

DECARBONIZING BUILDINGS

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WHY IT MATTERS

The average building constructed today will last beyond 2075.¹ New buildings built today will either help us meet our climate, environment, and public health goals or will burden Virginians with decades of toxic pollution, higher energy bills, and expensive retrofit costs.

Our homes, schools, and businesses all contribute to the climate crisis. 12% of Virginia's climate pollution comes from on-site fossil fuel combustion in buildings, such as methane gas and propane.² These pollutants also threaten public health and safety. Methane combustion causes over 50,000 annual U.S. childhood asthma cases.³ Additionally, methane is highly flammable, causing house fires every 40 hours.⁴ Methane explosions occur nearly annually in Virginia, including recently in Bristol.⁵

Another 13% of Virginia's greenhouse gas emissions come from electricity consumption in buildings.⁶ Although Virginia is making strides to decarbonize its electricity supply, significant electricity still comes from fossil fuels. Many buildings are also energy-inefficient, consuming excessive electricity to heat, cool, and run appliances.

The General Assembly committed Virginia to achieve a net-zero carbon economy by 2045 through the Virginia Clean Economy Act (VCEA), but that goal is unattainable if we keep constructing energy-inefficient, polluting buildings.⁷ We can reduce buildings' direct and indirect emissions through building decarbonization— constructing energy-efficient buildings that incorporate renewable energy sources, and replacing costly fossil-fuel-powered appliances with less expensive electric ones. This approach will produce significant energy cost savings and public health gains for minority, rural, and low-income households, whose communities disproportionately contain older, less-maintained structures.^{8, 9, 10}

It is cheaper to build smart now than to pursue expensive retrofits later.¹¹ Virginia needs an additional affordable 200,000 rental units, and more than half of our school buildings are over 50 years old.^{12, 13} If we build highly efficient, electrified structures today, we'll reap cost savings, job creation, and public health benefits. If we wait, localities, households, and businesses will pay higher costs for renovations later.

CURRENT LANDSCAPE

Most states rely on building energy codes, which set minimum efficiency and appliance standards for new buildings, to ensure public health and energy

cost savings. Unfortunately, parts of Virginia's code are 15-18 years behind the nationally recognized International Energy Conservation Code (IECC), placing Virginia at an unnecessary, costly disadvantage compared to states with the latest standards.

The Board of Housing and Community Development (BHCD) revises Virginia's codes triennially. Unfortunately, because several Inflation Reduction Act (IRA) funds require the adoption of the latest IECC, BHCD's unwillingness to implement basic energy efficiency measures costs Virginia millions in funding. Adopting the latest IECC standards would save Virginians \$4 billion in energy costs by 2050, largely benefiting poor, rural, and minority households with higher utility bills.^{14, 15, 16}

Despite 2021 legislation calling to adopt or exceed IECC standards, BHCD has not made necessary changes.¹⁷ BHCD representation is unbalanced: 70% of members serve the building industry, excluding critical environmental, health, and consumer representation.¹⁸ BHCD's restrictive "consensus" policies allow a single member to block fixes of past amendments significantly weakening the code while recently approving further weakening amendments without consensus.

Ultimately, the IECC sets the bare minimum level of energy efficiency necessitated by science and public health, and over 10 states allow localities to employ "stretch codes" with stronger standards than the IECC—often based on a uniform model. Virginia's "Dillon Rule" currently prevents this progress.

Additionally, energy consumption is the second-largest operational expense for cash-strapped schools, with 30% wasted in aging, inefficient buildings. Stretch codes and additional funding for public building upgrades would yield significant local school district savings and bolster statewide efficiency efforts.

Workforce development investments can unleash the job-creating potential of efficient buildings. Energy efficiency comprises the largest share of energy jobs (though women and people of color remain underrepresented in higher-skilled construction trades).^{19, 20, 21}

OPPORTUNITIES

If Virginia does not construct energy-efficient, electrified buildings from the start, Virginia's climate goals will become harder and more expensive to reach.

To ensure building codes prioritize the Commonwealth's net-zero policies, BHCD should adopt or exceed the latest IECC standards with stronger res-

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ident protections; furthermore, the composition of the BHCD appointments should include expertise in electrification, efficiency, public health, and environmental justice. It is also important that the Commonwealth's energy policy include building energy codes as a tool to reach net-zero goals.

Local authority should remain intact to set ordinances for electric-only new construction; local stretch code adoption should be authorized; and BHCD should be required to develop a more efficient "model stretch code" for localities to go beyond the latest IECC baseline.

Stakeholders should work to develop complementary concepts that will maximize justice and good job creation in the following areas:

- Schools: Identify opportunities for localities to raise additional tax revenue to prioritize energy efficiency and electrification upgrades
- Affordable Housing: The Virginia Housing Authority's application process for Federal Low-Income Housing Tax Credits should give additional points to energy-efficient and electrified housing. Explore similar criteria for grant and loan applications through the Virginia Housing Trust Fund within the Department of Housing and Community Development (DHCD.) This will ensure public funds do not further burden low-income populations with unnecessarily high energy bills and indoor air pollution.

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- Labor/Workforce: Invest in energy efficiency and electrification workforce development programs. Promote project-labor agreements and hire 40% of workers from disadvantaged groups, particularly for public projects.

TOP TAKEAWAYS

Our homes, schools, and businesses all contribute to the climate crisis through fossil fuel combustion on-site and electricity demand.

Studies demonstrate that it is more cost-effective to build energy-efficient, electrified buildings now than to pursue expensive retrofits after the fact.

Virginia's building codes are nearly 20 years behind the nationally recognized IECC standards—costing Virginia \$4 billion in potential energy savings and eligibility for millions in direct IRA funding.

ENDNOTES

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