

June 23, 2020

To: Katie Dykes, Commissioner, Department of Energy & Environmental Protection  
Josh Geballe, Commissioner, Department of Administrative Services  
Michele Melley, Bureau of Energy and Technology Policy, Department of Energy & Environmental Protection  
Joseph Cassidy, State Building Inspector, Department of Administrative Services

Re: Connecticut's High Performance Building Standard

With only ten short years to drastically reduce greenhouse gas emissions in Connecticut to avoid the worst impacts of climate change, the Connecticut Department of Energy & Environmental Protection (DEEP) must take every opportunity to strengthen policies and practices that will reduce or eliminate the use of fossil fuels.

One such opportunity is now before DEEP. [Connecticut's High Performance Building Standard](#), the minimum building standard for new buildings and major retrofits that receive certain state funding for construction, must be updated based on a national sustainable construction code.

We urge DEEP to update Connecticut's High Performance Building Standard to mandate a net-zero, all-electric standard and a zero carbon profile (energy and embodied carbon). This standard should include alternate compliance paths for third party certified green building standards.

Connecticut's Global Warming Solutions Act requires a 45% reduction in greenhouse gases from 2001 level by 2030 and 80% by 2050. New buildings and major retrofits will last well into both the 2030 and 2050 targets.

As Connecticut updates the High Performance Building Standard, it should be noted that Federal law requires new Federal buildings and major renovations of existing buildings to reduce fossil fuel-generated energy consumption by 55% in fiscal year (FY) 2010, 65% in FY 2015, 80% in FY 2020, 90% in FY 2025, and 100% in FY 2030, compared to a FY 2003 baseline.<sup>1</sup>

Net-zero all-electric, zero carbon profile buildings are not only better for the planet, they have financial, health and educational benefits. A common misconception is that these buildings will cost more to build. Because of advances in technology - solar, LEDs, battery

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[https://www.google.com/url?q=https://www4.eere.energy.gov/femp/requirements/laws\\_and\\_requirements/fossil\\_fuel\\_reduction&sa=D&ust=1588702069044000&usg=AFQjCNHVuj6Vap-nMyWmrTXf0Q7yJo-Y6g](https://www.google.com/url?q=https://www4.eere.energy.gov/femp/requirements/laws_and_requirements/fossil_fuel_reduction&sa=D&ust=1588702069044000&usg=AFQjCNHVuj6Vap-nMyWmrTXf0Q7yJo-Y6g)

storage, heat pumps, and other equipment and design techniques, the initial cost of a net-zero building need not be higher than that of a conventional energy building.<sup>2</sup> Net-zero all-electric buildings also have lower lifetime costs, using significantly less energy than conventionally constructed buildings and by supplying their own renewable energy.

In addition to reducing greenhouse gas emissions, net-zero all-electric, zero carbon profile buildings are also better for human health. The use of gas in buildings produces a range of air pollutants with both acute and chronic health effects. The air particulates associated with combustion are particularly harmful as they are small enough to be absorbed through the lungs into the bloodstream where they cause respiratory and cardiovascular disease. [UCLA researchers found](#) that after an hour of cooking on a gas stove, 98 percent of smaller apartments had peak levels of NO<sub>2</sub> that exceeded state and national air-quality standards. In other words, the air quality inside nearly every apartment was so bad that it would be illegal if measured outside. While the study was limited to homes and apartments, gas combustion in all types of buildings has health and air quality implications.

Here in Connecticut, the move towards net-zero buildings has already begun. For example, Mansfield recently passed a referendum to build the first net-zero public school in Connecticut. Other school districts are interested. Meanwhile, the Blake Group in East Windsor is the first net-zero commercial building in Connecticut, and Eversource has held conferences in 2018 and 2019 on net-zero design for commercial buildings, including schools.

Embodied carbon associated with the materials and construction of buildings and infrastructure accounts for 11% of global greenhouse gas (GHG) emissions. Concrete alone contributes 8% of annual global GHG emissions. There are concrete technologies available now that can reduce or eliminate the GHG emissions associated with concrete production, and the use of fly ash or recycled glass powder as a supplementary cementitious material in the production of Portland cement.

Embodied carbon is projected to be responsible for almost half of total new construction GHG emissions between now and 2050, and 74% of new construction emissions between now and 2030. Addressing embodied carbon by 1) repurposing existing buildings where appropriate rather than building new and 2) by requiring evaluation of embodied carbon when specifying and selecting industrial materials for state-funded projects is a relatively simple way to make significant reductions in the State's GHG emissions.

The effect of Connecticut adopting net-zero, all-electric and zero carbon profile as its new High Performance Building Standard will go far beyond the public sector. It will signal to

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<sup>2</sup> <https://livingbuilding.kendedafund.org/2017/04/11/net-zero-energy-schools-roadmap/>

businesses, private developers, architects and engineers that net-zero, all-electric is viable and the future of building design. DEEP has an opportunity and responsibility to adopt a net-zero all-electric, zero carbon profile High Performance Building Standard, and we urge you to do so.

Signed,

Acadia Center  
Citizens Campaign for the Environment  
Clean Water Action/Clean Water Fund  
Connecticut Citizen Action Group  
Connecticut Green Building Council  
Connecticut League of Conservation Voters  
Connecticut Living Future Collaborative  
Consumers for Sensible Energy  
Eastern Connecticut Green Action  
Environment Connecticut  
Operation Fuel  
People's Action for Clean Energy  
Portland Clean Energy Task Force  
Save the Sound  
Sierra Club Connecticut  
West Hartford Clean Energy Commission