

Theresa Utton-Jerman

Subject: FW: [External] Letter to House Appropriations Committee from Switch and Save Steering Committee

Attachments: Switch and Save .docx.pdf; Switch & Save - Heat Pump Water Heaters for VT House (1).pdf

Dear House Appropriations Committee Members

We write in support of the request from the House Energy and Technology Committee in its FY2023 Budget recommendations to your Committee to include **\$5 million for the "Switch and Save" low-income hot water heater replacement program**. These funds could be administered by the Clean Energy Development Fund or Efficiency Vermont in partnership with the state's other energy efficiency utilities and distribution utilities and in coordination with the Community Action Agencies.

The Switch and Save program would be added to - and would complement - the \$20 million in ARPA funds recommended for low and moderate-income Vermonters to upgrade home electrical systems and install energy saving technologies. As such, the Switch and Save incentive could help approximately 3,000 low income Vermonters that have a fossil fuel water heater at least 10 years old replace it at low or no cost to reduce their energy costs and emissions.

"Switch and Save" has drawn wide support from organizations, low-income advocates, utilities, and private contractors that have worked on developing it. This includes participation from Climate Council members, contractors, regional planners, utilities, OEO, weatherization assistance program agencies, environmental groups, Efficiency Vermont, and Vermont Gas, among others.

As co-chairs of this Steering Committee, we welcome any questions you might have. For greater detail, please refer to the attached 2-page summary and the slides we presented to the House Energy and Technology Committee.

Thank you for your consideration,

Darren Springer (Burlington Electric Department) and Linda McGinnis (Economist)
Co-Chairs, Switch and Save Network Action Team

Switch and Save Proposal - 2022

“Replace it before it Breaks” - Income qualified heat pump water heater replacement

From the Switch and Save EAN Network Action Team - developed from a pitch at the EAN Fall 2021 Summit

Program Proposal: Approximately 25,000 water heaters are replaced in Vermont each year, according to the Vermont Climate Action Plan. Currently, the vast majority of new water heaters installed (70%) are fossil fuel-fired, and only about 2,000 of those new water heaters installed each year are efficient heat pump water heaters. With each installation of fossil fuel-fired equipment, we are locking Vermonters into more price volatility and exacerbating planetary impacts. This proposal aims to help avoid this scenario through a targeted, focused program to **proactively support lower-income Vermonters to install cost-saving heat pump hot water heaters.**

The Switch and Save proposal would build on existing utility and Efficiency Vermont heat pump water heater incentives to provide income-qualified Vermonters new, energy efficient heat pump water heaters at low or no cost (including electrical work). The proposal would focus on Vermonters with older water heaters that are at risk of failure in the near future (or those whose water heaters have just failed).

Funding: The proposal is for \$5 million in ARPA or other federal or flexible funds, to support installing a heat pump water heater for approximately 1,250-2,500 low-income Vermont households, before the end of 2024. These funds could be administered by Efficiency Vermont in partnership with the state’s other energy efficiency utilities and distribution utilities and in coordination with the Community Action Agencies. Funding would be stacked on top of existing utility and Efficiency Vermont low-income rebates (\$500 currently¹) for the most affordable heat pump water heaters, to provide installations at no or low cost. The most affordable heat pump water heaters typically cost between \$1,400-\$2,200, plus additional electrical and installation costs, for a total average cost to install of approximately \$2,500-4,000.

The proposal would offer several key benefits:

- **Energy Efficiency and Cost Savings for Vermonters** – Water heating can be the second largest energy cost in a home. Heat pump water heaters typically have a higher upfront price than a conventional electric water heater, but can cost half as much to operate given their strong energy efficiency². They also provide dehumidification as well. A 2021 Clean Energy Development Fund report estimated heat pump water heaters could save a Vermont household \$258 annually³ and the Department of Energy has estimated they reduce energy consumption 60% compared to conventional water heaters⁴;
- **Progress Toward Climate Requirements** – Energy Action Network modeling found among the highest impact thermal measures would be adding 50,000 heat pump water heaters by 2025, and 200,000 by 2030⁵ as part of meeting our climate goals, and the Switch and Save proposal will help low-income Vermonters participate in the transition towards more efficient technology at low or no cost. A recent report from the Department of Public Service also found that heat pump water heaters are among the most cost-effective technologies in cutting greenhouse gas emissions⁶;

¹ [Heat Pump Water Heaters | Efficiency Vermont](#)

² [A guide to water heaters | Efficiency Vermont](#)

³ [Clean H&C Residential Guide 2021.pdf \(vermont.gov\)](#) (page 42)

⁴ [Heat Pump Water Heaters Achieve Significant Peak Reduction and Energy Savings | Department of Energy](#)

⁵ [Microsoft Word - Pathways Whitepaper Final Draft.docx \(eanvt.org\)](#) (page 14)

⁶ [2020 Annual Energy Report \(vermont.gov\)](#) (page 18)

- **Switch Out Before Equipment Fails** – By focusing eligibility on low-income Vermonters with older water heaters, we can help make the switch to a new heat pump water heater prior to the existing equipment failing. This helps avoid a future emergency replacement scenario, while also supporting greater adoption of efficient water heating systems. Vermont undertook a similar proactive approach, helping incent the changeout of inefficient wood stoves to more efficient, clean burning stoves. And for low-income households whose water heaters do fail, this funding would support these change outs at the time of equipment failure, helping Vermonters avoid installing less efficient, fossil fuel systems at a moment of crisis;
- **Manage Peak Electric Demand** – The Switch and Save program will prioritize equipment that is compatible with demand response technologies that help lower demand during peak electricity use periods⁷, and save all utility ratepayers on costs. This will also unlock the possibility of discounted rates or bill credits for participating customers;
- **Help Avoid Vermonters Locking Into Price-Volatile Fossil-Fired Systems.** This program intends to help Vermonters benefit from more efficient climate beneficial heat pump hot water heater technology, reducing exposure to cost spikes historically associated with fossil fuels and saving Vermonters significantly over the lifespan of the system. Also, to the extent the heat pump water heater program provides electric panel upgrades for Vermonters, those upgrades may also facilitate additional electrification measures in the future (such as installing a heat pump or electric vehicle charger);
- **Increase Customer and Contractor Focus on Water Heaters** – The Switch and Save proposal will bring greater attention and awareness to the need to replace aging water heaters with efficient heat pump water heaters, and the proposal will include a focus on outreach to eligible Vermonters via utilities and Efficiency Vermont, the Community Action Agencies that are leading important weatherization programs, and the contractors who do installations.

Steering Team Members

- Linda McGinnis, EAN Senior Fellow, Co-Chair
- Darren Springer, Burlington Electric Department, Co-Chair
- Carol Weston and Dave Westman, Efficiency Vermont
- Geoff Martin and Steve Bauer, Two Rivers Ottauquechee Regional Planning Commission
- Ben Edgerly Walsh, VPIRG
- Johanna Miller, VNRC
- Mark Stephenson, Vermont Energy Contracting and Supply
- Ashley Wainer, VGS

Advisory Members

- Paul Dragon, CVOEO
- Ken Nolan, Vermont Public Power Supply Authority
- Kristin Carlson, Green Mountain Power
- Lisa Morris, Vermont Electric Cooperative
- Louis Porter, Washington Electric Cooperative
- Neale Lunderville, VGS
- Paul Zabriskie, Capstone Community Action
- Melanie Paskevich, NeighborWorks of Western Vermont

Questions? Contact: Darren Springer (dspringer@burlingtonelectric.com) or Linda McGinnis (lindamcginnis0@gmail.com).

⁷ For more info on the potential to reduce peak demand through connected heat pump water heaters, see: [Heat Pump Water Heaters Achieve Significant Peak Reduction and Energy Savings | Department of Energy](#)

Switch and Save

Income-Qualified - Water Heater Changeout

Darren Springer (BED) and Linda McGinnis (economist)
Co-chairs of the Switch and Save Steering Committee

How can we meet our climate, energy, and equity requirements cost-effectively?

**The Vermont Climate Action Plan identifies
heat pump water heaters
as a key strategy**

Energy Equity:

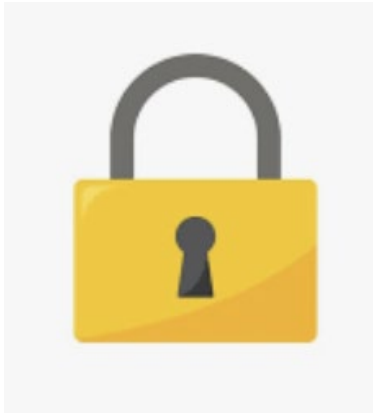
Hot water heating is the second largest energy cost for Vermont homes

The highest burden is on those who can least afford it



Replacement = \$1,000-\$4,000

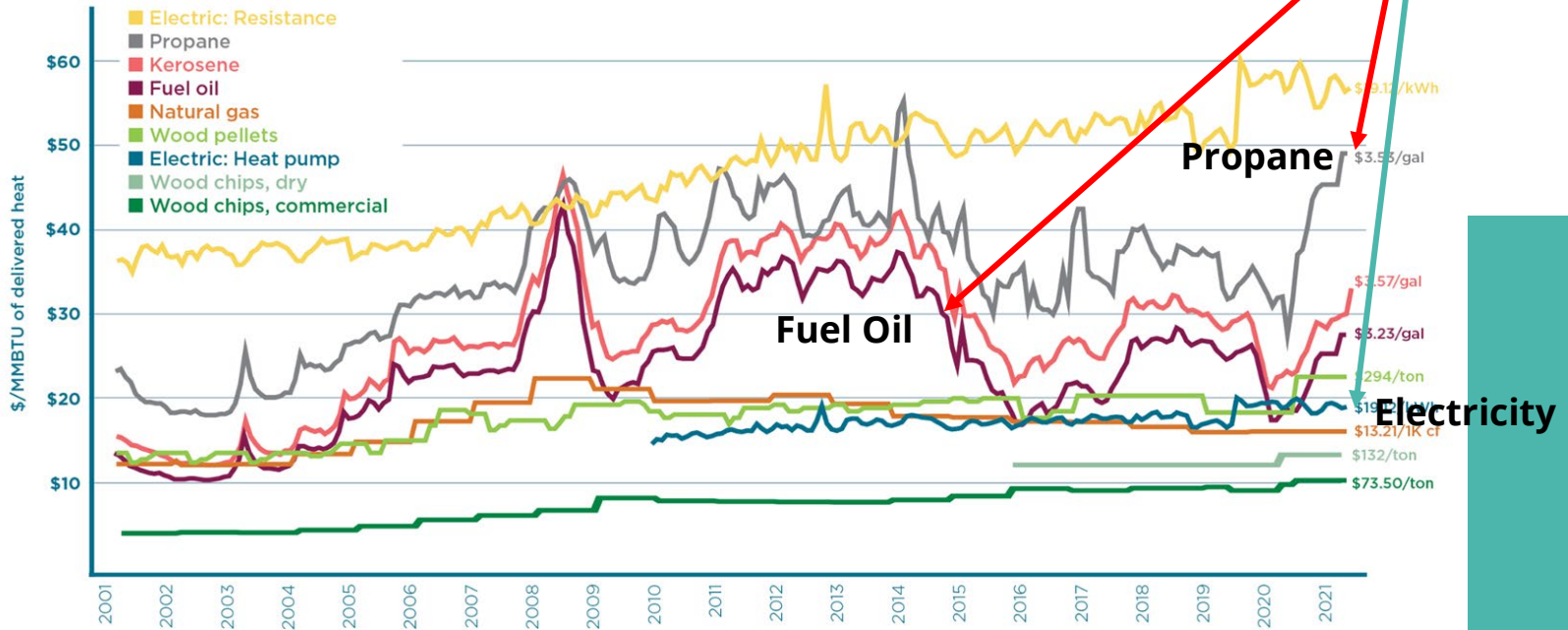
Replacing with new fossil-fueled water heaters locks us in for 10-13 years



- High-cost fuels
 - High price volatility
 - Low-efficiency
 - GHG pollution
-

Fossil Fuel Heat = 20 Years of high cost and price volatility

Cost comparison of different heating options over time



Source: Biomass Energy Resource Center, 2021. Note: electricity prices presented here are a statewide average. Electricity prices vary by utility territory.

Switch & Save Proposal - for lower income Vermonters

\$5 million in ARPA or other federal or flexible funds to provide income-qualified Vermonters with new energy-efficient heat pump water heaters (appx 1,250 to 2,500 households by end 2024)

- At low/no cost when combined with existing utility incentives (total avg. cost to install \$2,500- \$4,000)
- Including necessary electrical work
- Administered by Efficiency Vermont or CEDF in partnership with Distribution Utilities, Community Action Programs, and private sector installers

Focus on lower income Vermonters (and those not reached through WAP)

- Homes that have been weatherized over the past 10 years
- Homes with water heaters that are at risk of failing or have failed

Why Switch & Save?

Equity: focused on lower income Vermonters, reducing water heating expenses by up to 50%

Impact: one of top pathways identified to meet GWSA requirements

Technical Feasibility: smaller equipment, easy installation, makes homes electric-ready for other fuel switching

Cost-Effective: Reduced energy consumption = \$ savings and GHG reduction EVERY YEAR

Co-Benefits: reduced humidity, electric utility demand management

Climate Action Plan Criteria



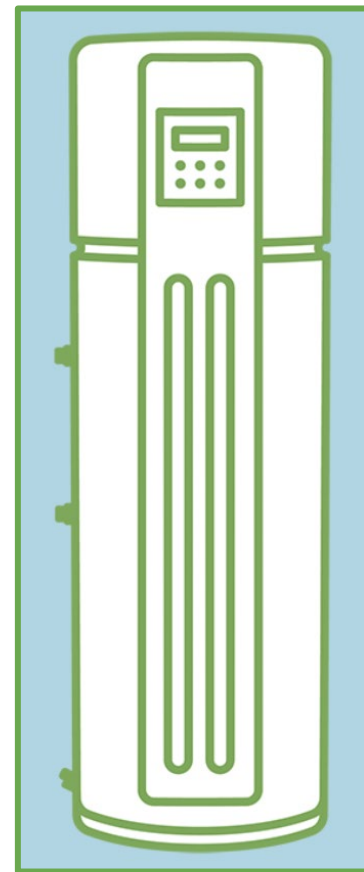
Why Heat Pump Water Heaters?

Cost Savings: Water heating is a home's 2nd highest energy cost, so making sound choices now can lead to big savings later

Build on current programs and incentives (up to \$500-\$1600), which have had very low uptake compared to incentives for heat pump heaters and EVs

Electric Heat Pump Water heaters offer the best balance of:

- up-front cost
- ease of installation
- savings over time
- reduced GHG emissions
- dehumidification



A key to meeting Vermont's climate requirements with an equity focus

Heat Pump Water Heaters

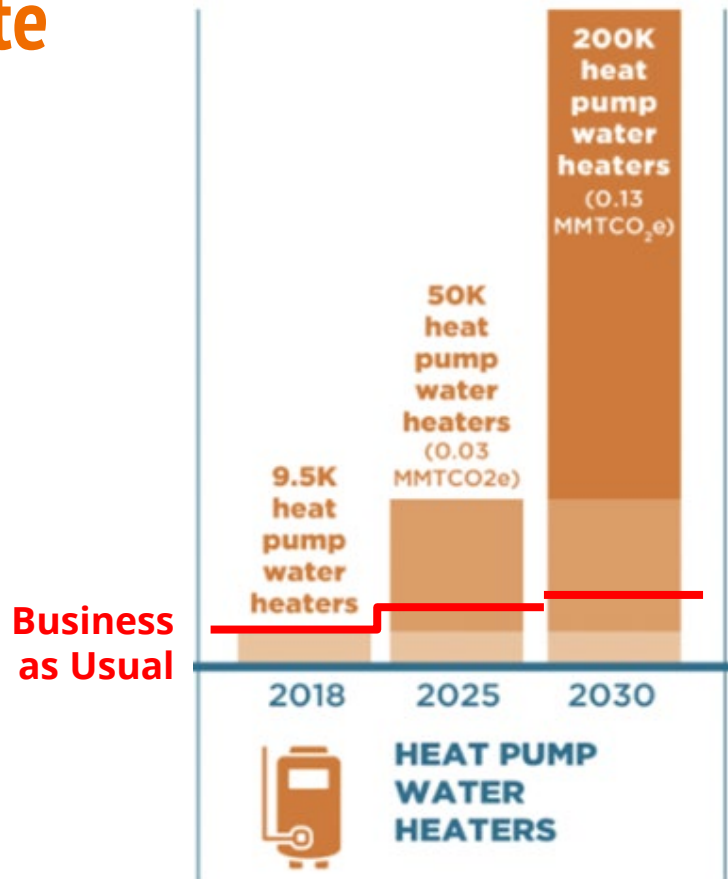
By 2025: 50,000 installed

By 2030: 200,000

Currently installed = 15,000

Current annual rate = 2,000

Needed = ~11,600/year



Switch & Save - a turnkey energy equity program

Committee members

Steering Team Members

- Darren Springer, Burlington Electric Department, Co-Chair
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- Paul Zabriskie, Capstone Community Action
- Melanie Paskevich, NeighborWorks of Western Vermont

Questions?

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Additional Slides

Benefit #1

Energy Efficiency and Cost Savings

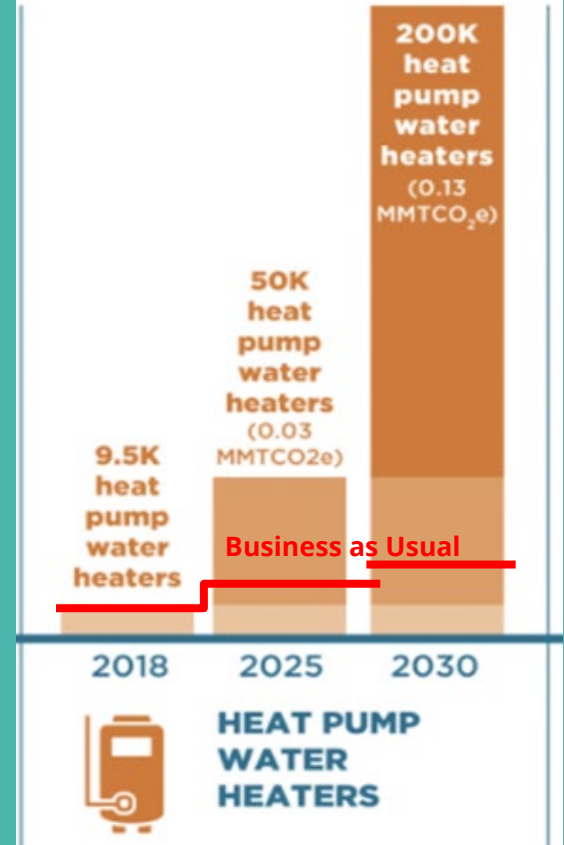
- **Efficiency:** Heat pump water heaters typically have a higher upfront price, but can cost half as much to operate given their strong energy efficiency (and provide dehumidification)
 - **Savings:** DOE estimates that HPHWs reduce energy consumption 60% compared to conventional water heaters. (CEDF estimates \$258 annual savings per household)
-

Benefit #2

Progress Toward Climate Requirements

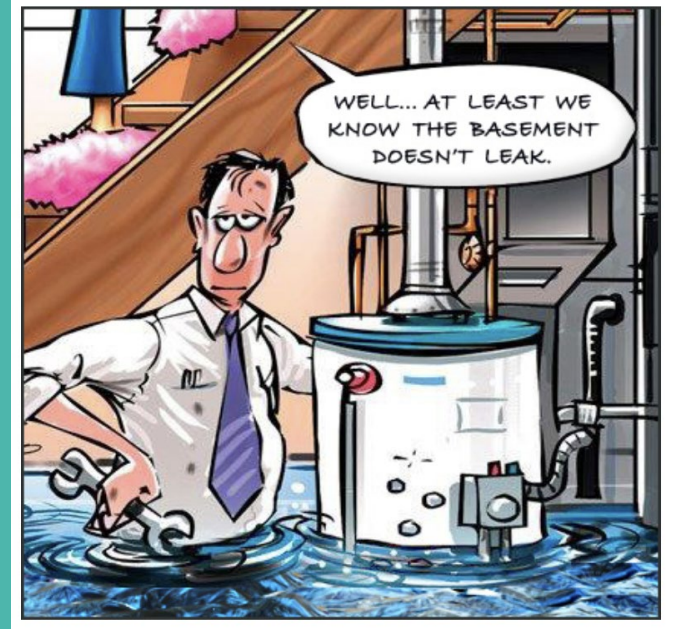
VT Climate Action Plan identifies Heat Pump Water Heaters among the most cost-effective technologies in cutting GHG emissions

Reaching GWSA Requirements



Benefit #3

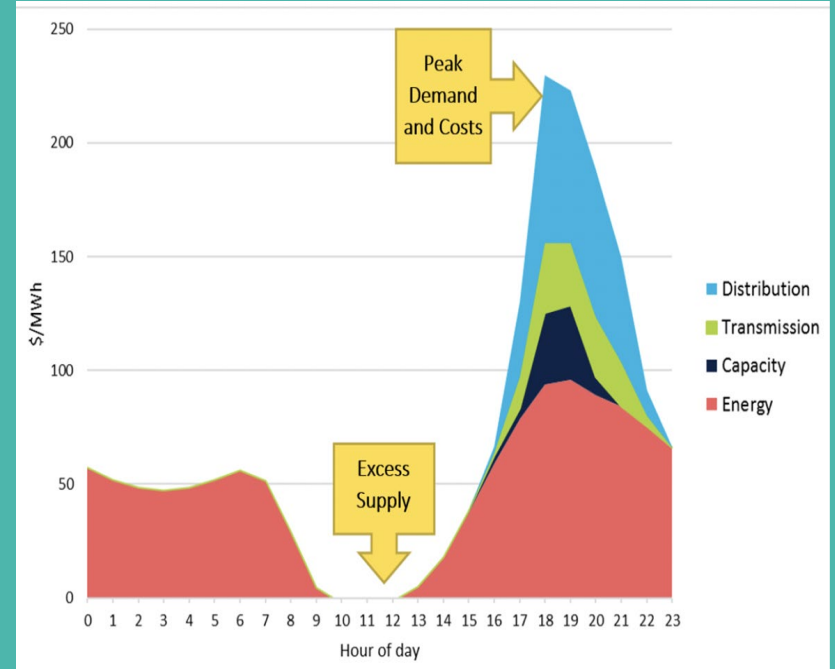
Replace *Before* it Breaks



Focus eligibility on lower income Vermonters with older water heaters to avoid emergency replacement with similar inefficient equipment

Benefit #4

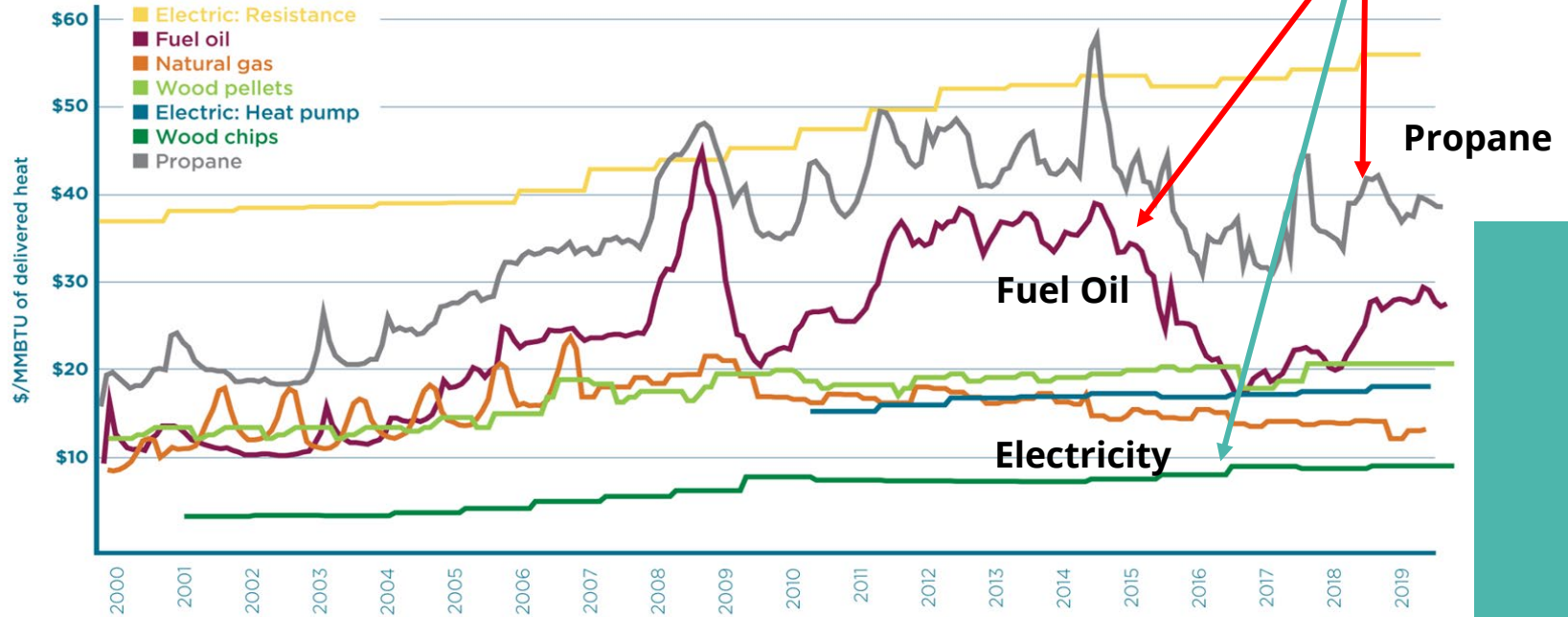
Manage Peak Electric Demand



HPHWs act as thermal “batteries”. When many are used across the state, they can provide system-wide cost savings, unlocking the possibility of discounted rates or bill credits

Benefit #5 - Avoid 13 more years of price volatility

Cost comparison of different heating options over time



Source: Biomass Energy Resource Center, 2019. Note: electricity prices presented here are a statewide average. Electricity prices vary by utility territory.

Benefit #6

Increase Customer and Contractor Focus on Water Heaters



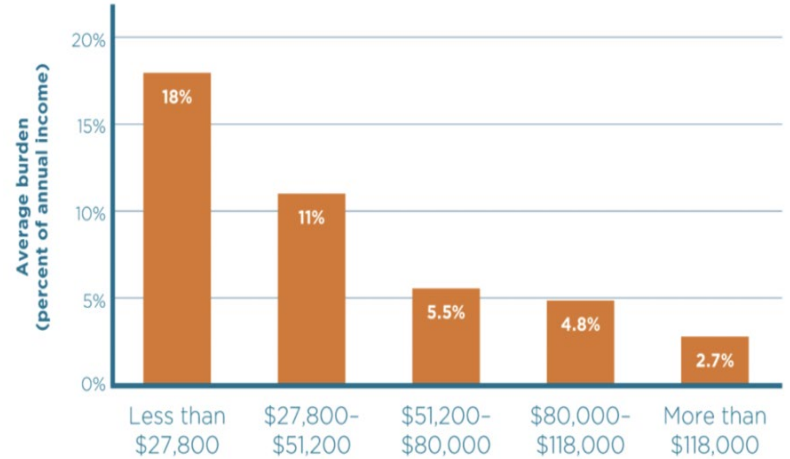
Focus on outreach to eligible Vermonters via utilities and Efficiency Vermont, the Community Action Agencies, and qualified contractors.

Benefit #7

Equity Focus



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



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

Low/No Cost incentive and electric panel upgrade helps those for whom the burden is the highest