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

Energy Action Network Webinar
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Thanks to EAN and the 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
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”
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
How would the CHS work?

Clean Heat Standard: Sample Process

**Actors**
- **Legislature**
  - sets standard
- **Fossil heat wholesaler**
  - sells biodiesel fuel to a
- **Clean heat provider**
  - delivers fuel
- **Heat customer**
- **Installer**
  - installs heat pump, insulation, and/or wood heat system to earn credits

**Actions**
- **Credit market**
  - Money
  - Clean heat credit
- **Public Utilities Commission**
  - verifies performance

**Credit Options**
- Choose clean heat options: e.g., biodiesel, heat pumps, weatherization, wood heat, and/or RNG
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
Vermont heat is 72% fossil fueled

Vermont heating energy sources, 2018

- Fuel Oil 29%
- Natural Gas 24%
- Wood 24%
- Propane 19%
- Electric Heating 5%
- Biofuels 0.7% (RNG & Biodiesel)

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

ANR's 2018 GHG emission projections indicate the thermal sector is responsible for 34% of the state's total GHG emissions.

2025, 2030, and 2050 are GWSA milestone years.
How many heat switches do we need?

(One example pathway)*

*Biofuels are not depicted but are also expected to play a significant role.
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.

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
Thermal GHGs

54% Residential
31% Commercial
15% Industrial

71% Fuel oil and propane
26% Pipeline gas
3% Wood

Home heat sources

Figure 3-17: Vermont homes by primary heating fuel

- Utility gas: 17.5%
- Bottled, tank, or LP gas: 15.8%
- Fuel oil, kerosene, etc.: 43.0%
- Electricity: 4.9%
- Coal or coke: 0.2%
- Wood: 16.5%
- Solar energy: 0.1%
- Other fuel: 1.6%
- No fuel used: 0.3%

Source: U.S. Census Bureau: American Community Survey 5-year estimates, 2013-2017 (Table B25040) from housingdata.org.