# SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: Friday, April 3, 2026.** Please include this submission form as the first page of your electronic entry. Contact **Gage Harter** with any questions.

## PROGRAM INFORMATION

**County:** Fairfax County

**Program Title:** Recreation Center Energy

**Program Category:** Agriculture, Environmental, & Energy

## CONTACT INFORMATION

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

**Name:** Bryan Hill

**Title:** County Executive

**Signature:** DocuSigned by: Bryan Hill 5CFC69274C2440E...

**Overview**

In 2021, the Fairfax County Board of Supervisors established the ambitious goal of reducing the county government's energy usage by 25 percent by 2030 as part of a county-wide strategy to improve sustainability, reduce operational costs, and promote a healthier environment. With a history of strong commitment to sustainability and conservation, Fairfax County Park Authority immediately pursued opportunities to upgrade infrastructure across multiple high energy use Recreation (Rec) Centers to support these goals. Over the following five years, FCPA worked diligently to identify infrastructure and equipment at or near the end of its life cycle that could be replaced with more sustainable, low energy consuming equipment. As a result, FCPA established itself as the leading agency within Fairfax County, meeting the strategic goal of energy reduction five years ahead of the target date with minimum reduction of services to the community and valued upgrades to facilities.

**The Challenge**

The Fairfax County Board of Supervisors (BOS) approved the Operational Energy Strategy (OES) in July 2021 to improve sustainability and reduce energy usage at county facilities. Focus areas included bringing down 2018 baseline energy usage by 25 percent, reducing carbon emissions by 50 percent, and producing 25 percent of county energy from renewable sources by 2030.

To achieve these ambitious goals, the Fairfax County Park Authority (FCPA) needed to expand and accelerate its conversions of LED lighting on athletic fields and facilities and

focus on major energy use systems at its nine Rec Centers. These large, multi-use facilities include a natatorium, fitness center, racquetball courts, club rooms, individual sport rooms, childcare area, two gymnasiums, and two ice rinks. These Rec Centers used 92 percent of the natural gas and 68 percent of the electricity consumed by the entire FCPA across all facilities between fiscal years 2018 and 2021. All but one of the facilities were built before the year 2000, and many included original or aging HVAC and water heating equipment, leading to increased maintenance, operational costs, and increasing customer complaints when equipment did not provide the space conditioning required for the various activities in the facilities.

In addressing these challenges, FCPA staff had the opportunity to address numerous concerns by improving the building's HVAC and major energy use equipment. By June 2025, FCPA replaced and upgraded systems at five of its Rec Centers, resulting in the reduction of annual energy consumption by 28.2 percent, and passed the 2030 OES energy reduction goal a full five years ahead of schedule.

**Coordination for a Solution**

FCPA staff evaluated the major energy usage facilities and their nine rec centers, and determined that the scope of equipment replacement required specialization to ensure the right equipment was installed. Working closely with the County's Office of Environmental and Energy Coordination (OEEC), FCPA retained the services of the County Energy Service Company (ESCO), CMTA. CMTA specializes in auditing facilities, providing detailed energy conservation measures with guaranteed savings and cost proposals,

developing detailed project design documents, overseeing construction and commissioning, and providing performance contract guarantees for 20 years of operation. The Park Authority prioritized facilities with the highest Energy Use Intensity (EUI), most maintenance issues, and overall remaining equipment lifespan as well as facilities with the highest customer complaints within the network. FCPA began with Cub Run and South Run Rec Centers in 2021, as both of these facilities featured poor equipment reliability, aging equipment, and customer complaints. Phase I activities included boiler replacements at both sites, heated water system decoupling at Cub Run, pool dehumidification and air handler replacement at South Run, and building automation systems at both facilities.

The scope of these projects enabled FCPA to meet the agency's needs while still providing a large enough scope to have a positive impact on energy usage. The OEEC funded this project phase of $3,578,462 to allow FCPA and other agencies to test the ESCO process before committing to larger projects. After construction, both facilities saw over 30 percent energy usage reduction, including over 60 percent natural gas usage reduction at Cub Run, and the year 1 energy cost reduction was over $200,000. For perspective, replacing Phase I equipment with similar models would have cost $2,862,769 (70 percent of the ESCO costs), with only $40,000 (20 percent of total annual savings) of the savings achieved from the heated water decoupling and heat recovery chiller installed through the ESCO. These improvements accounted for the majority of the 19.2 percent energy usage reduction the FCPA saw by the end of Fiscal Year (FY) 2023.

For Phase 2 of the Rec Center HVAC renovations, the FCPA selected Spring Hill Rec Center, where the building energy use equipment was all at its end of life or failing. This presented a unique opportunity to the project team to think outside the box and utilize more all-encompassing technologies and systems. The previously installed central plant design budget was nearly a $5,000,000 dollar replacement in kind, but retained all the maintenance and operational issues experienced by the previous equipment with minimal energy savings. Given the broad scope of equipment being replaced, the potential for a higher efficiency system with geothermal and rooftop solar arose, but also increased the project cost to $8,500,000. The significant cost increase between the project options necessitated coordination with FCPA Leadership and the OEEC for additional funding. Timing was critical as the County had received American Recovery Act (ARPA) funding for major capital investment and improvement at the sites. This one-time ARPA funding, along with the newly available 30 percent tax rebate from the IRS for geothermal and solar installations, enabled the project to become financially viable. The timing and alignment of each piece of the project and coordination between project leadership, site maintenance, building operations, central County government offices, and the project contractor all provided the unique opportunity for these dynamic systems to be implemented all at one time. The Spring Hill Rec Center conversion to geothermal HVAC took 11 months of construction, yet resulted in only a few hours of facility downtime despite the large scope and complex integration. The project team utilized planned childcare outages, coordinated with site staff to move classes in the building, and performed critical electrical tie-ins

during nightshifts to reduce patron impact. Despite the heavy facility use, the public had nothing but positive feedback for the project team during and after construction. Results of the Phase II project have been extraordinary, with the first year operational and energy savings (calendar year 2025) reducing building energy consumption by 44 percent for total savings of $204,011, far exceeding the ESCO guaranteed reduction of 24 percent and saving of $85,228. Fiscally, the extra $3.5 million invested in the project upgrades resulted in nearly $1.5 million tax rebate for the solar and geothermal systems, reducing the energy upgrade portion of the project costs to $2 million, resulting in a 10-year return on investment for the energy upgrades. By the end of FY 2024, when Phase II systems came online, FCPA energy consumption was reduced by 20.8 percent from the baseline 2018 usage.

Phase III of the Rec Center HVAC renovations features renovations at two of the FCPA's largest facilities, Oakmont and Franconia Rec Centers. In addition to boiler, air handler, and building automation upgrades, there was a unique challenge faced. Both facilities housed Olympic-sized pools with numerous air quality complaints and outdated systems throughout the rest of the building. The project team used lessons learned from the first two phases for pool systems, going a step further by adding low-bench exhaust systems to each of the pool spaces, allowing for direct air discharge from the pool surface. The team designed the pool units to have a dedicated heat recovery exchanger on this warm exhaust air to pre-heat pool water, in addition to the air-to-air heat recovery for

normal exhaust air. These exchangers allow the units to increase efficiency while allowing more fresh outside air into the pool space.

**Results**

The overall FCPA Rec Center HVAC renovation effort has resulted in a 28.2 percent reduction in energy usage and a 52 percent reduction in greenhouse gas emissions from the 2018 baseline. This drastic energy usage reduction has resulted in $360,000 guaranteed annual energy savings, with actual 2025 savings of $570,000 from Phase I through III projects. Overall, the improvements could have cost the FCPA $15,807,000 for replacement in-kind systems for negligible energy improvements or energy savings. Through coordination with the OEEC and financial strategy, the additional 30 percent investment of $6,643,000 allowed for the overall energy savings, resulting in an 18.4-year return on investment, within the 20-year ESCO performance guarantee. This overall effort helped FCPA meet the County's Operational Energy Strategy goal of 25 percent energy usage reduction by 2030, a full 5 years ahead of schedule.

The new pool units provide well-conditioned air for the pool users, and the geothermal HVAC systems have performed well at maintaining comfortable conditions throughout the facility while increasing control for each user space. The project shows how FCPA and other public services can both prioritize improving the patron experience while also reducing our energy consumption and carbon emissions at major facilities.

**Outcomes**

FCPA was the first Fairfax County agency to meet the County's 2030 goal of 25 percent energy usage reduction and has collaborated frequently with other County agencies on strategies to improve their efforts and progress. The projects show FCPA project teams are trailblazers in coordinating with diverse teams to address patron and building operator concerns while delivering energy, environmental, and maintenance savings with improved user experience. The project team presented at the 2025 and 2026 US Department of Energy Better Buildings Summits and at the Virginia Department of Energy's Energy Performance Savings Contract Summit to share lessons learned with other state and national jurisdictions.