

POWERING SCHOOLS WITH LOW-COST SOLAR

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EXECUTIVE SUMMARY

Solar schools save money, create healthier environments for our children, and reduce climate-warming emissions. While new and renovated schools can be made net-zero by combining solar with an energy-efficient design, many schools are still being built to yesterday's design standards, causing districts to lose out on savings that could otherwise be used for learning materials, teaching equipment, and afterschool programs.

Now is the time for Virginia to bring solar and net-zero energy schools to every community. There are already four 100% renewable energy powered K-12 schools in Virginia, and building this way does not need to cost any more than a traditional building.¹ School districts should pursue net-zero in all new construction projects.

CHALLENGE

High energy bills absorb funding that is sorely needed elsewhere in schools' budgets. Energy consumption is the second highest cost for schools nationwide, which siphons funds away from where they belong: funding educational staff and resources for our students.² Sadly, Virginia is in the bottom ten states for per-pupil funding despite being a top ten state for household income.³ Savings from energy bill reductions could be used to address a number of high-priority in-school educational needs. Findings from the Virginia Department of Education show that most school buildings are over 50 years old, with 15.16% of these buildings having major renovation projects since 2015.⁴

State legislation has expanded the ability for local governments and school districts to install onsite solar arrays using power purchase agreements (PPAs), energy service contracts, and grants. Today, almost any school with a properly designed roof can add a solar array with no upfront capital expenditure and immediately begin to achieve energy savings that continue for decades.

At least 20 school districts in Virginia have installed solar using PPAs. Solar has been most successful even in school districts with limited funding; the Isle of Wight boasts the greatest amount of solar followed by the City of Richmond. In 2020, Virginia ranked as the eighth state with the highest installed solar capacity in the country, at 20,214 kW.⁵ For new schools and those undergoing major renovations, school districts can combine solar with all-electric, energy-efficient design and construction to build net-zero schools that produce as much energy as they consume. These schools produce energy savings along with climate, health, and educational benefits. Through IJA (Infrastructure Investment and Jobs Act) funds, \$500 million worth of grants are available as part of the U.S. Department of Energy's Building Technologies Office to improve energy efficiency and install renewable energy at public school facilities.⁶

Yet solar roofs, on-site solar, and net-zero schools remain the exception, not the rule, especially for schools serving low-income children and children of color. Because Virginia's schools have largely been underfunded and are in need of repair, hundreds of millions of dollars will be spent over the next few years on school facilities, creating a unique opportunity to implement net zero design.

SOLUTION

Virginia's schools can have more money for critical resources like teachers' salaries, books, after-school programs, and playgrounds by cutting energy bills through on-site solar, all while reducing the state's greenhouse gas emissions portfolio year-over-year. Savings vary based on

factors including size of system and percentage of energy needs met by the panels, but for example, the solar systems that Highland Springs High School installed cover 35% of their electricity needs and will save \$420,000 over the next 25 years. In other states, savings from solar have allowed school districts to meaningfully boost teachers' salaries.⁷

The state should make solar-ready roofs and net-zero design the default standard for new schools and those undergoing major renovations. Failing to design to net-zero means schools cost more to operate over the life of the building and students miss out on health and educational benefits that come with highly efficient, all-electric schools powered by on-site solar panels.

Designing to net-zero is cost-effective. A study conducted for Fairfax County Schools concluded that solar schools pay for themselves in just ten years through savings on energy bills. Existing schools renovated to be net-zero recouped costs within 15 years,⁸ after which additional savings can be directed towards other essential programs. These savings are even greater today as Virginia and the nation face ballooning energy costs. As more than half of Virginia's schools are over 50 years old, renovations are needed, and savings should be maximized through net-zero standards.⁹

New roofs on existing schools that are not undergoing major renovation should be made solar-ready so school districts do not leave money on the table. Solar-ready roofs are straight-forward; the roof must be strong enough to hold the added weight of solar panels, use solar-appropriate roofing materials, and leave ample space for solar panels amongst other roof equipment.

Current Virginia law already requires new and substantially renovated local and state buildings over 5,000 square feet to meet stringent energy efficiency requirements. These sections should be amended to include a net-zero energy standard for schools.

POLICY RECOMMENDATIONS

Require new school buildings and substantially renovated school buildings to have on-site solar arrays and be designed and built to net zero standards with solar-ready roofs, enabling the addition of solar at no upfront cost through PPA financing or using other financing methods.

Create a 'gap fund' for school divisions to access. If the school division, within the design or redesign phase of a school building, determines there are insufficient funds to achieve net zero, the school division may access the gap fund. The gap fund can consist of state and federal dollars.

Create, within the Department of Education, a School Superintendent Ombudsman on Clean Energy Transition. The position shall be responsible for liaising between school division leaders (superintendents and facilities staff), school board members, and private contractors to save taxpayer money and make buildings healthier. Ombudsmans' duties should include connecting school divisions in the design or redesign phase with private solar installers for an on-site solar consultation.