

Subject: Lighting and Retro-commissioning

Related Department(s): DES

FY 2027 Proposed Capital Budget

CIP Work Session

The following information is provided in response to a request made by Mr. de Ferranti; Ms. Cunningham at the work session on June 23, 2026, regarding the following question:

What is the Return on Investment (ROI) and payback period for lighting and retro-commissioning projects, given recent jumps in utility costs? What level of capital investment would be needed to accelerate implementation? Are there partnerships or financing opportunities that could help advance these projects? What other high-impact climate investments should the County consider? Please provide cost and savings scenarios for completing all projects within two years versus four years.

What is the ROI and payback period for lighting and retro-commissioning projects, given recent jumps in utility costs?

Lighting retrofits and retro-commissioning are anticipated to achieve 5-10% energy savings over the life of the project. Lighting projects have historically had an average 5-year payback period, depending on the fixture type and labor costs. With electricity bill increases, the payback period will be reduced closer to 4 years. The retro-commissioning project is planned to begin in FY 2028 and will have varying payback periods, cost/Green House Gases (GHG), and total GHG reduction based on the results and measures applied.

The proposed CIP funds implementation of 1-2 lighting retrofit projects and 1-2 retro-commissioning projects each year.

The CIP presentation highlighted that lighting retrofits and retro-commissioning have the highest ROI in terms of cost/GHG reductions—with the latter expected to have a higher overall GHG reduction than the former.

Energy Performance Upgrades in County Facilities

Total budget: \$6.8M

These projects across the range of energy performance measures and relative savings, with some offering a faster payback period with fewer GHG savings and others that yield a greater amount of GHG savings after a longer payback period.

				
	Equipment Bureau	New this year	Madison Community Center	3700 S. Four Mile Run
	Lighting Retrofits	Retro-commissioning	Whole Building Energy Performance	HVAC Electrification
Payback Period			  	   
Cost per GHG	\$\$	\$\$	\$\$\$	\$\$\$\$
GHG Reduction		 	   	  

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What level of capital investment would be needed to accelerate implementation?

- As detailed in the “Sustainability and Resiliency” FY 2027 Proposed Capital CIP Work Session response, additional funding of \$500,000 could be used in FY 2027 to move several priority projects earlier in the CIP cycle. This in turn would allow additional work in the capital program to start sooner. These shifts include:
 - Accelerating lighting retrofits to complete the final phase at the Justice Center (\$200,000) and Fairlington Community Center (\$100,000) for project installation in FY 2027 rather than FY 2028.
 - Initiating the retro-commission project (\$200,000) starting in FY 2027 rather than FY 2028.

Project	Budget	Action	Outcomes
Lighting Retrofit- Justice Center	\$200,000	Complete final phase of Justice Center lighting project upgrade to replace current fluorescents with LEDs	Completion of lighting upgrades to the largest single facility across the County portfolio. Estimated GHG reduction of 106 Metric Tons of Carbon Dioxide Equivalent (MTCO _{2e})
Lighting Retrofit- Fairlington Community Center	\$100,000	Upgrade current lighting fixtures from fluorescents to energy efficient LEDs	- Installation of updated LED lighting and control system - Reduction of energy consumption and improvement to interior lighting - Estimated GHG reduction of 43 MTCO_{2e}

Retro-commissioning project	\$200,000	Develop energy audits to identify, scope, and prioritize actions, then implement interventions at 2-3 sites with high energy use intensities	• Increased operational efficiency • Reduced utility bills and associated GHG • Decreased maintenance for commissioned equipment
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Additional funding could shift these two projects one year earlier in the CIP cycle, which would mean that 1-2 additional lighting retrofit projects could be completed during the cycle. If the shift is funded, staff will identify the specific facilities after the Justice Center and Fairlington Community Center to be targeted for lighting retrofit work in batches over the course of the CIP cycle.

Are there partnerships or financing opportunities that could help advance these projects?

DES is evaluating Energy Savings Performance Contract (ESPC) opportunities to finance and implement projects that provide upgrades to facility infrastructure with “guaranteed” savings meant to pay-off the capital costs. Lighting retrofits and other highly cost-effective energy measures can be bundled in ESPC projects with measures that may have longer payback periods to achieve greater energy savings.

What other high-impact climate investments should the County consider?

Staff provided a recommendation in the “Sustainability and Resiliency” FY 2027 Proposed Capital CIP Work Session response on what additional sustainability and resiliency projects should be prioritized if additional funding were made available. The recommendations included in that response are the highest priority and impact work to pursue in the first years of the proposed CIP. To summarize the recommendations included:

As detailed further above:

- Accelerating lighting retrofits to complete the final phase at the Justice Center (\$200,000) and Fairlington Community Center (\$100,000) for project installation in FY 2027 rather than FY 2028.
- Initiating the retro-commission project (\$200,000) starting in FY 2027 rather than FY 2028.

As well as:

- Supporting additional roof upgrades earlier in the 10-year cycle that may be needed to satisfy Power Purchase Agreements (PPA) eligibility requirements (\$500,000).
- If an accelerated PPA timing is pursued additional staff capacity would also be required to manage the combination of on-site upgrades and analytical and administrative efforts associated with executing PPAs with Dominion at an estimated cost of \$164,655.

Together, these added investments in project capital could increase the pace of County facility renewable energy generation, energy use reduction, and GHG reduction delivered over the 10-year CIP cycle.

In addition, the Evaluation, Measurement, and Verification (EM&V) work funded with the FY27 PAYG budget will be a critical tool to inform future investments because it will tell us how our energy investments to date are performing in terms of energy use, operating costs, and emissions.

Please provide cost and savings scenarios for completing all projects within two years versus four years.

The CIP Energy Performance program is designed for 1-2 lighting retrofits, 1-2 retro-commissioning projects, and analysis and energy audits in each fiscal year for approximately \$600,000 in investment. If the implementation schedule was accelerated to complete four years of planned projects in two years, then \$1.2M in additional capital would yield 2-4 additional lighting retrofits at about 150 Metric Tons of Carbon Dioxide Equivalent (MTCO_{2e}) of savings and 2-4 retro-commissioning projects at about 200 MTCO_{2e}, and additional energy audits and analysis in the 2-year period. Note that this acceleration would require additional staff capacity.

Summary

Staff developed the proposed CIP to advance the policy and practice of the County leading by example, in ways that balance fiscal and environmental stewardship goals. The proposed CIP also accounts for staff capacity overall to deliver a suite of programs—through the operating budget and CAF—designed to guide, encourage, and advance actions by Arlington's business and residential communities to reduce their collective carbon footprint over time.