

## APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 3, 2019.** Please include this application form with electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact [Gage Harter](#).

### PROGRAM INFORMATION

County: County of Henrico  
Program Title: Energy Management Program  
Program Category: Environmental

### CONTACT INFORMATION

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### SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Anthony McDowell  
Title: Deputy County Manager for Public Safety  
Signature: Anthony E. McDowell

## **Program Overview**

The Henrico County Energy Management program reduces energy use and costs in county operations, including general government, public schools, and public utilities. The Energy Manager also supports green building design and construction practices for capital projects. Now in its 16th year, the Energy Management program continues with its mission to develop Henrico County as a leading local authority for sustainable energy use and to promote the importance of good energy management for the economic and environmental well-being of the county's residents and employees.

Key efforts include tracking energy use and cost in all county buildings, implementing energy efficiency projects, providing education on energy and environmental issues, and participating with local and regional energy and green building organizations. Completed projects include energy use benchmarking, energy audits, heating, ventilation, and air conditioning (HVAC) and lighting system upgrades, participation in demand response programs, building commissioning, traffic and street light upgrades, building automation systems, and construction of a four-megawatt methane gas to electricity generator at the landfill.

The Energy Management program also strives to improve energy education and foster a culture of efficiency and sustainability in the county. Henrico County holds public community Energy Fairs twice each year to bring energy and sustainability education to the county's residents, businesses, and employees. The spring 2019 fair was held on Earth Day, April 22<sup>nd</sup>, and featured 30 local energy and environmental organizations displaying products, services, and resources to hundreds of attendees.

## **Problem/Challenge/Situation Faced by Locality**

Government operations consume a great deal of energy and can have a significant impact on the environment. Henrico is a large county, with hundreds of buildings and nearly a thousand energy utility accounts. Tracking the energy use over such a large portfolio is challenging, much less being able to identify and implement opportunities for savings. In 2018 Henrico County procured comprehensive utility management software to help track energy use and costs on a monthly basis for all 300+ county facilities, and to help monitor for metering and billing errors. With this new data analysis tool, the county Energy Manager performs ongoing monitoring, benchmarks buildings against each other and against national averages to identify high energy users, and implements projects such as energy audits and efficiency upgrades to continually drive down building energy use.

### **How Program Fulfilled Awards Criteria**

The Energy Management program is a partnership between government, schools, and utilities with leadership from each sector participating in the development of the program and receiving annual reporting of the program's efforts and successes. Within each of these major branches of the county, there are key liaisons within departments that collaborate with the Energy Manager to bring potential projects and ideas to the table and to assist with implementation. This has led to many partnerships between departments, such as Capital Projects, Buildings & Grounds, Recreation & Parks, Fire, Libraries, Public Works and Utilities, and Schools Construction & Maintenance. One example is through a partnership with Henrico Libraries, which has helped facilitate public presentations, and implemented an "energy lending library" that includes energy-related literature and portable energy use meters for patron checkout. This initiative plans to grow this year to include thermal image cameras for home energy auditing purposes.

Henrico County was among the first in Virginia to create an Energy Management program, which has served as a model for other localities. Since Henrico hired its first Energy Manager in 2003, many other Virginia cities and counties have hired energy and sustainability personnel. Henrico County participates with multiple peer groups that help localities collaborate on energy issues, such as the Virginia Energy and Sustainability Peer Network (VESPN) and the Virginia Energy Purchasing Governmental Association (VEPGA).

### **How Program Was Carried Out**

The Energy Management program promotes energy efficiency in county facilities, with the intent of reducing resource use and associated costs within the general government, public schools, and public utilities. Henrico County made a commitment to energy efficiency and sustainability with the inception of its robust Energy Management program and the release of its Energy Management Plan, outlining program guiding principles, goals, and initiatives. The program goal is to achieve a consistent reduction each year in county-wide energy use and cost per square foot.

Projects are selected based on benchmarking results, energy audit results, opportunity, and/or return on investment. County buildings are consistently benchmarked to compare energy use over time and among similar building types. Buildings that are using more energy than their peers are targeted for energy audits and conservation and efficiency projects. In 2019, Henrico County will be installing our first two rooftop solar photovoltaic installations to utilize renewable energy to reduce grid electricity usage.

Even though the program's official scope is county-operated buildings, efforts have been made to reach out to the community at large to help residents and business owners, and those efforts

continue to grow. One mechanism is the Energy Fair, held twice a year in different areas of the county. The Energy Fair is intended to share energy efficiency and environmental resources with Henrico County employees and citizens. The fair is free and open to the community and features local resources for energy and environmental related companies, non-profit organizations, county services, and utility providers. Attendees learn about innovative technologies such as solar power, LED lights, and electric vehicles, and opportunities to reduce energy usage in their homes and personal lives. Additionally, public presentations are held periodically at county libraries to educate citizens on environmentally-friendly and efficient homes and buildings.

The county Energy Manager also supports green design and construction efforts for capital projects in both government and schools. The Energy Manager works with the capital project manager and the design team to identify building strategies for new construction and major renovation projects to reduce the environmental impact and improve the efficiency of county buildings. Henrico County utilizes the Leadership in Energy and Environmental Design (LEED) green building rating system as its standard. To earn LEED certification, a project must meet specific design and construction requirements in the categories of sustainable site, water efficiency, energy efficiency, materials and resources, indoor environmental quality, and innovation. Depending on the number of strategies employed, a project earns certification at either the Certified, Silver, Gold, or Platinum level. To date, 16 Henrico new construction projects have achieved LEED certification, all at the Silver or Gold levels, and five more are pursuing certification. An interactive map of all the county's LEED green building projects can be viewed at

<http://henrico.maps.arcgis.com/apps/MapTour/index.html?appid=aef5d1ea72b84853b4287be5b0a5b38f>.

## **Financing and Staffing**

The county Energy Manager is the primary staff role responsible for the program, and operational expenses including salary are divided equally between government, schools, and public utilities. Additionally, key staff in multiple partnered departments assist with compiling data and identifying and implementing projects. The program receives capital improvement project funding to implement energy-saving projects that have a five year or less return on investment. By reducing energy usage and cost, the money saved on utility bills can be reinvested in future projects. Additionally, rebates are earned each year on demand response programs available through the utility company. Energy efficiency projects and emergency curtailment programs that reduce the load on the electrical grid are eligible for cash rebates.

### **Program Results**

Over the years, dozens of energy saving projects have been completed. The target for energy management projects is a five year or better return on investment. Projects implemented in the past year included preliminary energy audits of seven high energy using buildings, using demand response for energy curtailment during high demand periods, and upgrading all exterior lighting at one of our adult detention centers to LED, resulting in significant energy use and cost savings, improved light quality, and reduced maintenance. Each year, thousands of dollars are saved through cost avoidance, and these savings accumulate each year. Over the 15-year history of the program, approximately \$20 million is estimated to have been saved.

The county's LEED projects were modeled to reduce energy use by approximately 30% on average compared to buildings designed to meet, but not exceed, the energy code, saving approximately \$300,000 annually. The landfill gas to energy project is generating enough electricity to power 2,000 homes. Additionally, thousands of dollars are earned each year through demand response rebates for electricity reduction.

The successes of the Energy Management program have been well recognized and rewarded over the years. Awards for the Henrico Energy Management program have been received from the Virginia Municipal League, the National Association of Counties, the Virginia Energy Efficiency Council, the US Green Building Council-Virginia, and the Governor's Environmental Excellence Awards. The energy initiatives have been publicized through videos produced for Henrico County Television (HCTV) such as "From the Garbage to the Grid: A Powerful By-Product of Henrico's Trash" (a piece on the landfill gas to energy generator) and "Energy Wise: The Henrico County Energy Management System". The county's new YouTube channel also has a video on "LEED Buildings in Henrico County", and a video on the Energy Fair is in production.

### **Brief Summary**

The Energy Management program has been working since 2003 to reduce energy usage and costs within county operations, and to foster a culture of efficiency and sustainability in Henrico County. Each year the program grows with new initiatives, including comprehensive energy management software in 2018, and expansion of our energy lending library program and two rooftop solar installations coming in 2019. The result of these efforts is a consistent reduction in energy use intensity each year (energy use per square foot), and millions of dollars in savings over the program's history. LEED green building certifications for 16 new construction and major renovation projects help improve efficiency and reduce the environmental impact of our capital projects. Community outreach efforts through public energy fairs and presentations help bring the message to county residents and businesses. Now in its 16th year, the program continues with its mission to develop Henrico County government and schools as a leading local authority for sustainable energy use and to promote the importance of good energy management for the economic and environmental well-being of the county's residents and employees. The program

is successful due to consistent support from county leadership, proven savings, and positive feedback from county employees and residents.