

The Financial and Moral Case For 100% of New Schools to Be Net-Zero or Net-Zero Ready

Net-zero (NZE) and NZE ready schools offer tremendous advantages to school districts and students. They are cheaper to operate and often are less expensive to build, and features like daylighting, and improved ventilation and air quality are shown to improve student learning and health. Maryland already encourages school districts to set targets to increase renewable energy, decrease greenhouse gas emissions and to construct net-zero schools, Maryland has thus far only taken tentative steps to make its schools net-zero.

We Have an Unprecedented Opportunity Now to Invest in Net-Zero Schools. Pursuant to the Built to Learn Act, Maryland is investing significantly in new school construction. In 2021, the Interagency Commission on School Construction, approved \$545 million of State funds for the construction of 23 new schools in Maryland. In the next few years, Maryland will continue with this level of investment. We should seize the opportunity to make these new schools net-zero.

We owe it to our children and grandchildren to transition our schools to net-zero. The United Nations' Intergovernmental Panel on Climate Change warns that we are still on the trajectory of catastrophic global warming of 2.7 celsius by century's end. Even if we stopped emitting greenhouse gases today, the gases we have already emitted will linger in the atmosphere for decades and continue to cause global warming. If we are to limit global warming to 1.5 celsius -- the goal set in the Paris Climate Accord -- we need a 50% reduction in greenhouse gas emissions by 2030. ***The 2020s are the only decade we have left to make that target.***¹ And, to be clear, meeting the target of 1.5 celsius of warming is only the best *bad* decision we have--it still promises sea level rise, more powerful storms, devastating wildfires, and sharp species decline. If we don't sufficiently reduce emissions this decade, we will set off a domino effect of escalating disasters.

Moreover, schools are beacon projects. They educate both our children and our communities about both the benefits and the imperatives for changing to clean, renewable energy, reducing our energy use, and for fighting against the extinction of our species.

The MCCC Predicts a Dramatic Increase in the Cost of Gas Delivery as Maryland Transitions to Decarbonize Buildings. The MCCC has projected that gas delivery rates are likely to increase by 2 to 5 times the current rate for consumers left on the gas system, making it all the more important from a cost perspective alone that all Maryland schools should transition from fossil fuels. See MCCC [Building Energy Transition Plan](#).

The Three Newly Constructed Net Zero Schools Demonstrate That They are Cheaper Than or the Same Cost as Traditional Schools To Build and Cheaper to Operate. Those three schools are by far the superior option using only cost considerations. Their initial construction costs are lower than or the same as traditional construction, and their operational costs are far less. Included below are the construction costs for the three schools and the energy use of Wilde Lake Middle School. Due to covid, one-year performance data on Holabird Academy and Graceland is not yet available. Using Montgomery County Public Schools as a baseline (which likely on average has better energy performing schools than much of Maryland), Maryland schools have an average energy use intensity of 54 kBTU per square foot per year. Wilde Lake has an energy use intensity of 13.7 kBTU per square foot per year and produces twice as much energy as it consumes.

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<https://insideclimateneeds.org/news/27082019/12-years-climate-change-explained-ipcc-science-solutions/>

IAC average school construction cost 2021 (\$405 per sq ft with site preparation)²

July 2021 Building Construction: without site preparation: \$341 per sq ft; with site preparation, \$405 per sq ft

July 2018 Building Construction: w/o site preparation, \$302 per sq ft; w/ site preparation, \$360 per sq ft

July 2016 Building Construction: w/o site preparation, \$282 per sq ft; w/ site preparation, \$335.58 per sq ft

Wilde Lake Middle School (\$329 per sq ft, with site preparation & solar panels)

- New Net-Zero LEED Platinum
- Completion date: August 2017
- Total construction cost including site preparation and solar panels: \$35,000,000
- Cost including site preparation and solar panels: \$329 per sq ft
- Energy produced during performance period: 821,618 kWh (approximately 2X use)
- Energy use during performance period: 428,301 kWh
- Net Energy Use: -393,317 kWh
- Energy Use Intensity (EUI): 13.7 kBtu/sq ft/yr

Graceland Park / O'Donnell Heights Elementary/Middle (\$358.16 per sq ft, with site preparation & solar panels)

- Design Started: 2015/2016
- Construction Purchase Order / NTP Issued: June 4, 2018
- Substantial Completion Phase 1 (Replacement Building): August 26, 2020
- Construction cost, including site and solar panels: \$33,752,000.00
- Cost including site and solar panels: \$358.16 per sq ft

Holabird Academy (\$364.30 per sq ft with site preparation & solar panels)

- Design Started: 2015/2016
- Substantial Completion Phase 1 (Replacement Building): August 26, 2020
- Construction cost, including site and solar panels: \$34,330,500.00
- Cost per sq ft, including site and solar panels: \$364.30

Montgomery County Public School energy use: 2017 average energy use intensity: 54 kBtu per sq ft per year

²https://iac.mdschoolconstruction.org/?page_id=4633