

We would like to provide an update on the possibility of utilizing an energy performance contract to upgrade lighting in our school facilities.

Project Background

Following a positive response to a light-emitting diode (LED) upgrade pilot in several schools, the School Division began investigating using an energy performance contract to upgrade lighting to improve the learning environment and save energy. A recent study, [LED Lighting Sets the New Standard in Schools](#), reports that the correlated color temperature, color rendering, and luminous efficacy of LED lights combine to improve visibility to create a better learning environment. An image from the report comparing fluorescent lighting to LED lighting is included as Figure 1. Vision is a contributing factor to an individual's ability to attend and respond to classroom instruction. The US Army conducted a [study](#) with Tufts University showing that LED lighting resulted in increased productivity over fluorescent lighting. These findings are aligned with the positive [teacher and student feedback](#) from the ACPS LED pilot, which highlighted the following LED lighting benefits: dimmability, adaptability of lighting for different room functions, calming effect for students, no flickering or buzzing, and truer light (better color rendering).

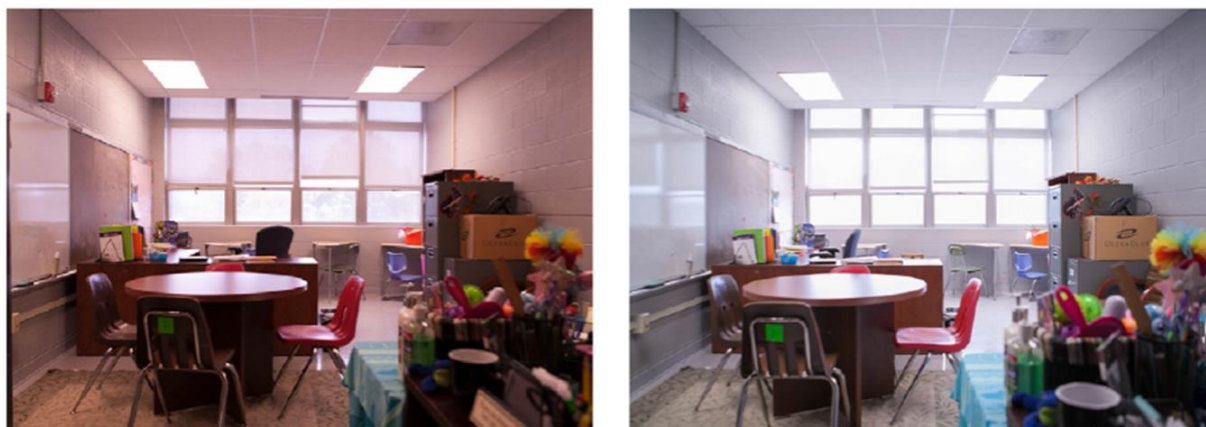


Figure 1: Fluorescent (left) vs. LED (right) [Source: [LED Lighting Sets the New Standard in Schools](#)]

Project Details and Impact

As a first step to determining the feasibility of using an energy performance contract for LED lighting upgrades, the School Board voted on January 28, 2016 to support the request for a Back-of-the-Envelope Audit for a division-wide LED lighting project. Subsequently, staff worked with members of the Local Government and School Efficiency Committee to procure audits for our facilities through an Energy Service Company (ESCO). An energy performance contract allows an ESCO to design and implement facility improvements while also guaranteeing the utility savings resulting from the projects. The loan amount is repaid from savings in the existing utility budget.

After procuring Back-of-the-Envelope audits, proposed projects with initial savings projections were received from four ESCOs. Ameresco was selected and subsequently completed investment grade audits at all schools, COB – McIntire, and COB - 5th Street at no cost. Ameresco has vast project experience across the country with similar projects, and project examples in Virginia are linked [here](#). The School Division project scope includes LED lighting and plumbing fixture upgrades at the majority of school locations. LED lighting upgrades are included for classrooms, gymnasiums, cafeterias, and the building

exteriors. Plumbing fixture upgrades include high-efficiency sink fixtures, toilets and urinals at schools served by municipal water sources. While the driving goal for this project is improving the quality of lighting in instructional spaces (i.e., LED dimmable fixtures), the additional lighting and plumbing projects support the driving goal by reducing the overall payback period for the project. The current project scope for schools is approximately \$7,500,000 with a projected financing term of 12 years.

The proposed project will reduce electricity consumption by over 6,000,000 kWh and 3,700 tons of carbon dioxide emissions each year. The plumbing fixture upgrades will reduce water consumption by over 7.7 million gallons per year. The anticipated annual savings to the environment equivalent to:

- Planting 769 acres of trees per year
- 620 cars per year being removed from the road
- Powering 469 houses per year

Project Financing

We are currently exploring the following two financing mechanisms available for these potential projects:

- 1) Virginia Resources Authority (VRA) – In 2008, the General Assembly made energy conservation and energy efficiency projects eligible for VRA financing. Local Government must secure the VRA funding, and the borrowed amount would count towards the County’s debt capacity.
- 2) Virginia Small Business Financing Authority (VSBFA) - VSBFA offers loans directly to businesses & non-profits, as well as bond financings to benefit for-profit businesses, 501(c)(3) not-for-profit entities, and to support clean energy and transportation projects. The School Board can secure this financing independent of Local Government, and the borrowed amount does not count towards the County’s debt capacity.

Both funding mechanisms can take advantage of an interest rate subsidy for energy conservation projects, VirginiaSAVES. The program’s direct pay credit subsidy offsets the taxable interest rate to potentially lower the financing term for the proposed projects. Local Government is also considering an energy performance contract for lighting and water projects. Local Government intends to issue an RFP to determine the interest rate for 12-year debt for both possible financing mechanisms.

Project Timeline

The following past and future milestones summarize the path of this proposed project from development to possible execution.

- 2015: ACPS LED Lighting Pilot in 12 classrooms and feedback from teachers and students
- [January 14, 2016](#): School Board learned about the LED lighting pilot benefits and the possibility of using an energy performance contract
- [January 28, 2016](#): School Board voted to support the request for a Back-of-the-Envelope Audit for a division-wide LED lighting project
- April 2016: School Division staff and Local Government staff met as part of the Efficiency Committee to discuss the Back-of-the-Envelope audit request
- August 2016: Back-of-the-Envelope Audit request sent to ESCOs
- September 30, 2016: Back-of-the-Envelope Audits received from ESCOs
- April – May 2017: MOU finalized with Ameresco and Investment Grade Audits underway for school facilities, COB – McIntire and COB – 5th Street

- May – June 2017: Pro Forma for proposed projects finalized and meetings with Local Government on financing mechanisms
- **July 13, 2017:** Staff will be available at the Board meeting to answer questions about the proposed project
- **August 10, 2017:** Staff will discuss the results of the financing RFP expected to be issued by Local Government
- **August 24 OR September 14, 2017:** Board will decide if the Division should enter into contract with the ESCO (September 30th deadline for this procurement)

We appreciate your consideration of this project that could greatly improve the quality of our school environments.