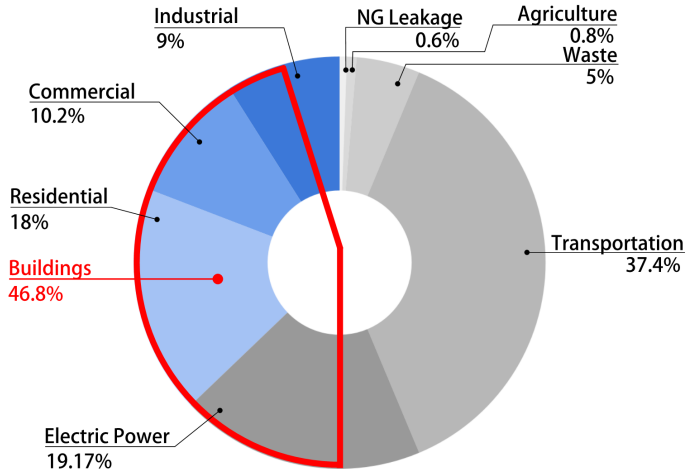
CONNECTICUT LEAGUE OF CONSERVATION VOTERS EDUCATION FUND

Buildings

BENEFICIAL ELECTRIFICATION

The Problem

The more we build fossil fuel combustion into new and renovated buildings the more difficult it will be to achieve our state's climate goals. Only electric heating and appliances can be powered with clean renewable energy. In addition, combusting fossil fuels has measurable negative health impacts that reduce the quality of life for residents. Due to our clean grid and the efficiency of heat pumps, electrification saves significant greenhouse gas emissions now, and as the State moves to a 100% renewable energy grid, electrification is required to reduce our greenhouse gas emissions to reach our current greenhouse gas reduction goals of 45% by 2030, and 80% by 2050.



Greenhouse gas emissions by sector

Definitions

Building Electrification - Replacing on-site combustion-fueled technologies with electric technologies for building end uses such as space heating, hot water, cooking, etc.

Heat Pump - Heat pump is a device that transfers heat energy from a source of heat such as the ground or the air. Heat pumps move thermal energy in the opposite direction of spontaneous heat transfer, by absorbing heat from a cold space and releasing it to a warmer one. An air-conditioner or refrigerator are common examples of heat pumps.

Fast Facts

- Building fossil fuel use accounted for about 32.7% of Connecticutôs greenhouse gas emissions in 2018.
- Air pollution from burning fuels in Connecticut.
- Buildings led to an estimated 318 early deaths and $3.567 billion in health impact costs in 2017.
- Electric heat pumps are typically 300% efficient vs a max of 95% for high-efficiency fossil fuel equipment because they move heat instead of generating heat.
- A recent study showed that 12.7% of childhood asthma is attributable to gas stove use.

A Comprehensive Solution

- Create an energy stretch code – a statewide energy stretch code that could be voluntarily adopted by municipalities which requires electrification in new and substantially renovated buildings.
- Enact state-funded building standards that require electrification including public school buildings.
- Invest in energy efficiency and electrification of environmental justice neighborhoods with the highest rates of asthma to have the biggest impact.
- Implement appliance standards that acknowledge the health hazards of fossil fuel combustion through warning labels and indoor air quality requirements.
- *Example of Success!* The CT Conservation and Load Management Plan is transitioning to an all-electric residential new construction energy-efficiency incentive program on July 1st of this year.

EMBODIED CARBON

The Problem

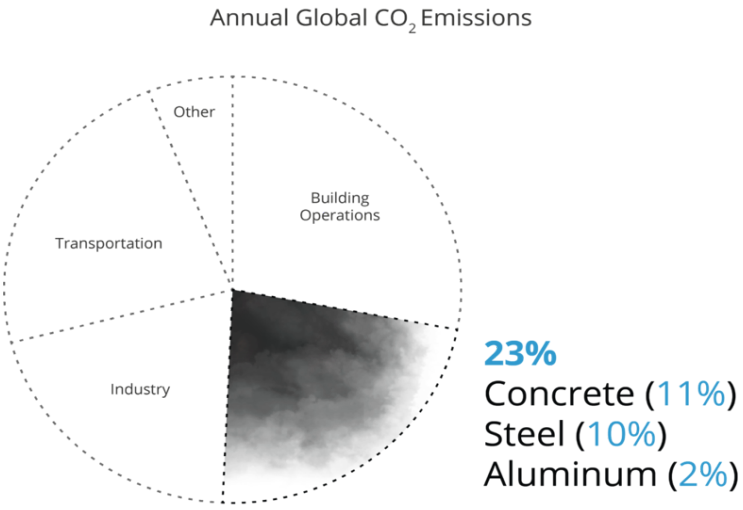
Embodied carbon associated with the materials and construction of our built environment is a large contributor to greenhouse gas emissions. The most devastating effects of climate change cannot be avoided without addressing and reducing embodied carbon. Strategies such as reducing the amount of concrete and steel used on a project and substituting low-carbon alternatives such as low-carbon concrete, mass timber, and other plant-based materials can not only reduce embodied carbon, but encourage the use of materials that sequester carbon.

Definitions

Embodied Carbon - The carbon emissions emitted producing a building's materials, their transport and installation on site, as well as their disposal at end of life.

Environmental Product Declaration - A third-party verified document which transparently communicates the environmental performance or impact of any product or material over its lifetime.

Life Cycle Assessment (LCA) - An environmental accounting and management approach that considers all the aspects of resource use and environmental releases associated with a project from resource extraction to end of life.



Data Sources: Global ABC Global Status Report 2018, EIA

A Comprehensive Solution

- Enact Buy Clean legislation for state procurement that would require embodied carbon transparency and reduction for state infrastructure projects.
- Create a stretch code that would require embodied carbon transparency and reduction in building projects that could be voluntarily adopted by municipalities.
- *Example of Success!* The 2021 IGCC International green Construction Code recently adopted for state-funded building projects already requires embodied carbon transparency and reduction.

ENERGY EFFICIENCY

The Problem

- Connecticut has some of the highest energy costs in the nation and an aging and inefficient building stock.
- One of the most cost-effective ways to reduce greenhouse gas emissions is through energy efficiency.
- Energy efficiency makes our state more resilient by reducing demands on the electric grid, reducing air pollution, energy burden and the need for energy assistance.
- In addition to providing long-term economic stability, energy efficient buildings are also more healthy and comfortable.

Fast Facts

- Energy use in buildings is responsible for almost half of Connecticut s greenhouse gas emissions.
- A recent study found that better home energy-efficiency scores led to lower mortgage defaults.
- Energy-efficiency has the potential to reduce health impacts and save lives.
- Home energy transparency policies increase investment in energy efficiency.
- Each one invested in Connecticut s energy-efficiency fund returns almost 3 in lifetime savings.

A Comprehensive Solution

- Enact home energy transparency through mandatory energy-efficiency disclosure for home sales and rentals.
- Increase funding to the states Energy Efficiency funds targeted towards investment in upgrades in environmental justice communities where they will have the biggest impact.
- Adopt California's energy-efficient appliances standard.
- Create a statewide energy stretch code for voluntary adoption by municipalities.
- *Example of Success!* Connecticut is one of the first states to give home Energy cores through our home Energy solutions energy-efficiency incentive program.

MORE INFORMATION

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