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Clean Heat for a Cooler Planet: Vermont's Clean Heat Standard

Senate Committee on Natural Resources and Energy

Richard Cowart
Principal
The Regulatory Assistance Project (RAP)[®]

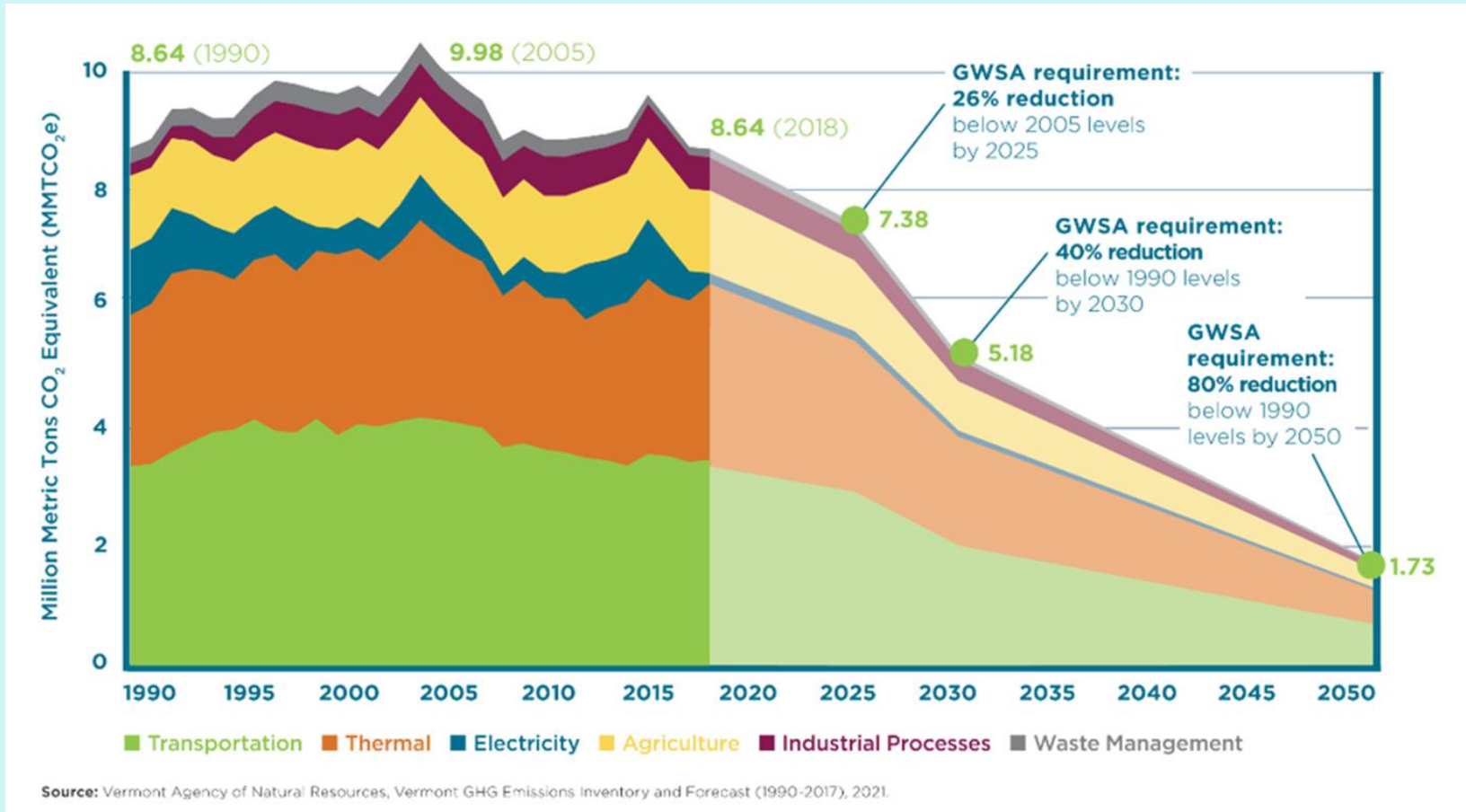
Rue de la Science 23
B-1040 Brussels
Belgium

+32 2 789 3010
rcowart@raponline.org
raponline.org

Fossil Heat May Be Our Toughest Climate Challenge

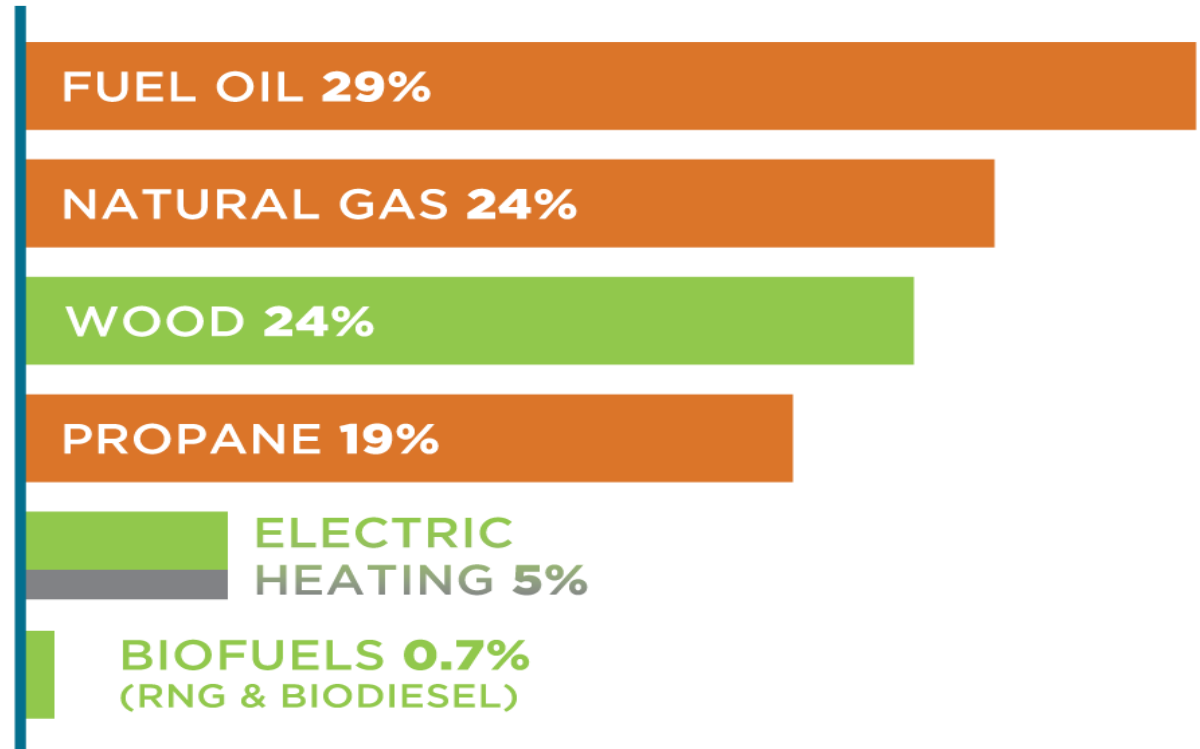
1. 34% of VT's climate emissions
 - Mostly heating, but also hot water, industrial processes, other uses
2. Large reductions are required - 40% by 2030, 80% by 2050 to meet climate goals, legal mandates
3. Need to minimize bills in households with high energy burdens
4. Buildings are “hard” and “slow”

GWSA Emission Reduction Requirements



Vermont heat is
72% fossil fueled

Vermont heating energy sources, 2018



Source: EIA, 2020; Vermont Department of Public Service, 2020; Efficiency Vermont, 2020; Vermont Agency of Natural Resources, 2020



Vermont's Clean Heat Standard

The CHS is a performance standard, requiring the wholesale providers of fossil heating fuels to Vermont to deliver a gradually-increasing percentage of low-emission heating services to Vermont customers.

- Similar to the Renewable Energy Standard for electric utilities
- Increasing annual requirements pegged to GHG goals
- Measured by delivery **at the customer level**
- Clean heat choices: Weatherization, renewable fuel (biodiesel, biogas, district heat) electric heat pumps, advanced wood heat
- Heat providers can sell clean fuels, convert heat systems, or purchase credits from others

Climate Action Plan Recommends Legislation for a CHS*

- **“Implement a Clean Heat Standard”** -- “Adopt legislation authorizing the PUC to administer a Clean Heat Standard consistent with the recommendations of the Clean Heat Standard Working Group”
- **“Timeline to Implement** – Legislation by the end of the current session (May 2022) followed by no longer than 18-24 months for administrative process...”

* Vermont Climate Action Plan, December 2021 at p. 99

Draft Comprehensive Energy Plan Recommends PUC Review of CHS*

- Recommendation for Action:

“The Public Utility Commission should, by January of 2023, complete a study the potential cost of a standard under different design parameters and expected measures, including the expected resources necessary to administer such a program. The Legislature should authorize the Commission to adopt a CHS if it can be structured to equitably meet GHG requirements at a reasonable cost to Vermont consumers.”

- The draft CEP also calls for increasing the % of renewable thermal energy to 30% by 2025, 45% by 2032, and 70% by 2042 (at p. 6-1)

Vermont Department of Public Service, Draft Comprehensive Energy Plan, at p. 6-33

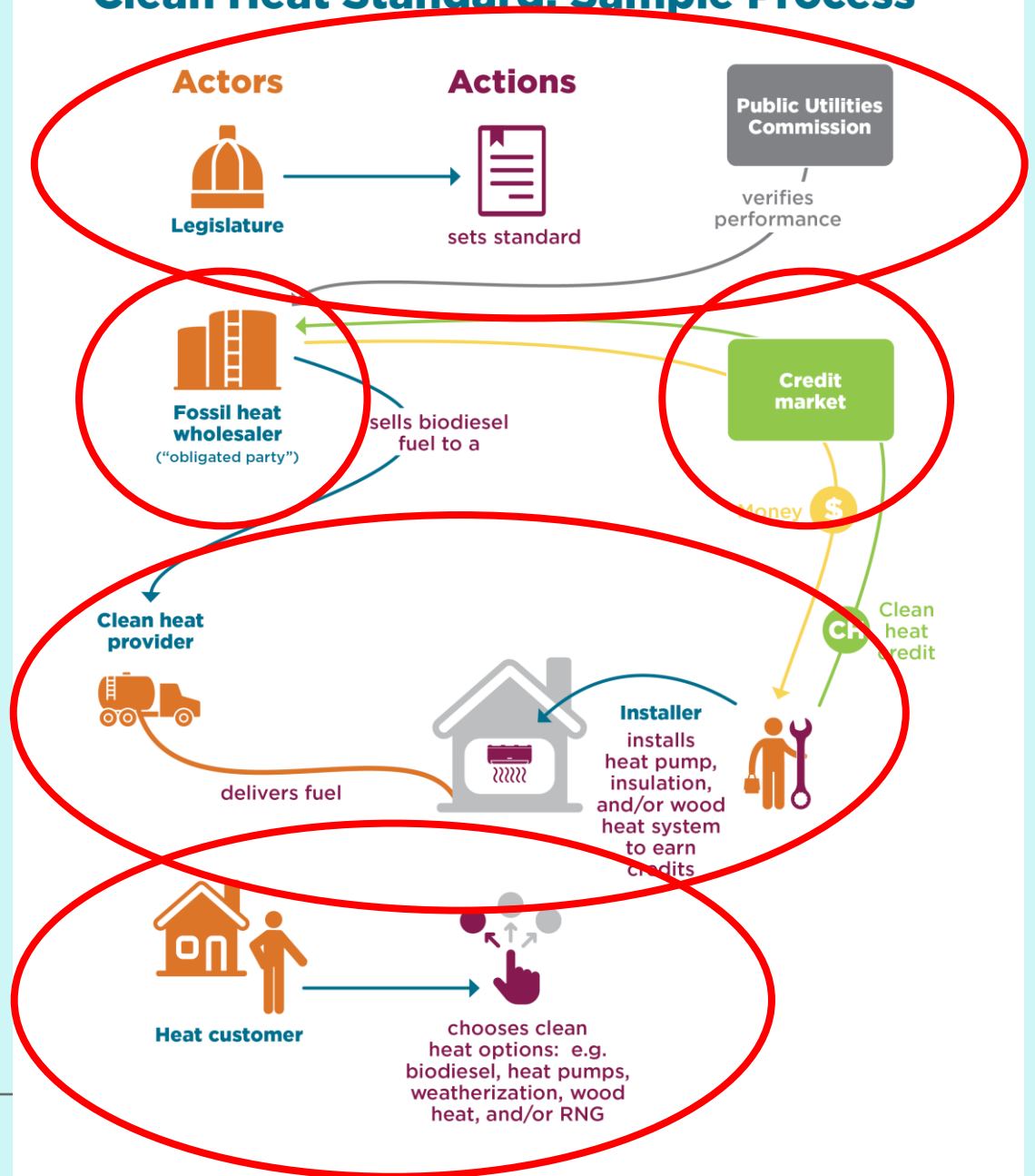
Clean Heat Working Group

- A year-long effort to design a CHS for Vermont
- Input/design help from many experts & stakeholders:
 - RAP, EFG and EAN staff and Senior Fellows, Weatherization working group, DPS and PUC staff, Electric utilities (GMP and BED), VGS, fuel dealers, (Bourne's, Energy Co-op, and others), energy and climate NGOs (VNRC, VPIRG), Efficiency Vermont, biofuels industry experts, and more...
- In-depth whitepaper covers the issues*
- Result: **We know it could work**

*R. Cowart and C. Neme, *The Clean Heat Standard* (EAN December 2021) <https://www.eanvt.org/chs-whitepaper/>

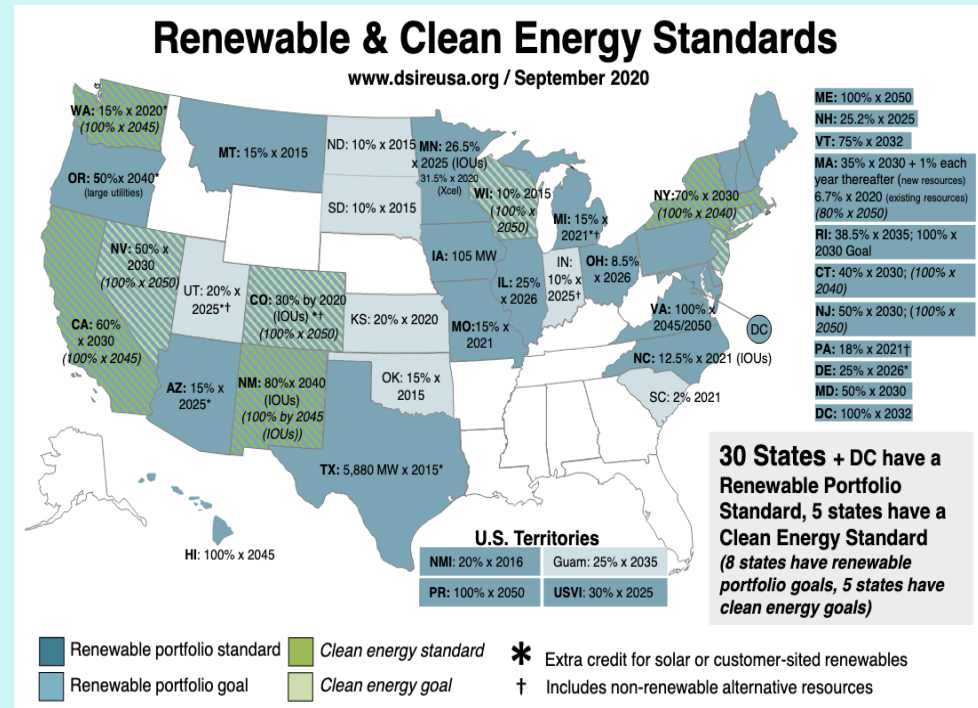
How would the CHS work?

Clean Heat Standard: Sample Process

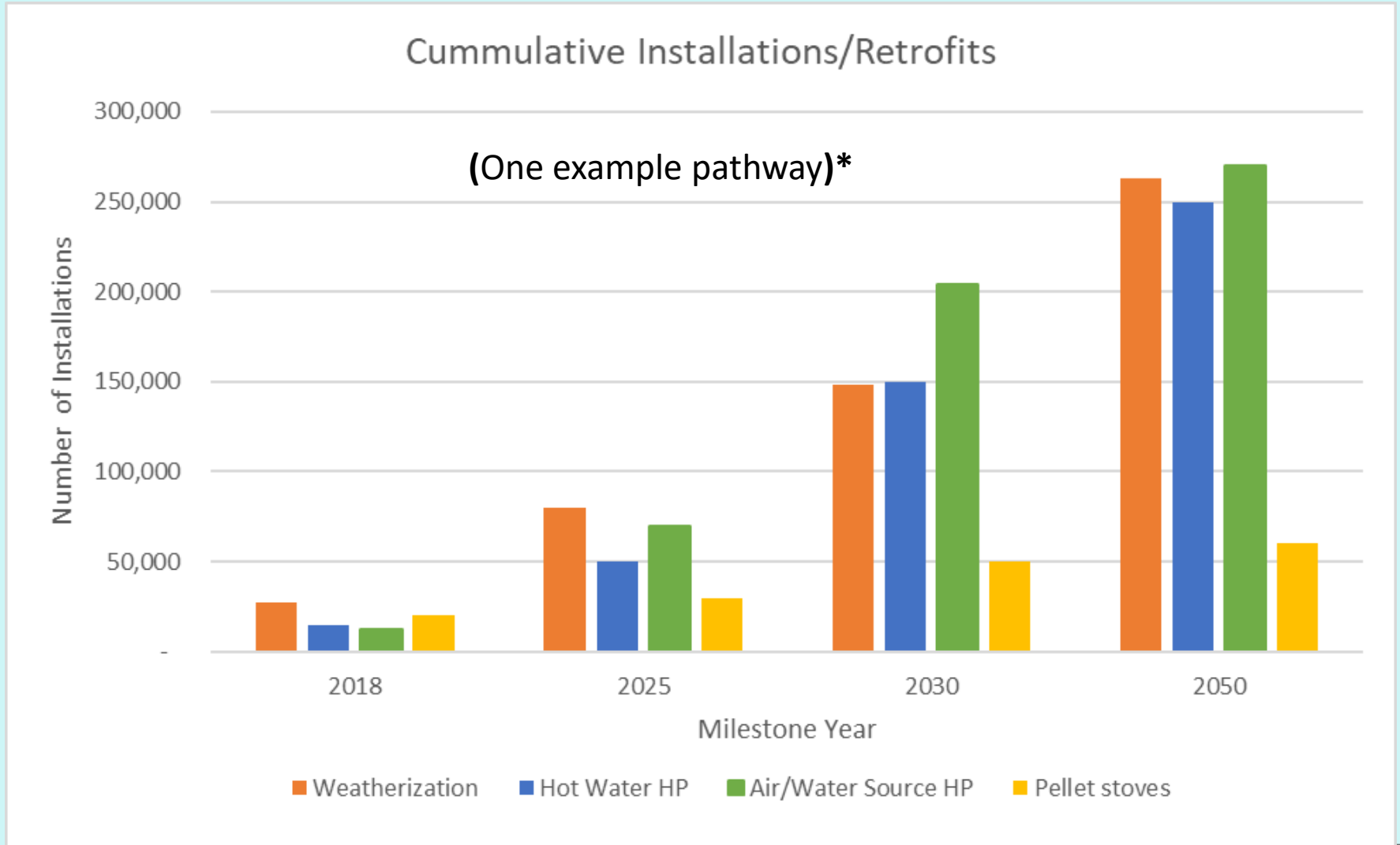


Experience to draw upon

- 30 states have renewable performance standards
- 25 states have EE performance stds
- Vermont EE, RES & Tier 3 (fossil) performance stds
- Low Carbon Fuel Standard in CA, WA, OR (for transportation fuels)
- Colorado Clean Heat Standard (for natural gas)
- New York biofuels mandates



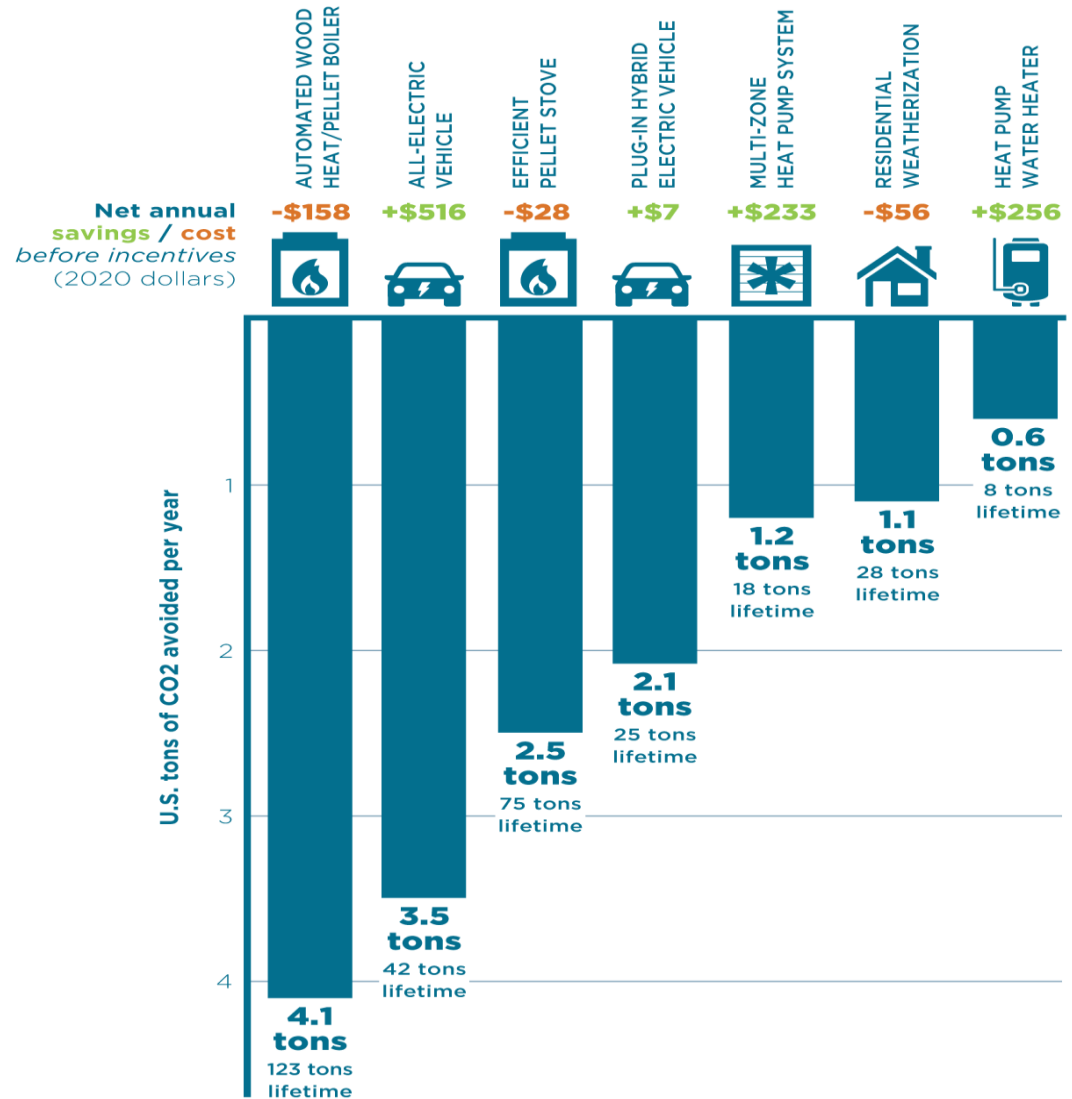
How many heat switches do we need?



Many clean heat packages save carbon AND save money*

* The estimated net savings/cost are likely conservative, in part because they do not reflect recent substantial increases in fossil fuel prices.

Household \$ savings and GHG reductions from energy actions



Sources: Household Savings: Vermont Agency of Commerce and Community Development, 2020. Tons of CO2 avoided: Vermont Public Service Department, CO2 Cost Effectiveness Model, 2020.



Implementing the CHS: Clean Heat Credits

- **Obligated parties** must retire clean heat credits (CHCs) in proportion to their prior year's fossil fuel sales
- **Anyone can generate credits**
 - Fuel dealers, HVAC business, Efficiency Vermont, power companies, Vermont Gas, pellet stove seller, weatherization providers, and more
- Credits can be **bought and sold**
- Wide range of **eligible actions** can earn credits
 - Selling biofuels, installing heat pumps or advanced wood heat systems, weatherization, district heat, and more

Implementing the CHS: Accounting for Biofuels

- Biofuels can earn CH credits, BUT
 - Only if sustainably sourced (e.g., no palm oil)
 - Only on a net lifecycle GHG-avoided basis
 - California LCFS rates for reference
- Renewable methane (“RNG”) on the VGS system
 - VGS must own the gas and its attributes
 - VGS must have a contractual delivery path to Vermont
 - Only on a net lifecycle GHG-avoided basis

Implementing the CHS: Links with other programs

- Heat pumps benefit from tight buildings: CHS links to **Weatherization programs**
 - Enhances comfort
 - Reduces power demand, esp in cold periods
- **Utility Tier 3** obligations (fossil fuel reductions) can mesh well with CHS programs
- Efficiency Vermont, VGS and other **thermal efficiency measures** can earn clean heat credits

Implementing the CHS: Focus on equity

- The energy transition must be a just transition
- Almost all homes must heat-switch by 2050
- Start now with those who have highest energy burdens
- Program ideas:
 - High fraction of CHCs must come from low & moderate income homes
 - Extra credits for clean heat in rental housing
 - Link clean heat with every Wx job
 - Make incentive payments income-sensitive
 - Other ideas following outreach and input from those on the front lines, most affected

Implementing the CHS: Regulatory roles

- PUC may be the best agency to oversee the CHS
 - Links to power and gas; experience with the RPS and Tier 3;
- DPS would work with parties, develop and present evidence, do independent analysis;
- Key role for a CHS Technical Advisory Group (Clean Heat TAG)
 - Based on VT experience with Tier 3 TAG, EE TAG – these have worked well

Implementing the CHS: Fuel industry transition

- Thermal transition requires trusted “boots on the ground”
- Fuel dealers are valued, essential
- Transition needed: From delivering fossil to providing clean energy services
- CHS offers time to transition, train labor force

Conclusion: Why we need a Clean Heat Standard

- **Focus on customers** – where the real decisions are made
- **A sustainable path for fuel dealers**
- **Maximizes flexibility and choice**
 - **Doesn't pick winners**
 - **Customers can choose – so can providers**
- **Equity can be built in from the outset**
- **Electricity is moving to clean – It's time for fossil heat to join the transition**

Why a Clean Heat Standard ? (con't)

- **CHS supports diverse heating solutions**
 - We can't simply “electrify everything”
 - Open door to better ideas
 - **Most important: We need a solution that will grow and deliver large GHG savings.**
 - Energy efficiency crucial, but less than 25% of the answer
 - CHS does not need or rely on fuel taxes or public funds
 - Performance standards work
- **Competition and choice: Lowest cost path to reducing thermal climate pollution**



Questions & Discussion