Place of Worship

CLEAN BUILDINGS SPOTLIGHT

Church Pursues Electrification Upgrades

Project Goal:

Achieve a healthier and safer building by transitioning away from on-site fossil fuels, improving ventilation, and modernizing system controls.

"A key takeaway is the importance of evaluating system replacements within the context of long-term regulatory requirements and overall building performance, rather than a like-for-like approach."

- John Cain, Chesapeake Palmetto Partners Owner's Representative for St. John Neumann Catholic Church

Background

St. John Neumann Catholic Church has occupied their 22,708-square-foot worship space in Gaithersburg, Maryland since 1984.

Much of the building's energy systems are unreliable, inefficient, and nearing the end of their service-lives. The church's aging HVAC system consists of air handling units, direct expansion condensing units, a gas-fired hot water boiler, and a split-system air handling unit.

In 2025, St. John Neumann seized the opportunity to decarbonize, reduce energy consumption, and cut maintenance costs by transitioning to efficient and electric HVAC systems. This decision kicked off a capital campaign that united Parish leadership, the Archdiocese of Washington, facility administrators, and the church congregation behind the project.

Clearly communicating the purpose of the project—long-term benefits & cost savings, and environmental impact—was critical in building support across leadership groups and among the Parish community.

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Project's Leveraged Funding

Montgomery County Green Bank:
- Technical Assistance Program

Maryland Energy Administration:
- Electrifying Community Buildings Grant Program

EmPOWER Maryland Incentives:
- Pepco Energy Savings for Business Program

GHG Savings Equivalent To:

5

Home's Energy Usage for 1 Year

612

Seedlings Grown for 10 Years

Project Components

HVAC Upgrades: The air handling units and gas-fired boiler will be replaced with highly-efficient electric heat pumps. These high-performance units significantly reduce energy consumption and operational costs. The new HVAC system eliminates on-site fossil fuel emissions and the use of R22 refrigerant, a now banned fuel source.

Ventilation & Controls: The church is also opting to install MERV 13 filtration and energy recovery ventilation systems to improve energy efficiency, occupant comfort, and indoor air quality. To optimize the full suite of upgrades, St. John Neumann is implementing a web-based building automation system, which will result in environmental control, demand-based ventilation, and energy optimization.

Anticipated Results

These comprehensive HVAC upgrades are expected to fully electrify St. John Neumann Catholic Church's heating and cooling systems, eliminate on-site fossil fuel combustion, and significantly improve energy efficiency. Once grants and incentives are applied, the project will be implemented at a cost nearly comparable to a like-for-like replacement of the Church's original systems. The project is anticipated to reduce an estimated 37 metric tons of CO_2 equivalent annually and lower operating costs by 32%.

Contact the Hub to spotlight your building:

cleanbuildingshub@maryland.gov

Maryland Energy Administration

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