

Building for Climate: Technology, Trends, and the Evolving Policy Landscape

white + burke
VERMONT
DEVELOPMENT
CONFERENCE





"We're having more fun now that we've moved into a modern total electric home"

Throughout America, families like the Kenneth Whites of Oklahoma City report on the comfort, cleanliness and convenience of a modern Gold Medal Home, where flameless electricity heats and cools the whole house, cooks the food, provides the hot water and drives the family clothes.

According to Kenneth and Marilyn White, the two years they've lived in their new total electric home have been "the happiest of our lives."

"Everything is so much more convenient," Mrs. White tells you. "And our house stays so clean! I've been able to cut way down on my routine housecleaning, and even my white curtains stay fresh and new-looking all year round."

Mr. White adds, "Things are a lot more comfortable now that we have flameless electric heating. Our electric bill is reasonable, too. And

we get our air conditioning in the summer right from the same electric heat pump that keeps us warm in the winter."

From coast to coast, families like the Whites are just as enthusiastic about life in their modern total electric Gold Medal Homes. Wherever you live, you too can enjoy this modern comfort and convenience. Whether you're planning to build, buy or modernize, your local electric utility company will help you get all the information you need to start on your way to the joy of total electric living.

DAY BY DAY, THE GOLD MEDAL HOME opens up new and new homes throughout America. It illustrates a new electric home with appliances, full housewarming, and more. It's a new home with a new look. These homes will be as modern tomorrow as they are today.

YOU LIVE BETTER ELECTRICALLY - Edison Electric Institute, 750 Third Avenue, New York 17, New York
FOLLOW THE TOWER OF LIGHT TO THE NEW YORK WORLD'S FAIR

1960



Feel clean all over

It's a grand feeling when everything's clean. Rugs, walls, table tops, everything. And one of your best helpers is gas heat. There's no heat cleaner than gas. No heat more comfortable or dependable. And do you know how thrifty gas heat is? Check into it—with your gas company or heating contractor.

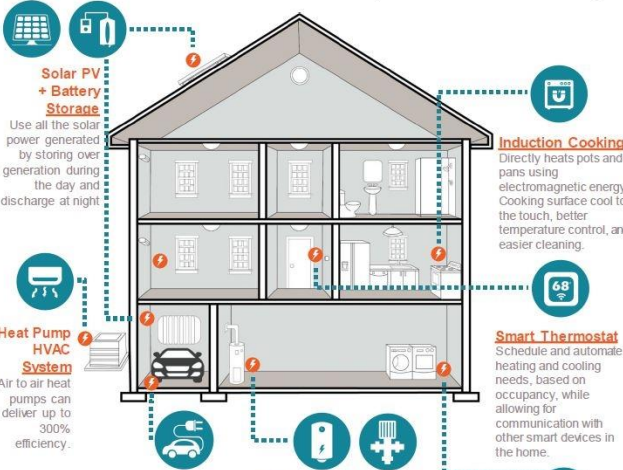
Gas heat gives you a better deal.

1970

Advanced All-Electric Smart Home

Recommended Technologies

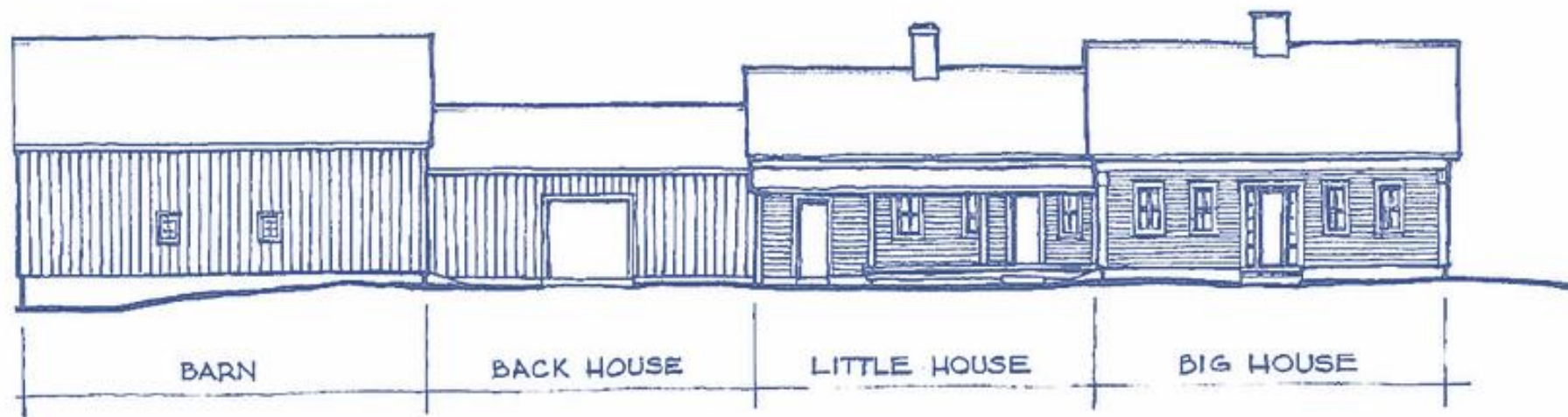
We encourage advanced all-electric technologies.

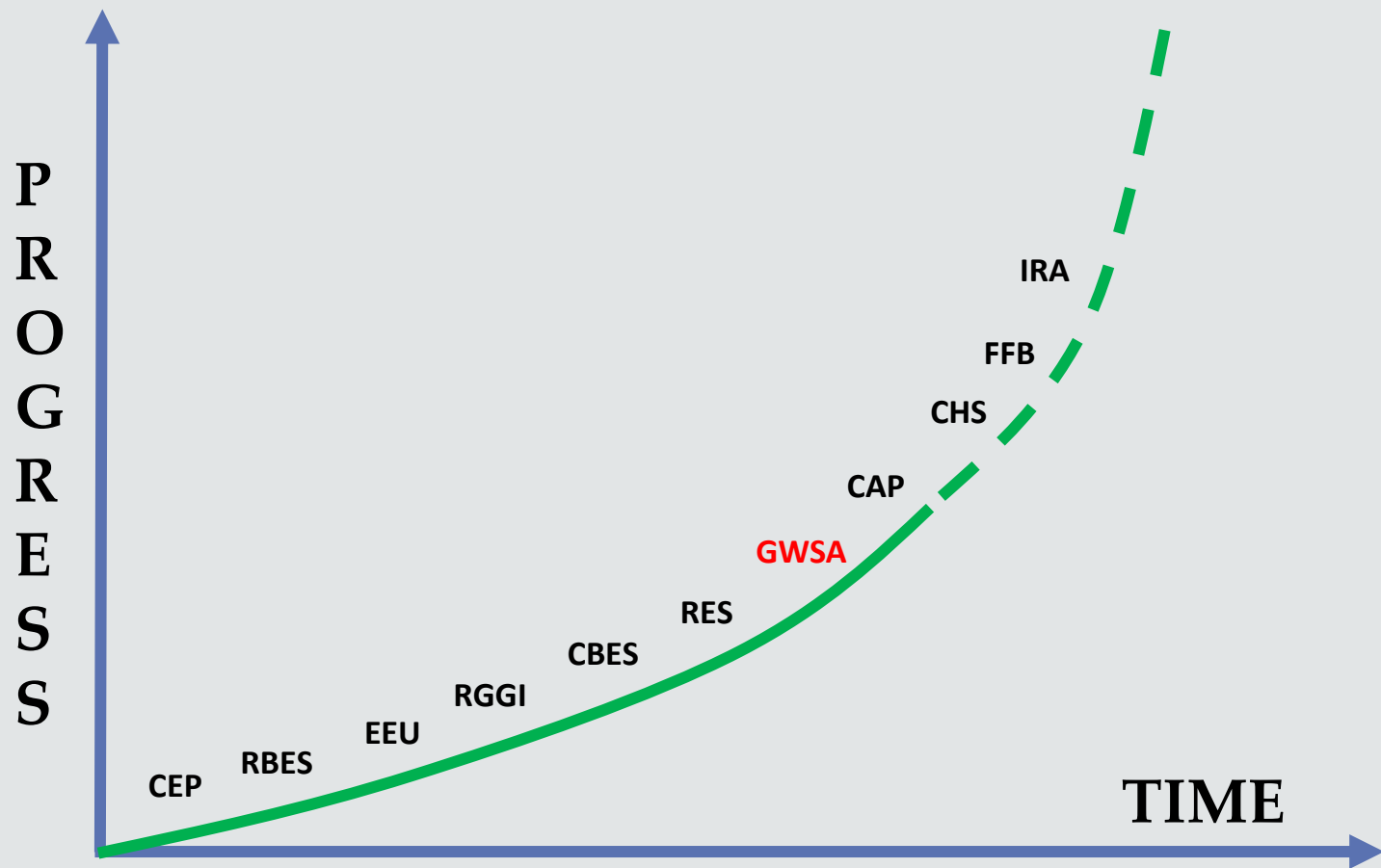


- Solar PV + Battery Storage**
Use all the solar power generated by storing over generation during the day and discharge at night
- Induction Cooking**
Directly heats pots and pans using electromagnetic energy. Cooking surface cool to the touch, better temperature control, and easier cleaning.
- Smart Thermostat**
Schedule and automate heating and cooling needs, based on occupancy, while allowing for communication with other smart devices in the home.
- Heat Pump HVAC System**
Air to air heat pumps can deliver up to 300% efficiency.
- Electric Vehicle Charging**
Pre-wiring is required in code on new construction but easy install on existing homes.
- Heat Pump Water Heater + Thermostatic Mixing Valve**
Produces twice as much hot water from each kWh of electricity consumed compared to electric water heater. Can be used as a thermal battery.
- Heat Pump Dryer**
Can be 50% more energy efficient than conventional electric resistance clothes dryers. Lower heat means less color fading.

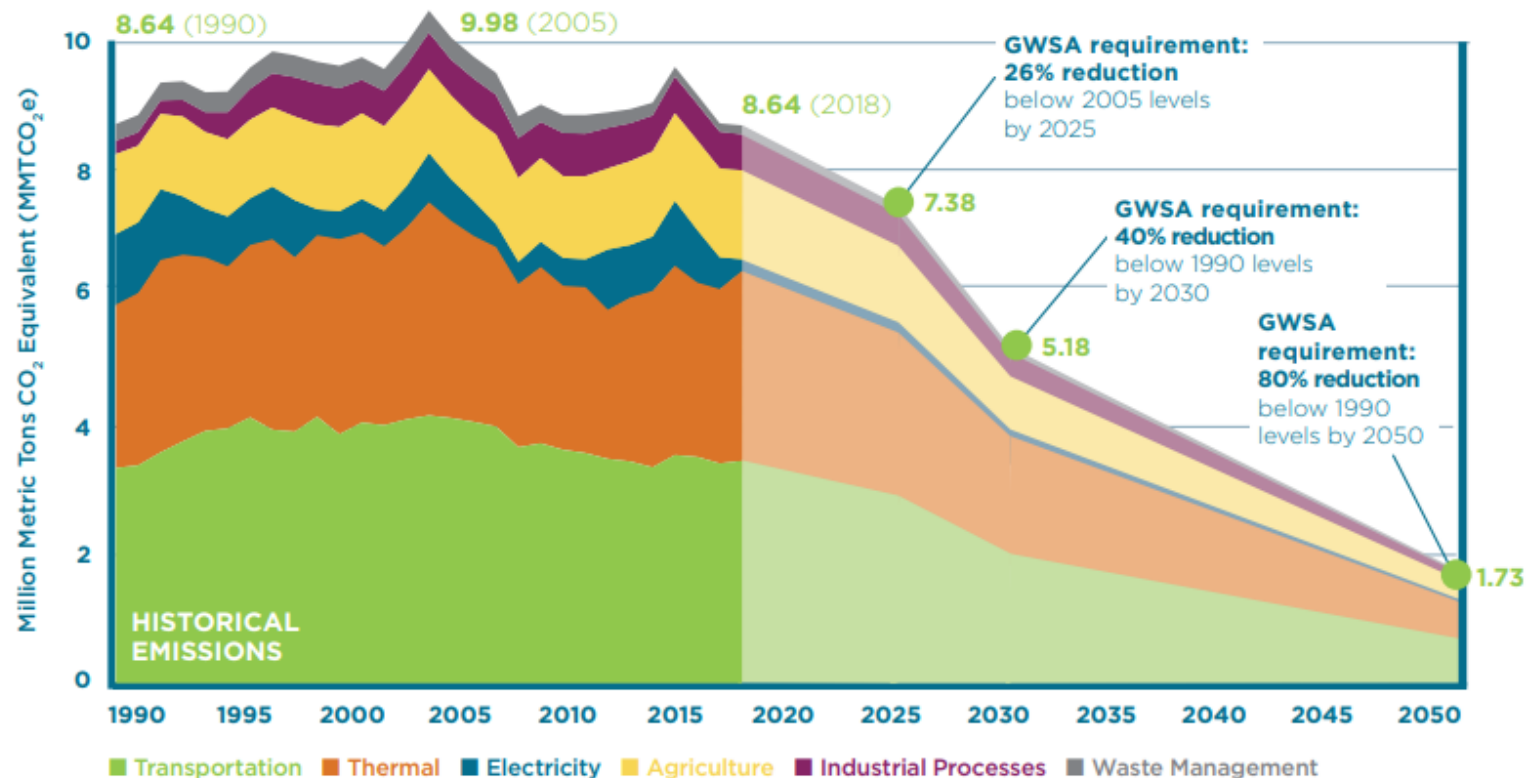
Building DOCTORS
electricityyourhome.com

2020



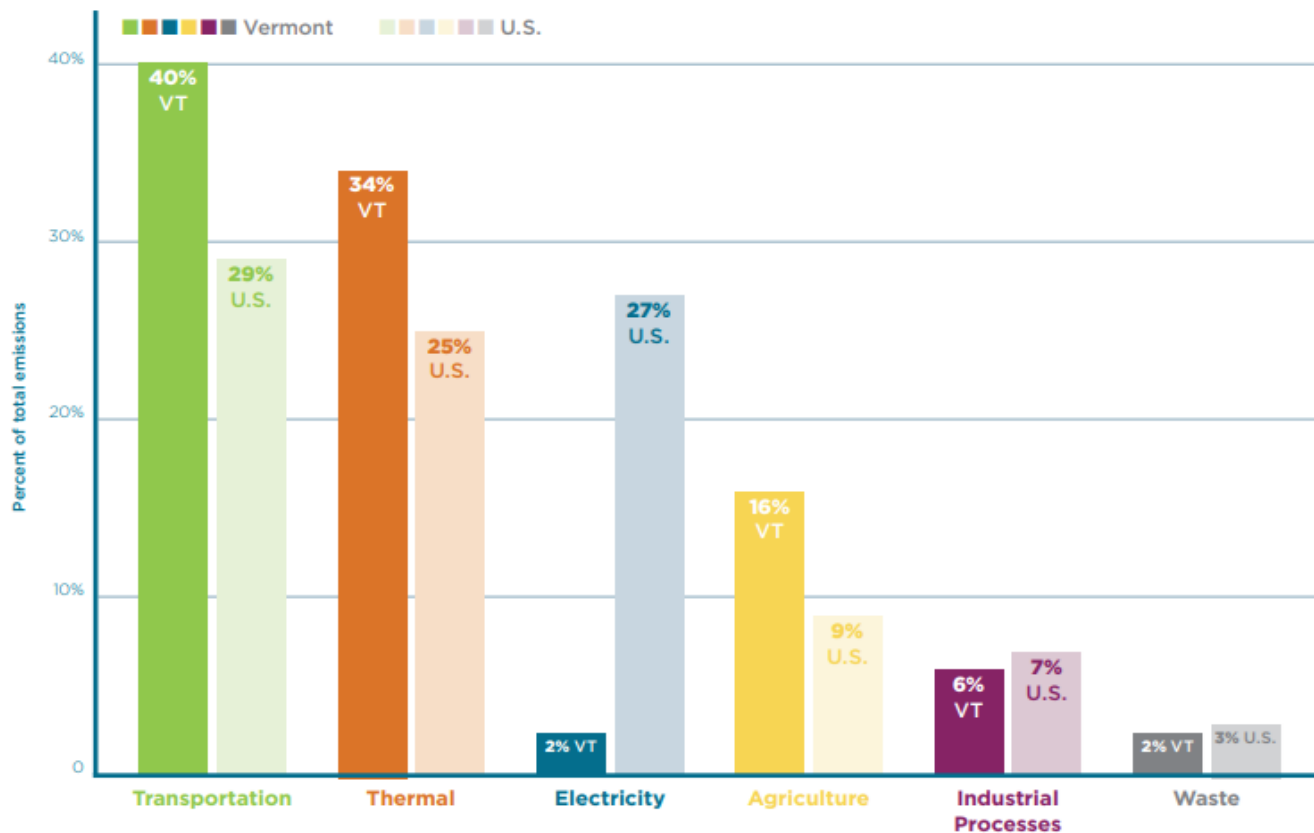


Vermont's historical GHG emissions and future requirements



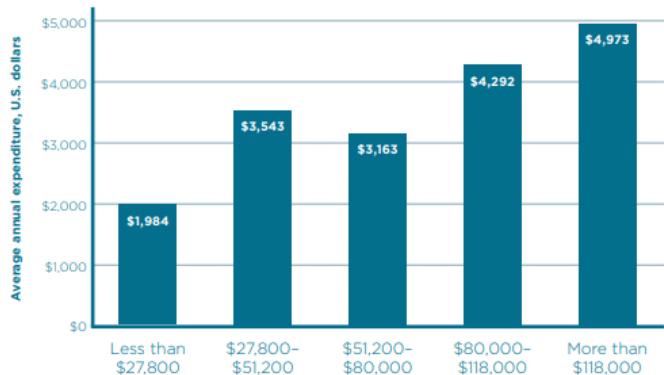
Source: Vermont Agency of Natural Resources, Vermont GHG Emissions Inventory and Forecast (1990-2017), 2021.

GHG emissions by sector, U.S. vs VT (2018)



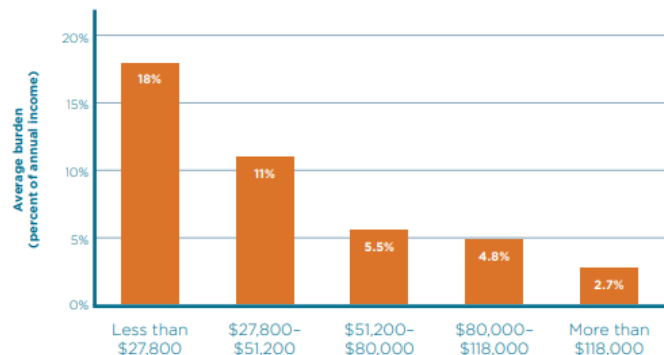
Source: Vermont Agency of Natural Resources, Vermont Greenhouse Gas Emissions Inventory and Forecast (1990-2017), 2021; U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018, 2021. Note: Due to time lags in state and federal data reporting, 2018 is the latest data available.

Combined heating and electricity expenditures in Vermont, by income quintile



Source: U.S. Census Bureau, American Community Survey, 2018.

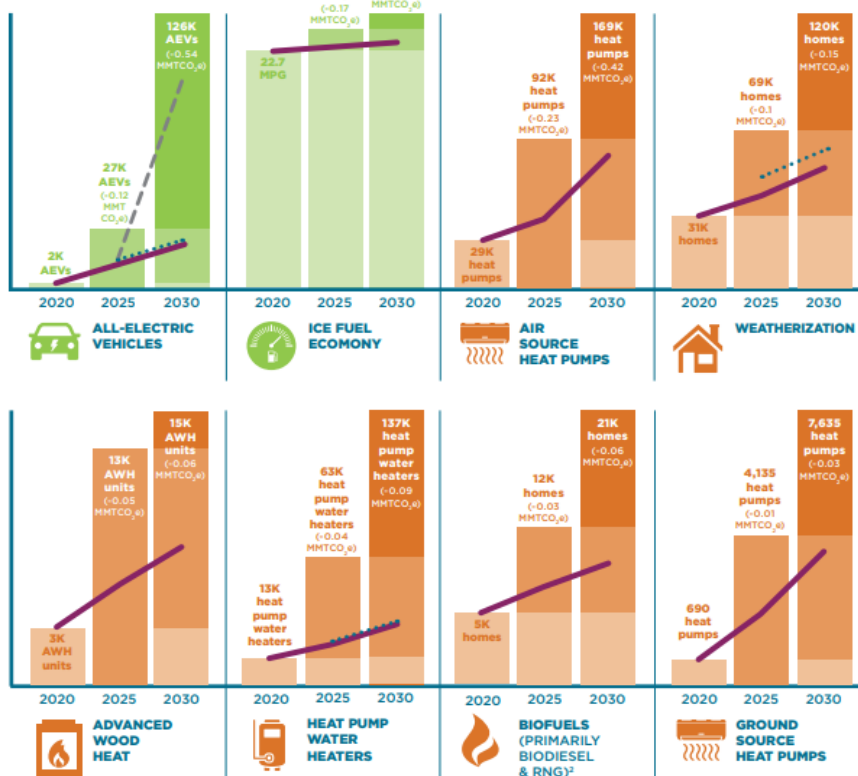
Combined heating and electricity energy burden in Vermont, by income quintile



Source: U.S. Census Bureau, American Community Survey, 2018.

Top GHG reduction measures in Climate Council Pathways

- Business-as-usual projection implied by existing policies as of fall 2021
- ... Estimated increase from FY23 budget investments¹
- Estimated increase due to ACCII (best case scenario)



High-Performance Buildings



PASSIVE
ENERGY



INTEGRATED
SOLAR



WATER
MANAGEMENT





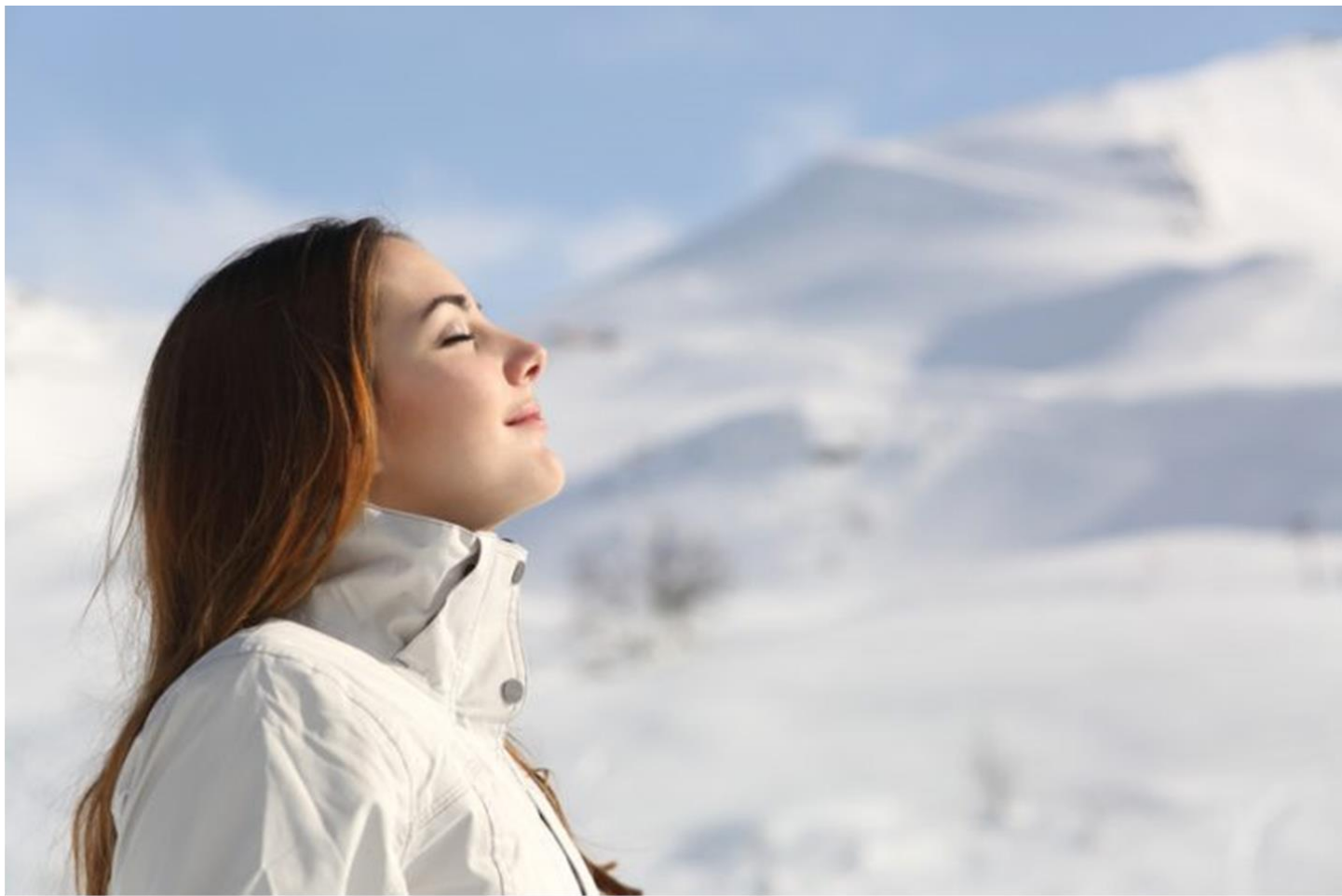
<https://blog.evbox.com/how-to-charge-ev-safely>



<https://www.frost.com/news/press-releases/expansion-of-renewables-and-cost-reductions-drive-battery-energy-storage-to-forefront-of-national-energy-plans/>

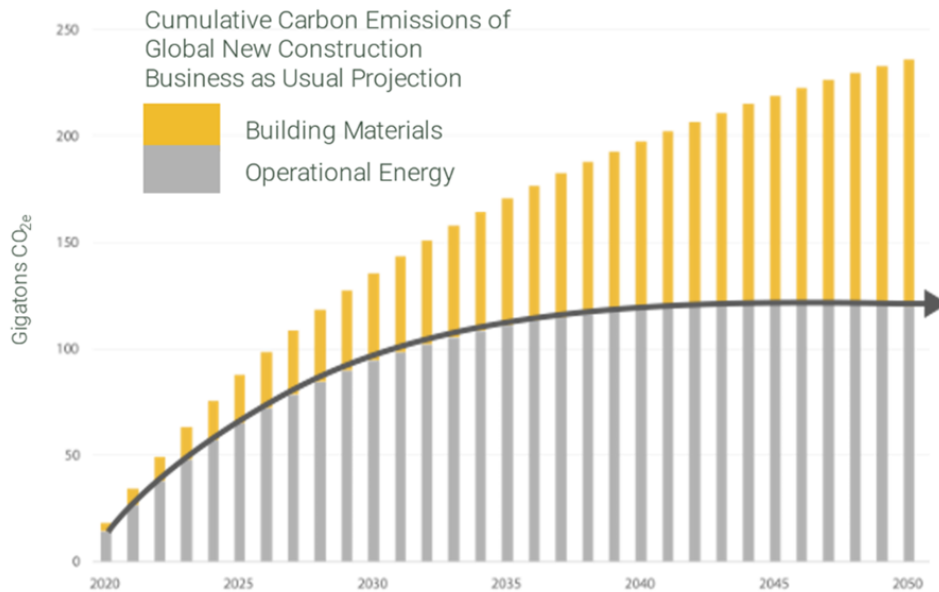


<https://inhabitat.com/resilient-design-is-resilience-the-new-sustainability/>



<https://aebuildingsystems.com/tag/fresh-air/>

Embodied Carbon is increasingly significant



Source: AIA 2030

By 2050, it is projected that embodied carbon will take up almost half the total carbon emissions from new construction.

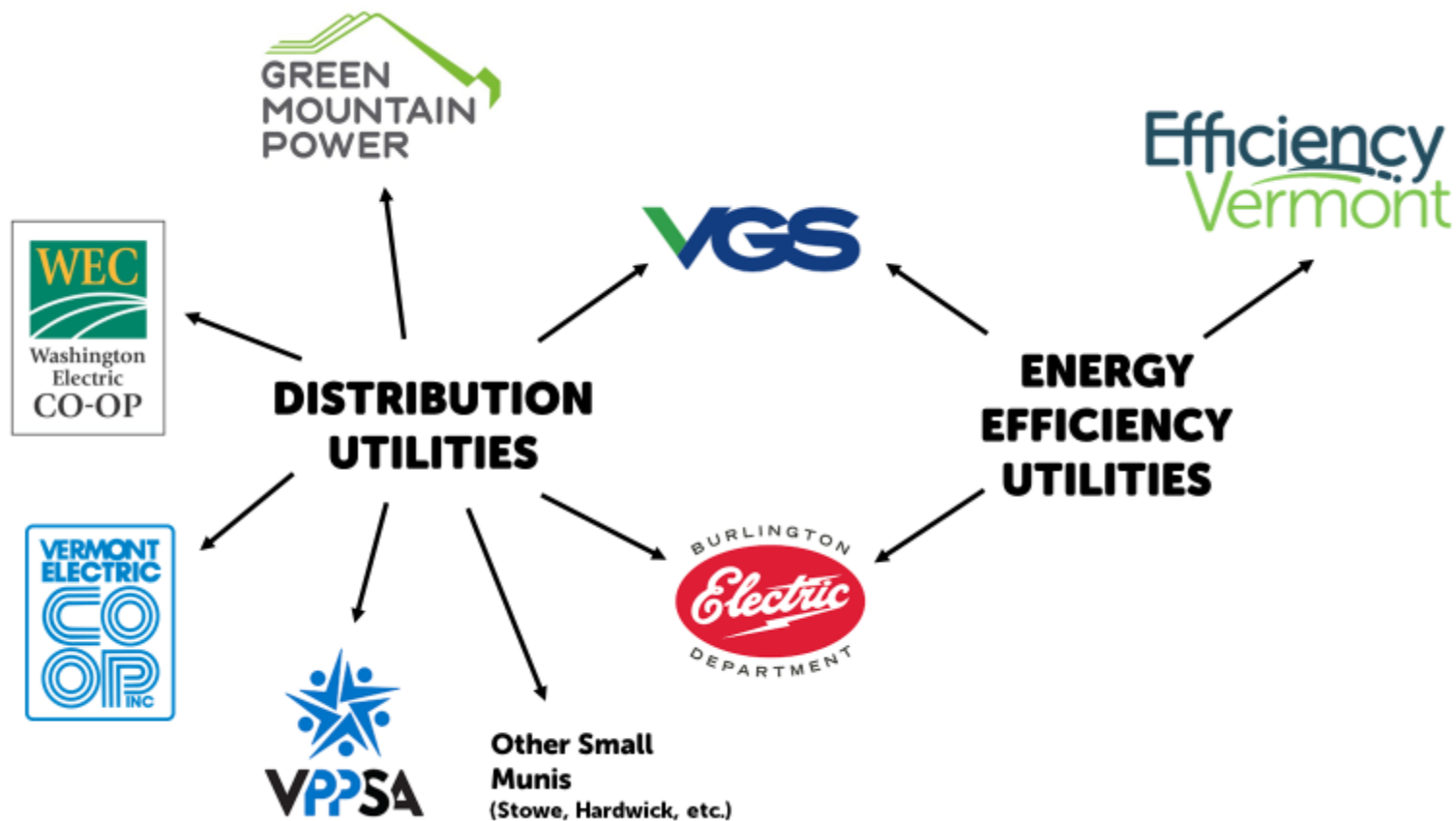
Energy Retrofit Programs

+

Renewable Energy



Reduced Operational CO₂e



QUESTIONS?

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