avoid confusion, every pipe that carries the reclaimed water is painted purple and purple signs are posted at any public location where reclaimed water is being used.

The program delivered 463 million gallons of reclaimed water in 2015.

A purple water reuse pipeline installed along Lorton Road connects the Pollution Control Plant to the county's waste-to-energy plant, the Energy Resource Recovery Facility. This pipeline delivers treated reclaimed non-potable water to the waste-to-energy plant each year for its use in generating electricity. The pipeline also delivers reclaimed water to both the Laurel Hill Golf Course and the Lower Potomac Ball Fields for irrigation purposes.

The county's use of reclaimed water has both economic and environmental benefits. It requires an estimated 2,300 kilowatt hours of electricity to pump, treat, transmit and distribute one million gallons of potable water. The electricity use associated with reclaimed water is substantially

reduced because the water is not treated to the levels required for potable water. Lower electricity costs translate to lower purchase costs. Reductions in electricity use also translate to reductions in greenhouse gas emissions. County staff estimates that using reclaimed water saves approximately 1.1 pounds of equivalent carbon dioxide (CO₂e) per kilowatt hour, based on the mix of generation sources that supply electricity to the Northern Virginia region.

More information about Fairfax County's water reuse is available at http://www.fairfaxcounty.gov/dpwes/wastewater/water_reuse/.

4.7 Vehicle Services

The Department of Vehicle Services (DVS) provides management and maintenance services to the county's vehicle fleet and maintenance support to the Fairfax County Public Schools. The Department of Transportation (DOT) provides, among many other services, the Fairfax Connector transit bus system for public transportation throughout the county. Both agencies strive for economically responsible environmental stewardship by working increased fuel efficiency and reduced emissions and petroleum consumption characteristics into vehicle specifications.

4.7.1 Hybrid and Electric Fleet

DVS's responsibilities include management of the county's Vehicle Replacement fund. In response to the county's desire for cleaner and more energy-efficient vehicles, DVS has included hybrid-electric vehicles in its Vehicle Replacement program, where appropriate. As a result, a conventional gasoline-fueled county fleet vehicle at the end of its service



life may be replaced with a hybrid vehicle, if acceptable to the using agency and conditions warrant.

The county's fleet includes 117 hybrid-electric and plug-in hybrid-electric vehicles. The county saves over 16,000 gallons of gas on average each year from its use of hybrid vehicles. The county fleet also includes six all-electric vehicles.

In 2011, the Fairfax County Environmental Quality Advisory Council (EQAC), an appointed citizen advisory board, selected DVS as one of two recipients of EQAC's annual Environmental Excellence Award. The award recognized DVS's strong environmental stewardship as demonstrated by initiatives including the development and continuing expansion of a hybrid-electric vehicle fleet.

4.7.2 Other Vehicle Services Initiatives

Specifications for new vehicles purchased by DVS and DOT include features designed to reduce emissions and increase fuel efficiency.

In FY2015, DVS purchased 132 school buses with Selective Catalytic Reduction (SCR) technology. SCR meets the EPA2010 requirement of providing engine emissions to near zero (a NO_x level of 0.2 grams per brake horsepower hour). Since 2009, DOT has included variable frequency cooling fans in the buses it purchases. These fans have reduced fuel consumption by 12 percent compared to vehicles with hydraulic fans. Currently, 184 Fairfax Connector buses, or 65 percent of the fleet, are equipped with variable frequency cooling fans.

DVS and DOT also have established a number of initiatives to improve the energy and environmental performance of the vehicles they manage and maintain. For example:

- To reduce fuel consumption and vehicular emissions, DVS and DOT programmed automatic idle shutdown into all county solid waste trucks and Fairfax Connector buses.
- DOT transitioned to nitrogen filled tires to provide longer life and increased fuel mileage.
- DVS retrofitted 1,012 school buses and 113 heavy duty trucks with exhaust after-treatments that reduce particulate emissions.

Information about the county's green fleet initiatives is available at www.fairfaxcounty.gov/living/environment/coolcounties/countyefforts_greenvehicles.htm.

4.8 Fairfax Employees for Environmental Excellence

The Fairfax Employees for Environmental Excellence (FEEE) serves as Fairfax County's employee green team. FEEE's goal is simple: to foster a greener workplace culture. FEEE encourages employees to take advantage of existing environmental programs, including recycling and a green purchasing option. FEEE also encourages employees to use their diverse perspectives to develop creative solutions that can minimize the environmental impact of county operations.

Cumulatively, the simple, habitual behaviors of Fairfax County's 12,000 employees can have significant environmental impact. Examples include deciding which office supplies to buy, whether to use the recycling bins or, in those offices without occupancy sensors, whether to turn the lights off after the work-day. FEEE believes that routine and forgetfulness are the most common impediments to environmentally-responsible action in the work-place. As a result, FEEE focuses on employee behavior.

FEEE is especially known for its action campaigns. Many of these campaigns, like FEEE's 2011 "Junk the Junk Mail," are friendly competitions intended to raise awareness about simple but environmentally-responsible activities. FEEE's junk mail competition reduced junk mail overall by 70 percent among participants. The winning agency, the Office of Public and Private Partnerships, achieved a 93 percent reduction. After the conclusion of FEEE's 2012 friendly competition, "Take the Stairs Week," county staff reported opting for the stairs over the elevator nearly 3,000 times.

Other FEEE initiatives include:

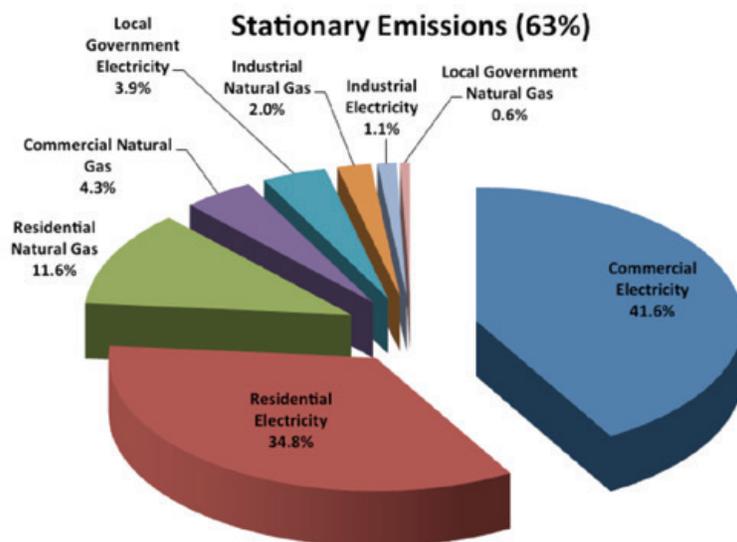
- Using its internal website and blog to disseminate information and tips. Because it offers two-way communication, the blog has the added advantage of allowing employees across the organization to join the conversation.
- Highlighting innovative green ideas on the FEEE website and through FEEE's award program, "Fairfax Sustainability Champions."



- Hosting lunch-and-learn events. Recent events include a stream restoration tour, a green roof tour and the display of a replica green office.
- Hosting an annual “Green Lounge” that coincides with the county’s Administrative Professionals Conference. Attractions include raffles, a mock “green” cubicle and information on sustainability issues.
- Distributing over 700 of its branded green lanyards to county employees to help spread the word about FEEE.

In less than six years, FEEE has grown from an initial group of 15 to nearly 400 employees interested in a greener workplace culture. By empowering employees to exercise environmental responsibility, FEEE has helped the county realize a range of benefits, including cost savings and increased recycling revenue.

4.9 Community Greenhouse Gas Emissions Inventory



Fairfax County has created a community greenhouse gas (GHG) emissions inventory to provide a baseline measurement, as well as to guide future efforts to reduce emissions.

The inventory establishes 2006 as its baseline year. It then tracks annual stationary and mobile emissions for the five-year period from 2006 through 2010.

Stationary sources are defined as buildings or other fixed, energy-consuming property not attributable to federal or state governments. Mobile emissions are defined as those associated with on-road traffic originating in and passing through the county, as well as light rail, off-road vehicles and mobile machinery. The GHG inventory includes both direct (Scope 1) emissions generated within the county and energy-related indirect (Scope 2) emissions. Scope 2 emissions result from purchased electricity that is consumed inside the county, regardless of where it was generated.

During the review period, stationary sources accounted for 63 percent of the county's total GHG emissions, primarily from electricity use. The majority of stationary emissions – 76.4 percent – were attributable to electricity and natural gas consumed by the residential and commercial sectors: 46.4 percent and 45.9 percent, respectively, of total emissions from stationary sources. Electricity and natural gas consumption by Fairfax County government and schools accounted for 4.5 percent of total stationary emissions

Mobile sources accounted for the remaining 37 percent of total emissions during the review period. On-road vehicles accounted for 89 percent of total mobile emissions. Of this 89 percent, 46 percent was attributable to vehicles passing through the county (transient vehicles) and 43 percent to vehicles registered in the county (local vehicles).

From 2006 to 2010, total emissions per resident declined by one percent. Fairfax County's baseline 2006 GHG emissions by source and sector are shown in the table below.

Baseline (2006) GHG Inventory		
Emissions Category	MMTCO₂e	% Total Emissions
<i>Stationary Sources</i>		
Residential	3.459	29%
Commercial	3.420	29%
Local government	0.339	3%
Industrial	0.233	2%
<i>Mobile Sources</i>		
Passenger vehicles	2.822	24%
Heavy trucks	0.596	5%
Light trucks	0.486	4%
Other	0.484	4%
TOTAL	11.838	100%

The inventory is available at <http://www.fairfaxcounty.gov/living/environment/greenhousegas/greenhouse-gas-inventory.htm>.