Fairfax County

Operational Energy Strategy

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FAIRFAX COUNTY BOARD OF SUPERVISORS

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Introduction

In June 2017, the Board of Supervisors (Board) adopted an updated Environmental Vision that included a new section on Climate and Energy. This section added objectives intended to reduce both the county's operational use of energy from fossil fuel sources and the greenhouse gas (GHG) emissions associated with that energy use.

In July 2018, to further these climate objectives, the Board adopted its first-ever Operational Energy Strategy (OES or Energy Strategy). The OES provided goals, target and actions in 10 specific focus areas, including energy use and efficiency, green buildings, electric vehicles, innovative energy solutions and waste management.

In April 2019, the Board of Supervisors and the Board of the Fairfax County Public Schools (FCPS) formed the Joint Environmental Task Force, or JET, with the mission of joining the political and administrative capabilities of the county and the school system to proactively address climate change and environmental sustainability. The JET issued its Final Report in October 2020 with an overarching recommendation of energy carbon neutrality by 2040 and supporting recommendations in the areas of energy, transportation, waste and recycling, and workforce development.

In October 2020, the Board accepted the JET's Final Report and directed staff to begin work on an implementation plan. Implementation was discussed at Board meetings in 2021, including the March and April 2021 meetings of the Board's Environmental Committee. The April meeting included an extensive discussion of some of the challenges associated with the JET's transportation recommendations.

At its June 15, 2021 Environmental Committee meeting, the Board discussed and expressed support for updating the Energy Strategy to incorporate both the overarching goal of carbon neutrality by 2040 and related goals, except transportation, which it agreed to consider at its June 29, 2021 Transportation Committee meeting. At that time, the Board directed staff to bring forward an Action Item to adopt the updated Energy Strategy at the July 13, 2021 Board meeting.

At the June 29 meeting, the Fairfax County Department of Transportation discussed its plans to meet the following goals to transition the county's bus fleet from diesel to electric:

- no diesel bus purchases after FY 2024 without further Board discussion;
- pursue the goal of a non-carbon emitting transit fleet by 2035;
- work with local, state and federal governments to ensure a continuous and interconnected transit system; and
- identify ways to transition to electric buses more quickly, while not impacting route and ridership needs.

Consistent with Board direction, this updated OES adds an overarching goal of carbon neutrality and substantially revises targets for six of the ten original focus areas to incorporate the related goals.

Fairfax County recognizes that the path to carbon neutrality will be neither easy nor inexpensive. But creative teamwork and action is needed now. Consequently, this Operational Energy Strategy sets forth transformational targets for energy used by county buildings, facilities, fleets and other operations. It is intended to clearly communicate county objectives regarding emissions reductions and to provide guidance for achieving them, subject to support including adequate staffing and resources and dedicated funding. This Strategy is also intended to be a living document. While its goals, targets and actions reflect current conditions, periodic review and update will help ensure that these elements of the Energy Strategy remain meaningful.

Overview

A. Fairfax County is Committed to Emissions Reductions

Fairfax County, which is home to over 1.1 million residents, is governed by an elected 10-member Board of Supervisors. Board Priorities include engaging residents and business and to protect investment in eight critical areas, including ensuring "a clean, sustainable environment." The updated Energy Strategy advances this Board priority and is the latest in a long line of proactive county policies and initiatives to address environmental goals and challenges.

In 2004, the Board adopted its "Environmental Excellence for Fairfax County: A 20-year Vision." This vision document, also known as the Environmental Agenda, describes environmental stewardship as both a key responsibility and a critical legacy of any elected public body. (The Environmental Agenda was superseded in 2017 by the Environmental Vision.)

In July 2007, the Fairfax County Board signed the Cool Counties Climate Stabilization Declaration (Cool Counties Declaration), committing itself to take certain actions, including working with partners to reduce regional greenhouse gas (GHG) emissions to 80 percent below 2005 levels by 2050. This 2050 goal was one of several emission reduction goals adopted by the Metropolitan Washington Council of Governments in 2008.

Fairfax County undertook a range of actions to reduce its GHG emissions in response to these developments and commitments. In 2009 the Board adopted a Sustainable Development Policy for Capital Facilities that established LEED Silver requirements for new county construction and major renovations of county buildings over a certain size. (This policy was revised in 2020, with further revisions recommended by the JET and included in the updated OES.) It adopted an Energy Policy in 2009, encouraged energy improvements in its buildings and facilities, and began a transition to hybrid-electric and electric vehicles (EVs), leading to over 100 hybrids and EVs in the county fleet today. The county also began implementing innovative approaches to energy and emissions reductions. Two of these programs still in effect today are a landfill gas program, in which methane from the county's closed landfill is captured, processed and sold to generate electricity, and a water-reuse program, in which treated wastewater is safely used for irrigation and industrial purposes. More information is available in the county's Sustainability Initiatives report.

As a result of these and other emissions reduction efforts, as well as the shift by the electric utility industry away from coal-fired electricity generation, Fairfax County community-wide GHG emissions decreased 13 percent between 2005 and 2018, according to the county's 2021 GHG emissions inventory. During this same period, per capita emissions decreased 24 percent despite a 15 percent growth in population.

In April 2019 the Board of Supervisors and the School Board formed the Joint Environmental Task Force, or JET, to focus on and set goals regarding operational emissions, as discussed in the Introduction. The JET issued its Final Report in October 2020 with an overarching recommendation of energy carbon neutrality by 2040 and supporting recommendations in the areas of energy, transportation, waste and recycling, and workforce development. Most of these recommendations are incorporated in the updated OES, either as proposed by the JET or modified by the Board.

With many of the commitments in the Cool Counties Declaration fulfilled and increasing urgency to significantly reduce emissions, the Board considered the adoption of a proposed Carbon Neutral Counties Declaration and supporting Policy Statements during its June 15, 2021 Environmental Committee meeting. This Declaration is a commitment county governments can make to reduce their operational greenhouse gas emissions. Signatories to the Declaration are asked to:

- commit to being energy carbon neutral by 2040;
- urge federal and state lawmakers to provide incentives, requirements or other such measures to meet the carbon neutral goal; and
- ensure equitable implementation of the goal so that no communities are disproportionately impacted by the transition to a carbon neutral economy, and all have access to the benefits that may arise.

A decision regarding adoption of the Declaration and related Policy Statements is scheduled for the Board's July 13, 2021 public meeting. This updated Operational Energy Strategy, which is also scheduled for Board consideration during the July 13, 2021 meeting, is intended to help implement the carbon neutrality goal and policies as applied to county government operations.

Meanwhile, two significant climate planning efforts are also underway in Fairfax County: the Community-wide Energy and Climate Action Plan (CECAP) and the Resilient Fairfax initiative. The CECAP, which is slated for Board consideration in September 2021, is a mitigation effort that will include community-defined emissions reduction goals, strategies and actions for Fairfax County residents, businesses, organizations, and other stakeholders. While the JET recommendations and updated OES are focused on government operations, the CECAP is focused on the community. Resilient Fairfax is a comprehensive climate adaptation and resilience planning effort for the county and the community. This plan, which is slated for Board consideration in mid-2022, will include strategies to reduce risk to county residents, businesses, and infrastructure from economic, social and environmental risks associated with climate change.

B. Achieving Energy Carbon Neutrality in County Government Operations Will Require Significant and Sustained Efforts

Global warming refers to the long-term heating of Earth's climate system observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas (GHG) levels in Earth's atmosphere. The term is frequently used interchangeably with the term climate change, though the latter refers to both human- and naturally-produced warming. The GHGs that the OES intends to address are carbon dioxide, which is the most abundant of the GHGs, methane and nitrous oxide. While for simplicity's sake the document may refer to carbon or carbon dioxide (CO_2), OES-related emissions reductions and avoidance will be measured and reported as "carbon dioxide equivalent," or CO_2e, where available to capture the different global warming potentials (GWP) of the three GHGs.

The county's energy carbon neutrality commitment is understood as a balance of carbon emissions: that is, removing as much CO_2 from the atmosphere as is emitted in a defined period of time.

Achieving energy carbon neutrality is expected to require, first, reducing carbon emissions to the greatest extent possible, then making up the remaining difference through carbon offsets. Offsets are required because so long as there is continued use of some existing fossil-fuel infrastructure, reaching zero emissions is not possible.

County government operations currently use fossil fuels, either directly or indirectly, to meet electricity, heating and transportation needs. To significantly reduce the fossil fuel usage and resulting carbon emissions of county government operations, the updated Energy Strategy sets more ambitious goals and targets in seven of the 11 focus areas and also provides examples of supporting actions that can be taken to help achieve these reductions. The revised focus areas, listed below and discussed separately in the following sections, are:

Emissions Reductions
Green Buildings
Fleet Electrification
Waste Management
Energy Use and Efficiency
Renewables
Goods and Services

The **goal** for each focus area is a long-term objective that, as a general rule, reflects some or all of various Board policies or initiatives. The **target** for each focus area is intended to provide specific direction. In most cases, the targets are quantifiable and therefore measurable. The **actions** in each focus area are intended to help achieve the goal and target of a specific focus area. The actions are a set of possible opportunities directed towards operations personnel that can reduce fossil fuel use and avoid carbon emissions. Targets and actions should be periodically reviewed and updated to ensure they remain vital despite expected advances in technology and legislative and regulatory change.

The chart below shows the magnitude of the effort that will be required to achieve the energy carbon neutrality goal and the magnitude of the impact it will have, using FY2018 as a baseline year. Additional information about operational energy use and emissions is provided in Appendix 2.

Fuel Type	FY2018 Energy Use	Equivalent Homes Powered[1]	Equivalent Passenger Vehicles[1]
Electricity	262,073,761 kWh	10,706	19,317
Natural Gas	4,706,577 Therms	3,009	5,430
Gasoline	4,330,866 Gallons	4,637	8,367
Diesel	8,049,160 Gallons	9,872	17,813
Total	2,991,597,570 kBtu	28,225	50,928

[1] Equivalent Homes Powered and Equivalent Passenger Vehicles are from the EPA's Greenhouse Gas Equivalencies Calculator.

Reaching the goal of energy carbon neutrality by 2040 will require a sustained, multi-pronged effort to reduce fossil fuel use, thereby reducing the CO_2 emissions recognized to drive global warming. Reaching the goal also will require supportive federal and state laws, policies and actions, as well as technological, market and other developments that will re-shape the possibilities available to us, especially in the areas of vehicle emissions and fleet electrification. The county's effort must include actions such as emphasizing energy efficiency and conservation, implementing deep building retrofits, increasing reliance on renewable energy and alternative technologies, and continuing to encourage and empower behavior change. Fortunately, actions that reduce fossil fuel use not only avoid CO_2 emissions, they also tend to lower utility bills, thus providing both environmental and fiscal benefits.

As was recognized in the 2018 version of the Operational Energy Strategy, no focus area is the responsibility of one department or agency alone. Fairfax County Government leadership, management, and employees will need to work together to successfully implement this transformative Energy Strategy and achieve its benefits. Detailed action plans and increased inter-agency coordination and cooperation will be crucial. In some cases, leadership and management may need to expressly empower staff to act in furtherance of the goals, targets, and actions in this Energy Strategy. Periodic reviews and updates will help ensure it remains vital despite expected advances in technology and legislative and regulatory change.

Further, achieving the Energy Strategy's goals and targets requires financial commitments from the Board, departments, and agencies. Initial capital outlays, adequate staffing and resources, and dedicated funding are essential both to undertake the actions in this Energy Strategy and to realize their benefits. Implementing ambitious building retrofits, pursuing renewable energy and fleet electrification, and reimagining procurement and waste management strategies and practices will be heavy lifts, but making the necessary investments are critical to slowing and reversing growth in carbon emissions and will generate returns and benefits for decades.

Focus Area: Greenhouse Gas Emissions Reductions

The emphasis of the 2021 Operational Energy Strategy is to sufficiently reduce GHG emissions from county government operations and activities so as to achieve energy carbon neutrality by 2040. Reaching this very ambitious goal will require substantial and coordinated effort from county government. In addition to reducing GHG emissions, this effort will yield important additional benefits over time, including improving facility comfort and reducing pollution that affects local air quality; it also is expected to reduce operating costs.

Goal:

Significantly reduce greenhouse gas emissions in county facilities and operations.

Targets:

1. Reduce emissions 50% by 2030, as compared to the FY 2018 baseline.
2. Be energy carbon neutral by 2040, as compared to the FY 2018 baseline.

Actions:

Actions that can reduce greenhouse gas emissions are described in each of the subsequent focus areas. In general, they include:

1. Making energy efficiency an integral part of facility management, capital improvement and renovation projects throughout county operations, including pursuit of deep energy reduction retrofits.
2. For new construction, designing and building net-zero energy (NZE) structures that incorporate best practice energy-efficient design, use of electricity-based space and water heating, and on-site renewable electricity generation.
3. Deploying renewable energy generation at county buildings and facilities and procuring high quality renewable energy from beyond county government locations to offset energy use where on-site renewable energy generation is not feasible or affordable.
4. Electrifying the county fleet of vehicles to the extent possible, in parallel with installation of appropriate vehicle recharging infrastructure.
5. Developing and implementing a sustainable purchasing policy that considers supply chain emissions and prioritizes low- or no-carbon solutions when selecting vendors and making procurement decisions.
6. Developing and implementing a zero waste plan to conserve resources, support a local circular economy, and promote social equity.
7. Collecting and managing data on energy use and GHG emissions from across the county enterprise, to measure progress and identify challenges and opportunities.
8. Ensuring appropriate training for staff, educating them on the importance of energy efficiency and conservation practices, and empowering them to identify and contribute their own project ideas.

Focus Area: Energy Use and Efficiency

This focus area is intended to reduce or avoid the use of fossil-fuel energy in county government operations. Achieving carbon neutrality by 2040 will require sustained investment to fund improvements in existing buildings and facilities. These improvements will include deep energy efficiency retrofits and beneficial electrification to allow for the use of electricity in lieu of fossil fuels like natural gas. These and other improvements are expected to reduce overall emissions as well as energy costs.

Goal:

Reduce electricity and natural gas use in existing county facilities and operations.

Targets:

1. Decrease energy use 25% by 2030, as compared to the FY 2018 baseline.
2. Decrease energy use 50% by 2040, as compared to the FY 2018 baseline.

Actions:

1. Collect energy use data across the enterprise. Benchmark and analyze this information to monitor facility performance and identify opportunities for energy improvements.
2. Perform facility energy audits on a routine basis to identify efficiency opportunities.
3. Pursue deep energy retrofits of existing facilities using a whole-building scope of work instead of multiple incremental retrofits of isolated systems over time. Use energy-saving performance contracts when feasible.
4. Where whole-building approaches to deep energy retrofits are not feasible, implement cost-effective energy efficiency projects on building systems.
5. When replacing heating, ventilation, and cooling (HVAC) equipment, right-size the mechanical equipment for actual building loads, rather than simple like-for-like replacement. Specify high-efficiency equipment to the extent possible.
6. Be alert to opportunities to replace fossil-fuel heating and water heating equipment with efficient electric alternatives, where possible.
7. Optimize facility and equipment performance through systematic practices that maintain efficiency in existing equipment.
8. Use energy management systems and automated controls to optimize whole-system performance for energy savings and occupant comfort.
9. Implement a retrocommissioning program for whole-building tune-ups, with a further goal of continuous commissioning for the largest county buildings.
10. For replacement equipment and motors, specify ENERGY STAR® rated equipment and NEMA Premium® motors where available.

Focus Area: Water Use and Efficiency

Fairfax County Water Reuse Facilities

Measures that reduce water use in county operations achieve energy savings and environmental benefits. Direct benefits include reductions in the county's water and sewer costs and the conservation of valuable treated drinking water. Indirect benefits include reductions in county government electricity use and the avoidance of associated GHG emissions, because water treatment and distribution are energy intensive activities.

Goal:
Reduce water use in county facilities and operations.

Target:
Reduce water usage 20% for all new construction or major renovations.

Actions:

1. Monitor and analyze water use and equipment performance. Review utility bills and other available data to identify areas of opportunity.
2. Routinely audit and assess existing building stock for water efficiency opportunities.
3. Engage in commissioning, preventative maintenance, and other practices to optimize cooling tower and other equipment performance.
4. Identify and implement cost-effective water efficiency projects, including the installation of water-efficient fixtures and systems.
5. Expand use of control systems to maximize water efficiency and ensure appropriate programming and maintenance.
6. Incorporate natural landscaping with native vegetation to minimize irrigation needs. Install web-based irrigation control systems where appropriate.
7. Install leak detection sensors in facilities at higher risk of water loss or damage.
8. Exceed Virginia code requirements when replacing equipment and fixtures.
9. Continue to explore additional opportunities to use reclaimed wastewater from the Noman M. Cole Jr. Pollution Control Plant.
10. Routinely evaluate new technologies that can reduce water consumption.

Focus Area: Green Buildings

Dolley Madison Library (LEED® Gold)

The construction of net zero energy (NZE) and near-NZE buildings and major renovations is a critical component of Fairfax County's plan to achieve energy carbon neutrality. Minimizing energy use through efficient building design is a fundamental design criterion. In addition, as the electric grid in Virginia continues to decarbonize, ensuring that new construction and major renovations avoid direct use of fossil fuels allows the county to further reduce carbon emissions while maximizing use of on-site renewable electricity from solar photovoltaics.

Goal:

Ensure that new construction and major renovations of county facilities are energy- and water-efficient.

Targets:

For facilities with an occupied area greater than 10,000 square feet:

1. All new construction and major renovations beginning planning and design in 2021 meet NZE standards unless the Board of Supervisors is advised prior to the 30% design phase as to why the project cannot meet the NZE standard. LEED Gold plus 50% more efficient than baseline is the minimum certification.
2. All new facility construction, additions and major renovations (a) beginning design in FY 2022 or later are electric-ready and (b) beginning design in FY 2024 or later use only electric equipment and appliances, unless no alternative can be identified.

Actions:

1. Coordinate among agencies to ensure that the lifetime energy and water use of a new building or major renovation is minimized by design. This includes intentional building orientation and massing to consider energy loads, as well as high-efficiency building envelopes and appropriately sized energy-efficient mechanical systems.
2. For major renovations, convert fossil fuel systems to electric equivalents unless impracticable.
3. Incorporate renewable energy systems, such as rooftop solar panels, into designs for new construction and major renovations.
4. Attain high-efficiency building certifications. Where appropriate, design for LEED Platinum and pursue the Designed to Earn ENERGY STAR certification. Keep apprised of and consider pursuing LEED Zero certifications.
5. Seek to reduce or eliminate embodied carbon in building construction or renovation, including considering changes in concrete specifications for lower-embodied carbon.
6. Coordinate among agencies to ensure that electric vehicle (EV) charging infrastructure is provided at new and renovated facilities where fleet and/or public vehicle EV charging is appropriate and desirable.
7. Advocate for strengthened Virginia energy and building code requirements.

Focus Area: Renewables

Stringfellow Park-and-Ride

The county is committed to the use of renewable energy for a substantial portion of its electricity use in the near future. This focus area continues the county's long history of applying innovative approaches and technologies to achieve environmental and energy objectives, including its waste-to-energy operations, its landfill gas capture and reuse initiative, and its use of reclaimed water.

Goal:

Reduce GHG emissions and electricity costs by generating and using renewable sources of energy.

Targets:

1. Produce 25% of county electricity from renewable energy generation by 2030, using FY 2018 energy use as the baseline.
2. Produce 50% of county electricity from renewable energy generation by 2040, using FY 2018 energy use as the baseline.

Actions:

1. Install solar photovoltaic systems at county facilities, using power purchase agreements or county capital funds as appropriate for the size and setting of each site. Direct on-site use of renewable energy systems is a key component of net zero energy construction.
2. Procure high-quality renewable electricity through contractual agreements. Such agreements should provide additionality of renewable power, even if physical electrons are not delivered to Fairfax.
3. Participate in joint initiatives with public- and/or private-sector partners that encourage innovation, including opportunities for renewable energy projects on privately-owned property for county benefit.
4. Identify opportunities to implement alternative renewable energy technologies on county government property, such as geothermal energy and energy storage.
5. Continue recovering landfill gas from the county's closed landfills and using the gas for heating, industrial purposes, or to generate electricity that is sold back to the grid.
6. Pursue resource recovery at wastewater treatment plants to lower total net energy consumption and GHG emissions at these facilities.
7. Develop demonstration projects that can be viewed by the public.

Focus Area: Fleet Electrification

Merrifield Electric Autonomous Shuttle

This focus area supports the transition from gasoline-powered vehicles to hybrid-electric and electric vehicles (EVs). The transition with respect to passenger vehicles has been underway for several years in response to the county's interest in cleaner and more energy-efficient vehicles. In May 2021, Fairfax County was awarded state grants to fund several additional types of EVs and their charging stations, including four electric shuttle buses, four electric solid waste and recycling trucks, and an electric box truck.

Goal:

Minimize use of petroleum-based transportation fuels, primarily through electrification.

Targets:

1. Develop a plan to use 100% non-carbon emitting fuels for county fleet vehicles by 2030. For non-bus fleet vehicles that may not have non-carbon emitting alternatives, develop a plan to mitigate emissions.
2. County buses and fleet vehicles will be electric or a non-carbon emitting alternative by 2035. By 2035, 99% of Connector bus fleet miles traveled will be with non-carbon emitting vehicles.
3. No diesel buses will be purchased after FY2024 without further Board discussion.

Actions:

1. Continue to reduce reliance on petroleum-based fuels by accelerating the fleet transition to zero- and low-emission vehicles.
2. Install necessary charging infrastructure for county fleet vehicles. Deploy infrastructure needed to support EVs and other alternative-fueled vehicles. Where possible, ensure charging infrastructure can serve both county and school operations.
3. Ensure fleet vehicle replacement strategies are consistent with fleet electrification targets.
4. Consider the social cost of carbon when evaluating costs for county fleet vehicles.
5. Reserve parking for hybrids and EVs at county government buildings.
6. Apply for grant funding for county fleet vehicles when possible.
7. Where feasible, implement scheduling and routing practices that reduce vehicle travel time. Use video conferencing solutions that reduce the need for vehicle travel, where practicable.

Focus Area: Goods and Services

Fairfax County's supply chain is large and complex, with $1 billion currently spent annually among thousands of suppliers across hundreds of sectors. Given the impact of its purchases, the county is committed to developing responsible and sustainable sourcing strategies that will advance its policies, including those regarding the environment, climate action, and racial and social equity. Because supply chain emissions typically are many times the emissions levels of operational emissions, these sourcing strategies will have a significant impact on the county's overall emissions profile.

Goal:
Encourage and increase the purchase of environmentally preferable products and services.

Target:
Review purchases and develop a sustainable purchasing program.

Actions:

1. Continue to evaluate and improve the county's Supply Chain Corporate Social Responsibility (CSR) performance.
2. In furtherance of the Zero Waste target set forth in the Waste Management and Recycling focus area, undertake a review of purchasing to ensure an understanding of what is being purchased and used, especially paper supplies and other items that can be recycled.
3. Leverage the county's purchasing power to decarbonize the supply chains associated with purchased products by adopting embodied carbon procurement policies to source low-carbon products and engage suppliers in targeting a net-zero supply chain.
4. When evaluating products, include carbon and efficiency as considerations. Seek out products that are carbon-neutral or carbon-negative.
5. Require that all major appliances, such as refrigerators and televisions, are ENERGY STAR-certified or equivalent, unless it can be shown that an energy-efficient option is not available.
6. Promote the use and purchase of products and services that reduce negative environmental effects on employees, the community, and the environment. Discourage the purchase of single-use products wherever possible.
7. Require contractors to use environmentally preferable and sustainable products and practices in performing services for Fairfax County Government, where practicable.
8. Purchase products that include recycled content or are made of materials that can be recycled, are durable, conserve energy and resources and have the fewest toxic compounds.
9. Purchase from suppliers that reuse, take back and/or recycle the product purchased.

Focus Area: Waste Management and Recycling

Crushed glass for reuse or sale

Fairfax County is environmentally responsible both in the waste disposal and recycling options it offers to residents and in its own waste management operations. For example, its circular economy glass recycling initiative, started in 2019 and expanded regionally, led to the collection and reuse of over 4 million pounds of glass just by 2020. Achieving the Zero Waste target by 2030 will require concerted efforts across county operations, including additional circular economy initiatives and reimagined procurement, recycling and disposal practices.

Goal:

Pursue and promote sustainable consumption that significantly minimizes waste in county government operations.

Targets:

1. Be Zero Waste by 2030.
2. Encourage composting among county government workers and students.

Actions:

1. Create a plan for county government and schools to achieve Zero Waste by 2030, including the establishment of a central implementation team and funding mechanisms to support all county and school agencies in Zero Waste efforts.
2. Foster a culture of sustainability by engaging individuals to pursue Zero Waste through collaboration, education, and outreach.
3. Reduce consumption to only that which is necessary. Phase out single-use products and packaging wherever possible.
4. Support a circular economy by purchasing more durable, reusable, repairable, and recyclable materials that are produced sustainably and adopting closed-loop systems.
5. Once products and packaging can no longer serve their intended purposes, treat materials as valuable resources rather than waste by recycling, composting or devising new uses for them. Pursue regional initiatives where appropriate.
6. Explore the development and implementation of new policies, programs, and facility upgrades to support the transition to Zero Waste.
7. Periodically conduct trach and recycling audits.
8. Expand county composting operations.
9. Develop and implement a recycling program for construction/demolition debris (CDD).
10. Use renewable energy in support of waste process applications.

Focus Area: Awareness and Engagement

FEEE's 2018 Green Lounge

Fairfax Employees for Environmental Excellence (FEEE) serves as Fairfax County's employee green team. FEEE strives to foster a greener workplace culture by encouraging employees to participate in existing environmental programs, including recycling, green purchasing, and the reuse of surplus county property, and to identify new opportunities for minimizing the county's environmental impact. This focus area supports the efforts of county departments and agencies, either in conjunction with FEEE or on their own, to inspire and empower employees to exercise environmental responsibility, particularly in the areas of waste management and recycling, energy efficiency and conservation, and emissions reductions.

Goal:
Foster a culture of efficiency and conservation in the county workplace.

Target:
FEEE will hold at least four employee events per year.

Actions:

1. Plan events and special initiatives, such as Earth Day Fairs, the FEEE Litter Challenge and the employee Compost Program.
2. Publicize efficiency, conservation and sustainability actions in the workplace. Provide content on a regular basis to communications channels like *NewsLink*, newsletters, and the FEEE FairfaxNet blog available to employees.
3. Educate staff responsible for purchasing decisions on the benefits of energy- and water-efficient goods and services.
4. Sponsor lunch-and-learns on a range of efficiency and conservation topics to enhance employee awareness and to encourage action.
5. Establish reward and recognition programs to motivate behavior change.
6. Designate champions within departments or facilities who will foster communication and encourage efficiency and conservation.
7. Increase employee awareness of opportunities for source reduction, reuse and recycling.
8. Publicize county policies and procedural memoranda that pertain to energy or water use or sustainability in the work environment.

Focus Area: Utility Cost Management

This focus area is unique in that it relates solely to reducing energy costs. Electricity costs in particular can reflect choices made over time, from pre-occupancy load estimates that determine the size of electrical transformers installed by the utility, to the specific rate schedule selected for day-to-day power needs. This focus area encourages thoughtful consideration of possible actions and choices that can affect electricity and other utility costs.

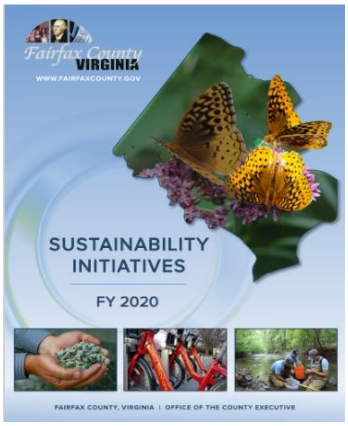
Goal:
Manage electric and other utility service and load to achieve cost savings.

Target:
Quarterly review of utility cost management best practices by OEEC.

Actions:

1. Coordinate among agencies when preparing load letters and letter supplements to ensure that utility transformers are appropriately sized for the facilities they will serve.
2. Coordinate among agencies regarding rate schedule selection.
3. Coordinate among agencies to ensure appropriate metering, including functionality, type, number and opportunities for sub-metering.
4. For accounts with demand charges, implement programs to minimize peak charges. Manage electricity use to minimize peak demand charges and reset billing ratchets, where possible. Use the facility's demand profile to help develop a strategy for reducing peak use.
5. Use bill audits to ensure that utility bills received are correct. Periodically review utility bills for possible cost savings. Use rate comparisons to evaluate the cost of service under alternate rate schedules.
6. Renegotiate contract demand and/or contract dollar minimum with the electric utility in the event of a permanent load reduction.
7. Install meters for sewer credit on cooling towers and irrigation systems where appropriate.

Focus Area: Reporting and Collaboration



Consistent with the county's interests in accountability and transparency, this focus area ensures that the Board and public will remain informed about progress towards the goals and targets in this Energy Strategy. Collaboration is essential both to the success of this strategy and to the reporting of its progress.

Goal:

Communicate the county's progress to the Board and the community.

Target:

Progress toward the OES goals and targets will be reported to the public and the Board of Supervisors annually.

Actions:

1. Periodically update the Board and public on progress made in implementing the OES with the parameters of that reporting to be guided by the Board's Environmental Committee.
2. Maintain and update county webpages highlighting accomplishments in emissions reductions, energy efficiency and conservation.
3. Continue to seek opportunities to collaborate regionally on energy and water challenges and to promote resulting achievements.
4. Participate in regional task forces and workshops.
5. Participate in educational conferences and other public events.

Appendix 1: Abbreviations and Acronyms

Board: The Fairfax County, Virginia, Board of Supervisors.

Btu or BTU: British Thermal Unit, a traditional unit of heat defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

CECAP: Fairfax County's Community-wide Energy and Climate Action Plan.

CO_2: Carbon dioxide.

CO_2e: "Carbon dioxide equivalent," or CO_2e, is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO_2e signifies the amount of CO_2 that would have the equivalent global warming impact.

CSR: Corporate Social Responsibility

EV: Electric vehicle.

FEEE: Fairfax Employees for Environmental Excellence.

FCPS: Fairfax County Public Schools.

GHG: Greenhouse gas, which absorbs and emits radiant energy within the thermal infrared range.

GWP: Global warming potential.

HVAC: Heating, ventilation and air conditioning.

kWh: Kilowatt hour, which is a composite unit of energy equivalent to one kilowatt of power sustained for one hour. A megawatt hour is equivalent to 1,000 kilowatt hours.

LED: Light-emitting diode, a lighting technology.

LEED®: Leadership in Energy and Environmental Design, a green building certification program developed by the non-profit U.S. Green Building Council.

M: Million.

MT: Metric Tons. One million metric tons is abbreviated as MMT.

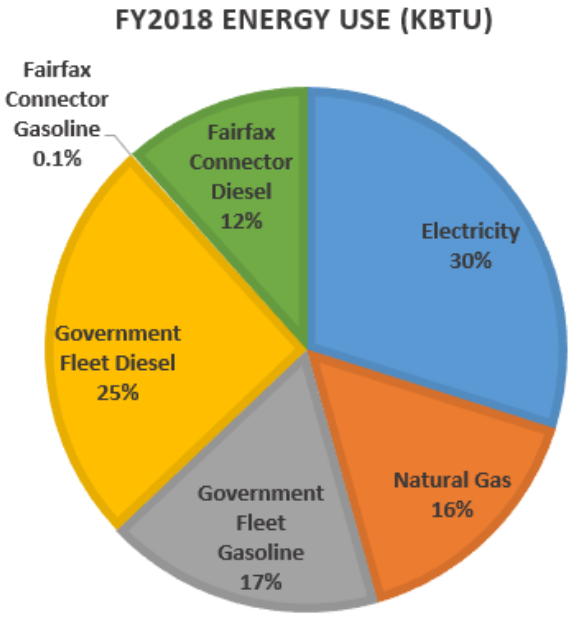
NZE: Net zero energy.

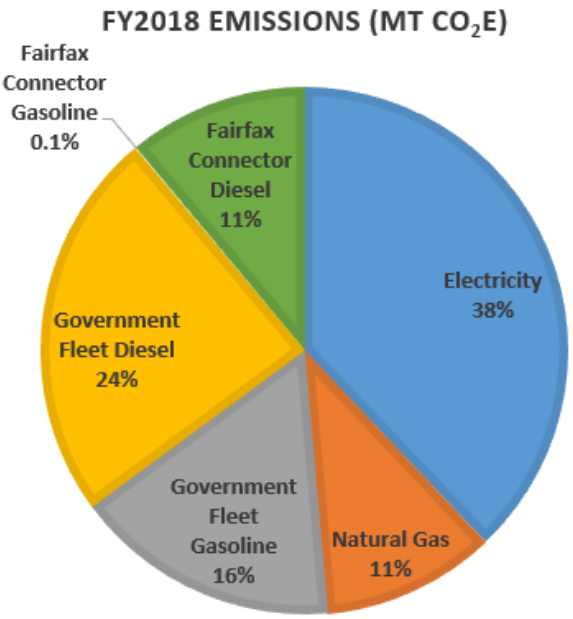
OES: Operational Energy Strategy.

USGBC: U.S. Green Building Council, a non-profit entity.

Appendix 2: Fairfax County FY 2018 Energy Data

Fairfax County Government energy use and equivalent emissions for FY2018 are shown below. FY2018 is serving as the baseline year from which energy and emission reductions are calculated. The data used to create the pie charts is provided in the table below the charts.





	FY2018 Energy Use	Baseline Energy Use (kBtu)	FY2018 Emissions (MT CO_2e)
Electricity	262,073,761 kWh	894,195,673	88,860
Natural Gas	4,706,577 Therms	470,657,700	24,978
Government Fleet Gasoline	4,299,569 Gallons	517,177,957	38,210
Government Fleet Diesel	5,520,287 Gallons	758,382,548	56,197
Fairfax Connector Gasoline	31,297 Gallons	3,764,591	278
Fairfax Connector Diesel	2,528,873 Gallons	347,419,102	25,744

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