

Comprehensive Energy Plan / Vermont Climate Council Cross-Sector Mitigation Subcommittee Buildings Sector Workshop

August 19, 2021, 9 a.m. - 1 p.m.

Link to join: <https://us02web.zoom.us/j/6050832511>

To join by phone, dial **929-205-6099**. Webinar ID: 605 083 2511#
(No participant ID or password is required)

Welcome! The meeting will get started shortly.

Introductions

Hosts

TJ Poor, Department of Public Service

Dave Farnsworth & Christine Donovan, Vermont Climate Council Cross-Sector Mitigation Subcommittee

Facilitator

Cindy Cook, Adamant Accord

Guests

Please introduce yourself (name, organization) using the chat function!

Workshop Objectives

Gather input on building sector policies, programs, and strategies currently in place or that should be in place with an eye toward:

How should the state consider and balance tradeoffs among criteria when assessing policy options?

- What decision-making criteria should be used to make such trade-offs?
- How should these criteria be employed in the context of making choices regarding the State's energy future?

What state strategies, policies, and programs are needed to achieve Comprehensive Energy Plan (CEP) and Global Warming Solutions Act (GWSA) Climate Action Plan (CAP) goals in the buildings sector?

- Recommendations regarding alternatives to consider (ex. Climate Council policy drafts)
- How to address equity in the sector/what is currently being done and/or planned to address
- Strategies and options for regions and municipalities to employ

Agenda

- 9:00 Welcome and Introductions, *PSD & VCC CSM*
- 9:15 Review Agenda, Forum Etiquette Guidelines and Zoom Logistics, *Facilitator*
- 9:20 Overview of the CEP/CAP Development Process, *PSD & ANR*
State of the State: Where are we and where are we going, *PSD*
Equity in Building Sector
Discussion
- 10:45 Decision making frameworks, *PSD*
CAP Draft Policy Intro
- 11:00 Intro to breakouts, *PSD*
Break
- 11:10 Breakout Sessions – Residential, Commercial, Heating Fuels
- 12:10 Report from Breakout Groups & Discussion, including cross-cutting issues, *Facilitator*
- 12:55 Next Steps and Future Opportunities for Input, *Facilitator*
- 1:00 Adjourn

Workshop Etiquette and Zoom Logistics

- CEP public meeting etiquette guidelines available here: <https://publicservice.vermont.gov/content/2022-plan>
- Please remain muted with video off during presentations. We welcome participants to turn their video on while speaking during discussion sessions.
- As a reminder, this workshop is being recorded and will be posted on the CEP website after the event.
- During the workshop, participants will have multiple opportunities to ask questions or provide comments:
 - To make a comment directly, if joining remotely please use the “raise your hand” function during discussion sections. If in person, please raise your hand as well.
 - Alternatively, remote participants can provide comments via the chat function. Callers will be invited to press*6 to unmute during Q&A to ask their question during the Q&A.
 - So that everyone has an opportunity to speak, we kindly ask that you keep your remarks to 2-3 minutes at a time. At the end of the workshop, we will discuss opportunities for future input as well.

Vermont Comprehensive Energy Plan – 2022

**TJ Poor, Efficiency & Energy Resources
Director
Vermont Public Service Department**

GWSA Climate Action Plan

**Marian Wolz, GWSA Coordinator
Agency of Natural Resources**

Vermont Energy Policy

Title 30, Section 202a:

- To ensure, to the greatest extent practicable, that Vermont can meet its energy service needs:
 - In a manner that is **adequate, reliable, secure, and sustainable**
 - Ensuring **affordability** and encouraging the state's **economic vitality**
 - Using energy resources **efficiently** and managing demands **cost effectively**
 - In a manner that will **achieve greenhouse gas reductions requirements**

Comprehensive Energy Plan - Two Plans

Comprehensive Energy Plan (30 V.S.A. § 202b)

- Comprehensive 20-year analysis and projections of the use, supply, cost, environmental effects all energy sources used in VT

Electric Plan (30 V.S.A. § 202)

- 20-yr assessment of *electric* demand, supply, strategies

- CEP Required Every 6 years – next due **January 2022**

Comprehensive Energy Plan - *Requirements*



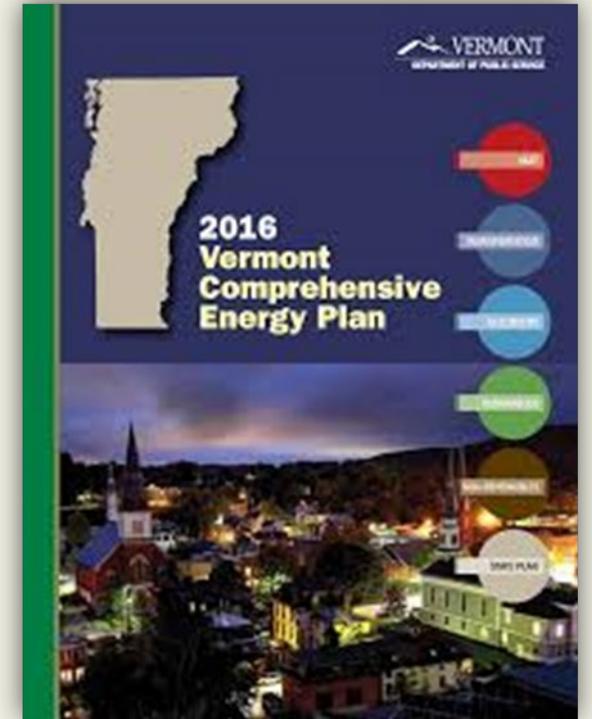
Must include standards and recommendations for Act 174 enhanced energy planning



Must be consistent with GHG reduction requirements, GWSA Climate Action Plan, relevant goals of Title 24, Section 4302

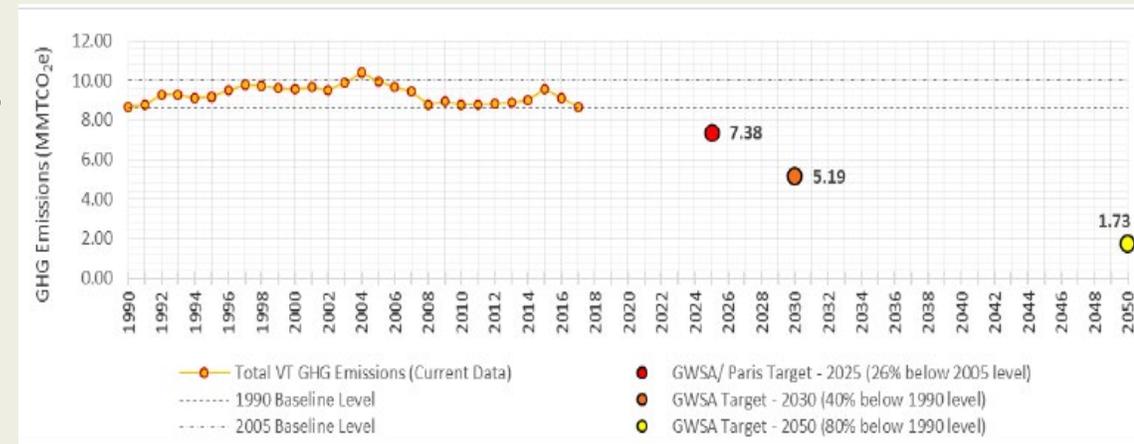
2016 Comprehensive Energy Plan

- Last CEP published in January 2016
- 90% renewable (all sectors) by 2050
- Over 300 recommendations



2022 CEP Starting Points

- 90% renewable by 2050 *as a starting point*
- 10 V.S.A. 578 Requirements – GHG Emissions reductions equal to:
 - Not less than 26% relative to 2005 emissions by 2025 (Paris Accord)
 - Not less than 40% from 1990 emissions by 2030 (2016 CEP)
 - Not less than 80% from 1990 emissions by 2050 (2016 CEP)



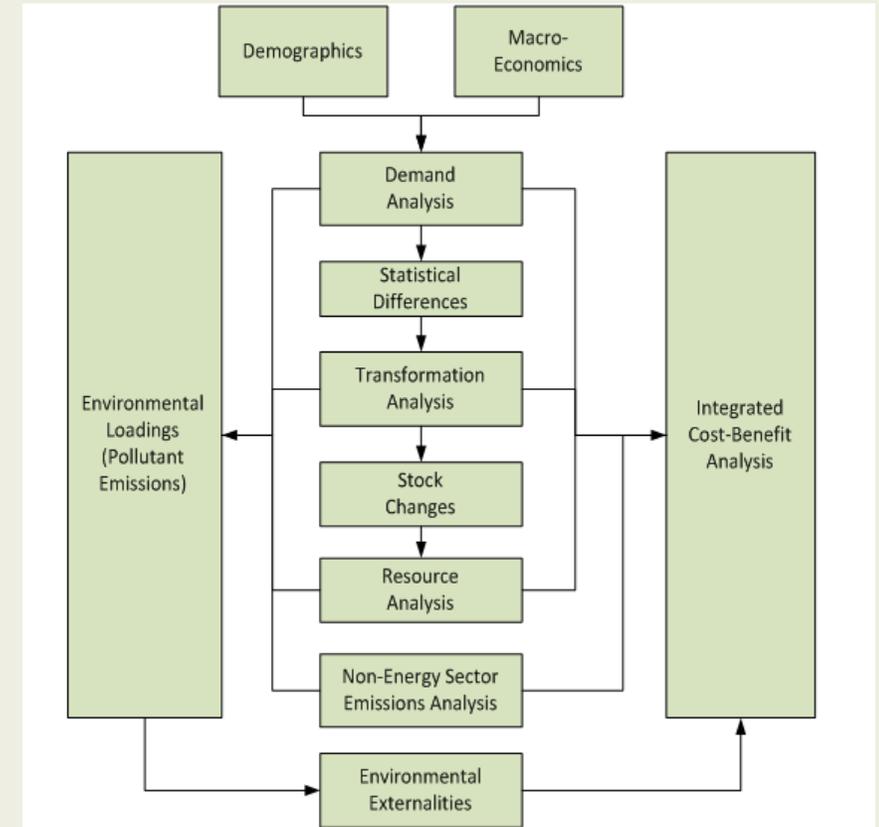
VT GHG Inventory. VT DEC AQCD May 2021

2022 CEP Vision

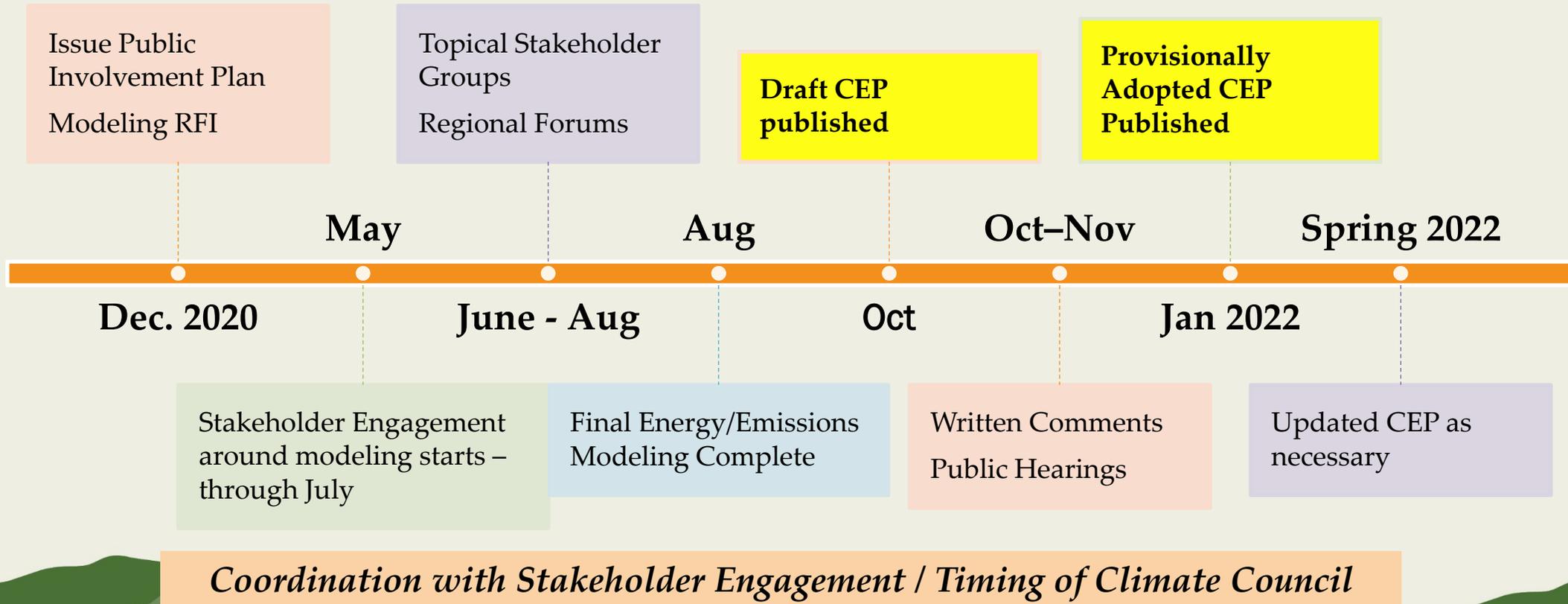
- Focus on a strategic plan that identifies
 - Tradeoffs among policies
 - Milestones for identifying success and need for modification in policies
 - Uncertainties that could affect policy success
- Includes
 - Act 174 standards & recommendations
 - Climate and Renewable Energy Pathways
 - Electric Plan
 - State Agency Energy Plan

2022 CEP Modeling

- Scenario analysis
 - Working with ANR, NESCAUM, Stockholm Environment Institute using Low Emissions Analysis Platform (LEAP)
 - Reference, “Business as Usual” case plus policy and technology scenarios
- Energy modeling, non-energy sector modeling
 - LEAP is scenario-based modeling tool that can track consumption, production, and resources in all sectors
 - Plan to regionalize results after initial modeling effort is complete
 - Local and regional air pollutants in addition to GHG



2022 CEP Tentative Timeline (as of 8.10.21)



Global Warming Solutions Act – Key Dates

- General Assembly (GA) had 60 days from enactment (**Sept 23, 2020**) to make appointments
- Administration had 30 days from receiving final appointment (**Oct 23, 2020**) to convene first meeting of the Council
 - First meeting was held **November 20, 2020**
- Subcommittees Began Meeting – **February 2021**
- Council adopts Initial Climate Action Plan – **Dec 1, 2021**

Global Warmings Solutions Act

Clear Sequence of Work

1. Five Subcommittees Defined in Statute to Develop the Work
 - Rural Resilience and Adaptation, Agriculture and Ecosystems, Cross Sector Mitigation, Just Transitions and Science and Data
2. Each Subcommittee following Clear Sequence of Work
 - Inventory existing programs to meet GWSA requirements
 - Identify, analyze and evaluate new strategies/programs needed to meet GHG requirements
 - Develop financing strategies for actions ready to implement
3. Develop monitoring strategy for assessing
4. Identify rules to be adopted (by ANR) by 2022
5. Adopt the Vermont Climate Action Plan by Dec 1, 2021 and update the Plan every four years thereafter.

Framework for Climate Action Plan

Pathways → Strategies → Actions

Cross-Sector Mitigation, Agriculture and Ecosystems and Rural Resilience and Adaptation

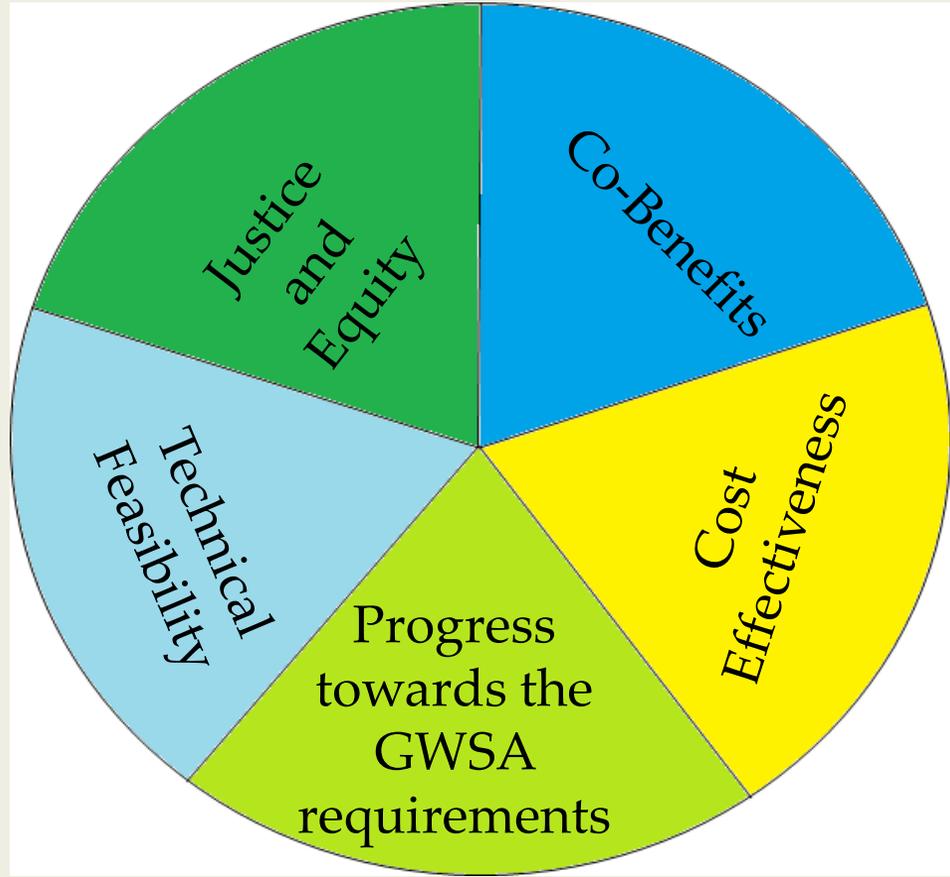
- A **pathway** is a high-level means of achieving GHG emissions reductions or adaptation, resilience, and sequestration goals. While written broadly, pathways should be stated specifically enough so that it is possible to assess whether progress has been made in achieving them.
- A **strategy** is a statement of measurable activity, a benchmark, to be reached in pursuit of the pathway. Strategies should be measurable and are a more specific subset of pathways.
- **Actions** are the “operational” tasks that the state will undertake to meet the pathways and strategies. Actions may be written around existing, or propose new, policies, programs, projects, initiatives, plans, etc.

These will be further developed in the coming months, informed by public engagement and technical analyses.

Leading with Equity as a Core Component

The term “Just Transitions” is a way of framing for government and business action on climate change. Its work encompasses both public policies and business action to deal with the impacts of industry transition away from greenhouse gas emissions for jobs and livelihoods (the transition "out") and aims to generate the low or zero greenhouse gas emission jobs and livelihoods of a sustainable society (the transition "in"). [Guiding Principles for a Just Transition, June 2021](#)

Climate Action Plan



Short term priorities



Long term priorities

Mitigation Strategies
(emissions reduction)

Sequestration
Strategies

Resilience and
Adaptation
Strategies

Process to Date

1. Scope of Work Refined for Subcommittees
2. Subcommittee membership developed - technical expertise and diversity considered
3. Initial Ideas Explored by Task Leads
4. Presentation and Discussion
5. Pathways Presented



PUBLIC ENGAGEMENT TIMELINE

2021

2022

AUG

SEPT

OCT

NOV

DEC

JAN

FEB

MAR

Social media, website, outreach materials, survey, stakeholder events

Statewide and regional events, partner supported events

Meet with Council and sub-committees to review findings

Initial plan launch and promotion

Statewide events, partner support

Deliberation platform on elements for further refinement

Meet with Council and sub-committees to review findings

Comprehensive plan promotion

Energy Plan & Climate Plan

Overlap

Climate Action Plan

- Climate Adaptation
- Non-Energy GHG Emissions: Agriculture, Waste, etc.
- Sequestration
- GHG Inventory Review

- Cost-effective GHG Reduction Targets
- Energy Sector Analysis incl. policy & technology scenarios & pathways
- Public Engagement Efforts
- Equity

Comprehensive Energy Plan

- Renewable Energy Development
- Electric Plan including Reliability
- Energy System Planning: Adequacy, security, sustainability, Affordability, Economic vitality
- Standards for Local Planning (Act 174)

Questions?

- Type your questions in the chat, “raise your hand” to be called on and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.
- You can send comments on the CEP by email (or mail) to: PSD.ComprehensiveEnergyPlan@vermont.gov
- You can send comments on the CAP via the public input portal: <https://anrweb.vt.gov/ANR/ClimateCouncil/PublicInputForm.aspx?PKID=3209>

Buildings Sector Overview

Where are we now?

TJ Poor

Public Service Department

August 19, 2021

Thermal Energy Use, Emissions, Expenditures

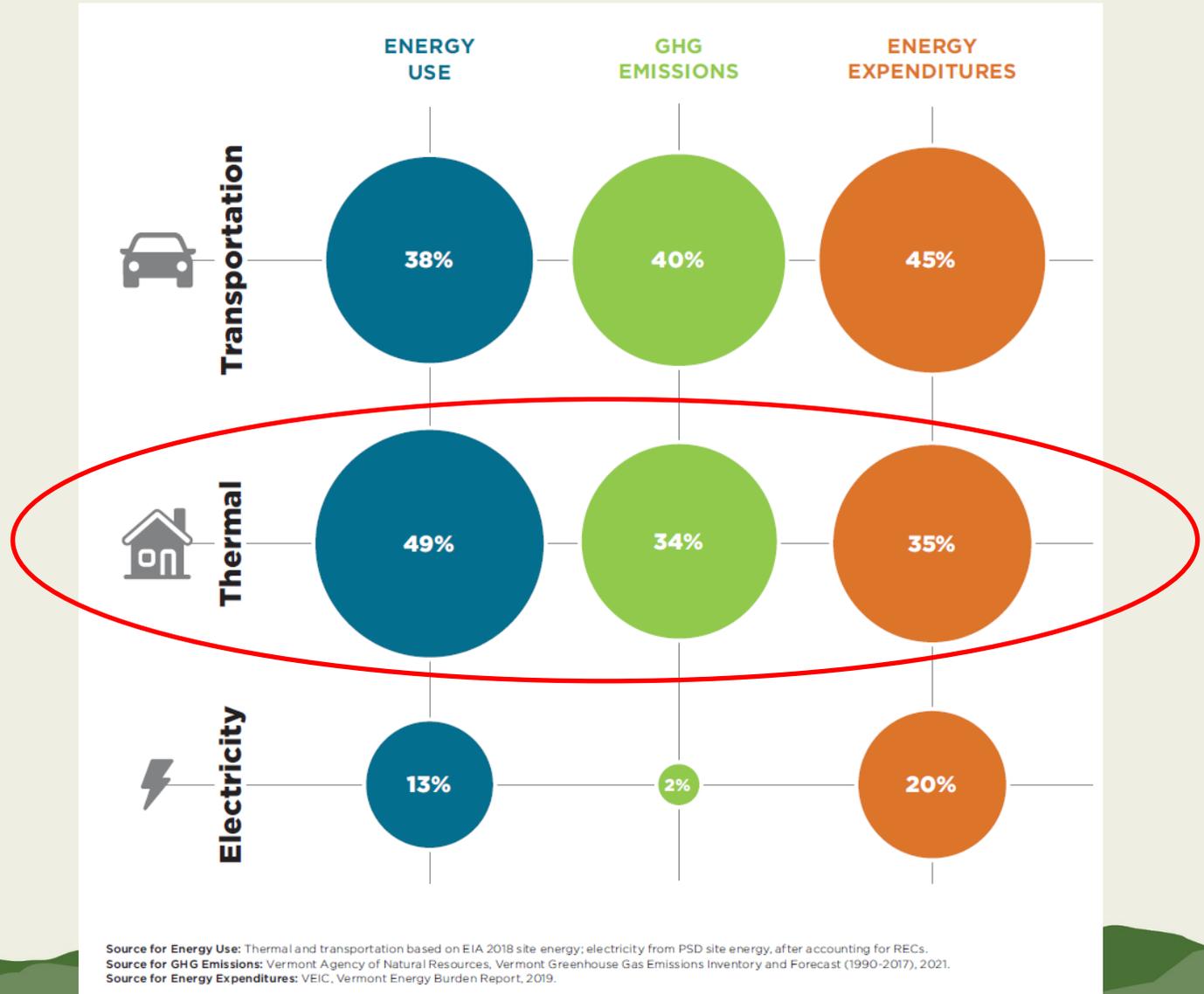
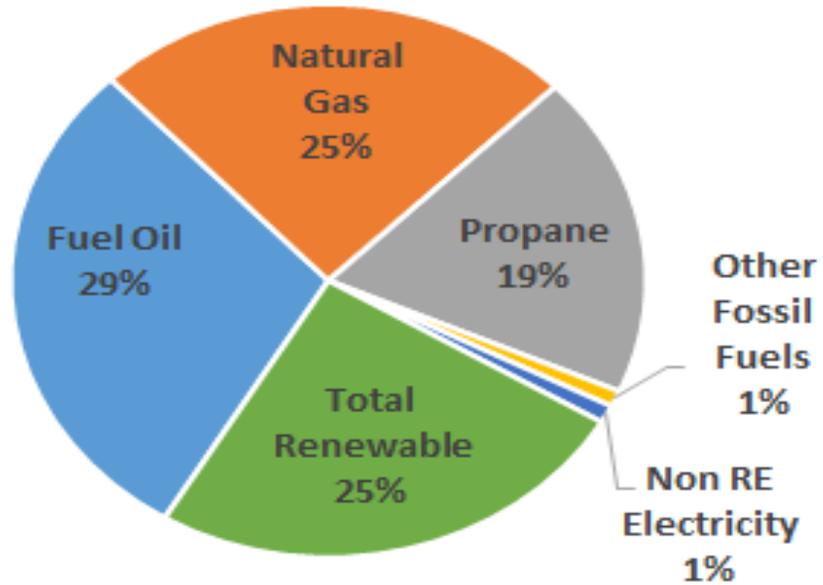


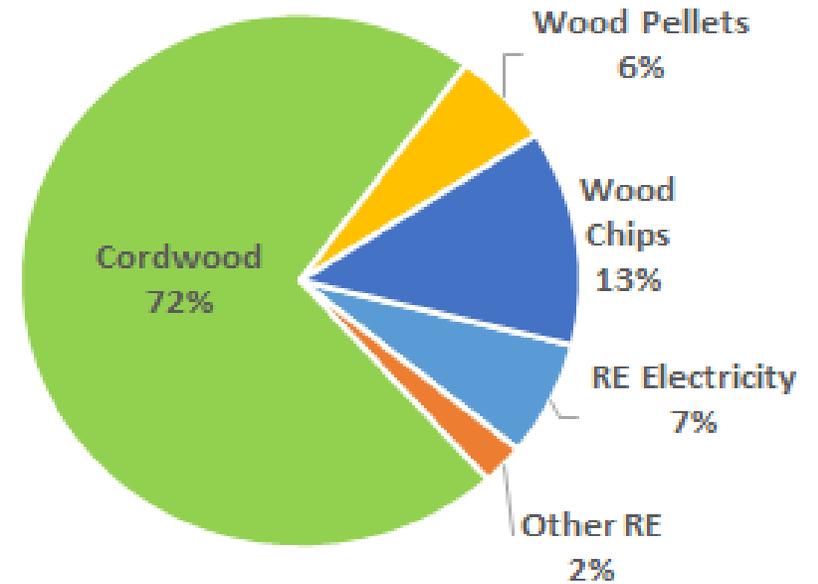
Chart courtesy of Energy Action Network: [Energy Action Network Annual Progress Report for Vermont 2020/2021](#)

Thermal Supply

Thermal Site Energy Sources 2018



Thermal Renewable Energy Sources



Vermont Energy Policy – Thermal

[30 V.S.A. § 202a](#) – State Energy Policy

- “To ensure to the greatest extent practicable that Vermont can meet its energy service needs in a manner that is adequate, reliable, secure, and sustainable; that ensures affordability and encourages the State's economic vitality, the efficient use of energy resources, and cost-effective demand-side management; and that is environmentally sound”

Multiple Other Considerations:

[30 V.S.A. § 8001](#) – Renewable Energy Goals, including:

- Ensure that renewable energy's economic benefits flow to Vermont's economy;
- Retain and grow renewable energy jobs;
- Develop viable markets for renewable energy and energy efficiency projects;
- Protect air and water quality through the reduction of fossil fuel use;

[10 V.S.A. § 581](#) Weatherization Goals, including

- 80,000 housing units improved by 2020
- Annual fuel needs and bills reduced by 25% in units served
- Increase Low-Income Weatherization

[10 V.S.A. § 580\(a\)](#) – 25 x 25 State Goal – “25% of energy consumed within the state through the use of renewable energy sources”

[30 V.S.A. § 218c](#) – Least Cost Planning “comprehensive energy efficiency programs” at “least cost” pursuant to 218c

[30 V.S.A. § 209](#) – Energy Efficiency & Energy Efficiency Charges & Funding – as well as guidance in setting appropriate budgets

AND MORE!!!

Energy & Climate Programs for Buildings

Vermont's Energy Efficiency Utilities

Efficiency Vermont

- “Statewide” Electric & Thermal Efficiency Programs for unregulated fuels

Burlington Electric Department

- Electric and unregulated Thermal Efficiency services in own territory

Vermont Gas Systems

- Natural Gas Efficiency Services

- 30 V.S.A §209 creates an Energy Efficiency Charge to acquire “all reasonably available cost- effective energy efficiency”
 - Directs revenues from Vermont’s participation in Regional Greenhouse Gas Initiative and Forward Capacity Market to Thermal Fuels

Commercial Customer Programs

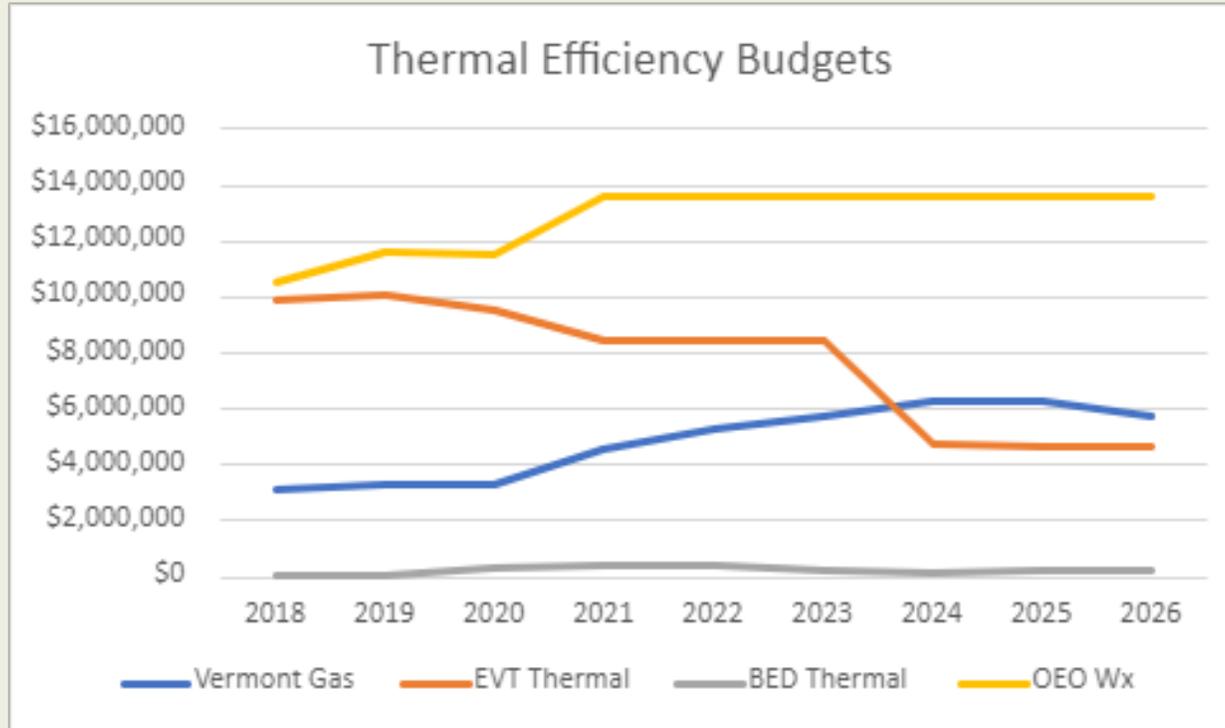
Self Managed Energy Efficiency Program (“SMEEP”)

Energy Savings Accounts (“ESA”) & ESA Pilot

Customer Credit Program

State Energy Management Program (SEMP)

Thermal/Process Efficiency Funding

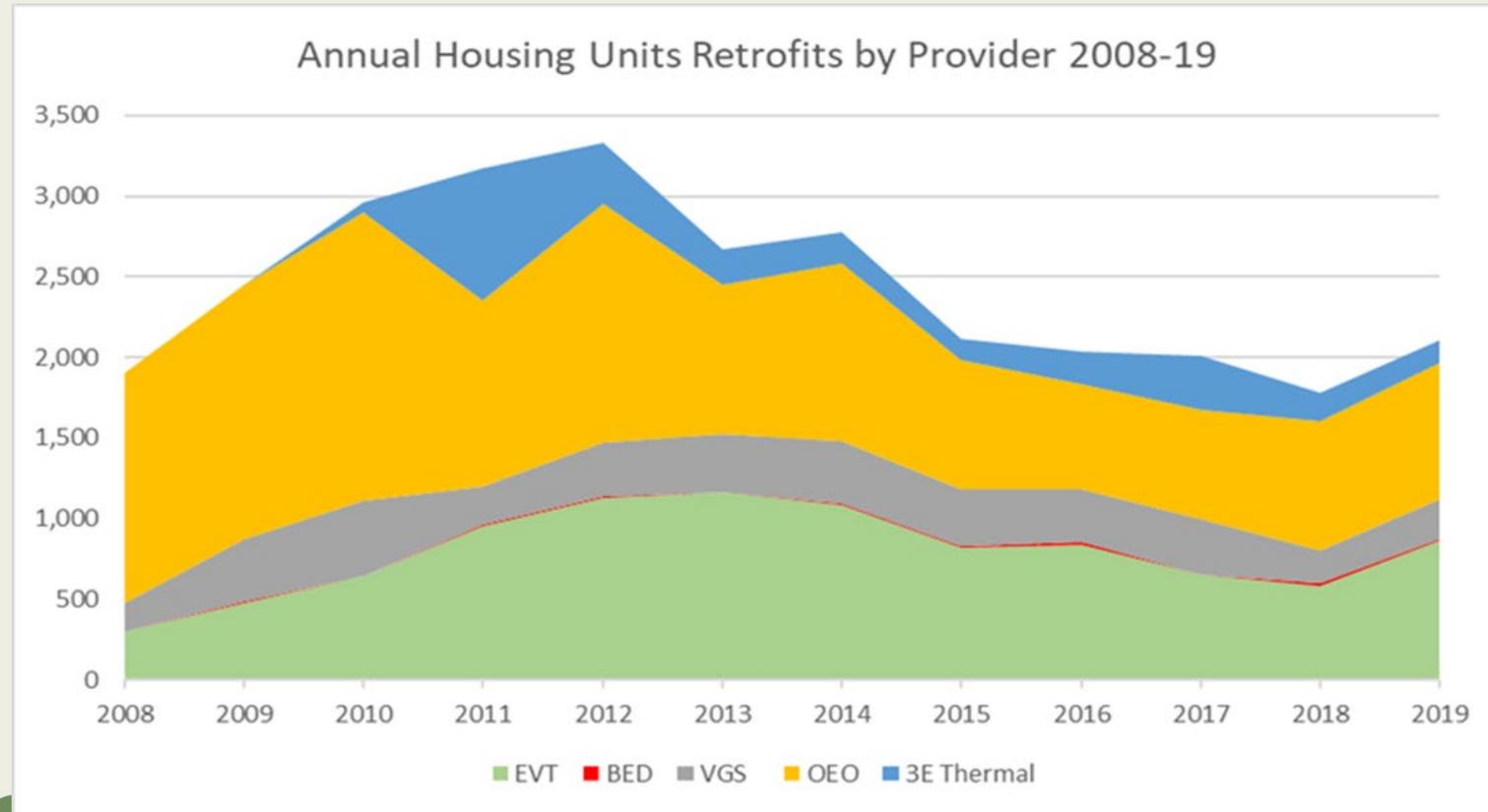


Note: OEO Weatherization is reported on fiscal year, Efficiency Utilities are calendar year

Sources of Funds

- OEO Weatherization
 - Two cents per gallon on fuel oil, propane, kerosene
 - Gross receipts tax on natural gas and electricity
 - Federal Funds
 - FY21 projected and carried forward – uncertain
- Efficiency Vermont & Burlington Electric
 - Revenues from Regional Greenhouse Gas Initiative and Forward Capacity Market
 - *Does not include one-time transfer from electric ratepayers to fund thermal Act 62 of 2019 (\$2.25 million)
- Vermont Gas
 - Natural Gas Efficiency Charge

Annual Homes Weatherized



Efficiency Program Innovation 2021-23 – Buildings

Flexible Load Management Pilot (~\$3.3m)

Greenhouse Gas Performance Metrics

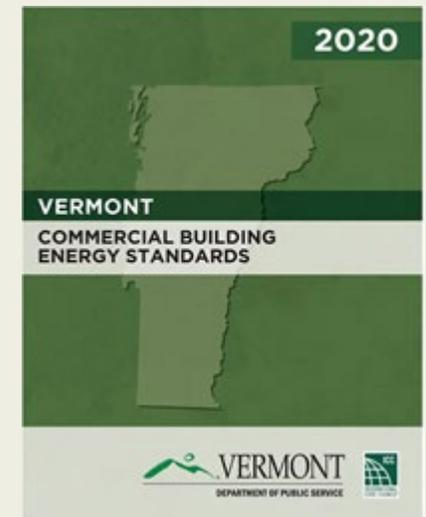
Refrigerant Management Program (~\$3.4m)

Weatherization and Health Pilot



Building Energy Standards

- Residential Building Energy Standards (RBES) since 1997
- Commercial Building Energy Standards (CBES) since 2007
- No statewide enforcement mechanism
 - Compliance 90% in commercial, 66% in residential sector
- Stretch codes – applies to residential Act 250 projects, can be adopted by municipalities
- Updated every 3-years



Energy Assistance Programs

- Home Heating Fuel Assistance Program (LIHEAP)
 - Assists low-income households in meeting immediate home energy needs e.g. energy bills, energy crises, weatherization
 - Federally funded
- Energy Assistance Programs
 - GMP, VGS Discount on rates for qualifying customers
 - Funded by ratepayers

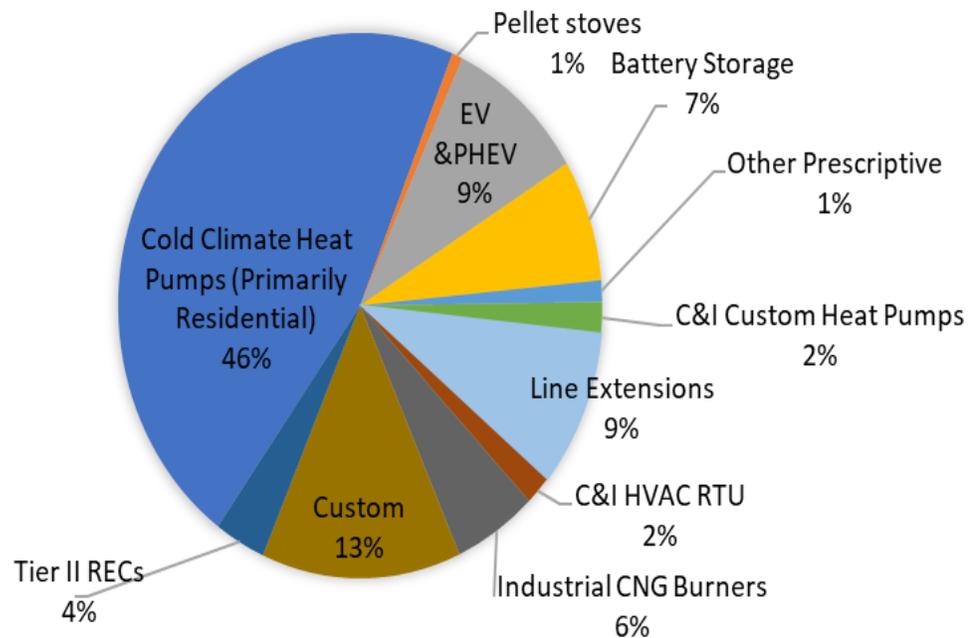
Clean Energy Development Fund

- Advanced Wood Heating Incentives
 - Automated pellet boilers across sectors
 - Efficient wood stove changeout program
- Support for chip & bulk pellet heating market
- No future dedicated funding

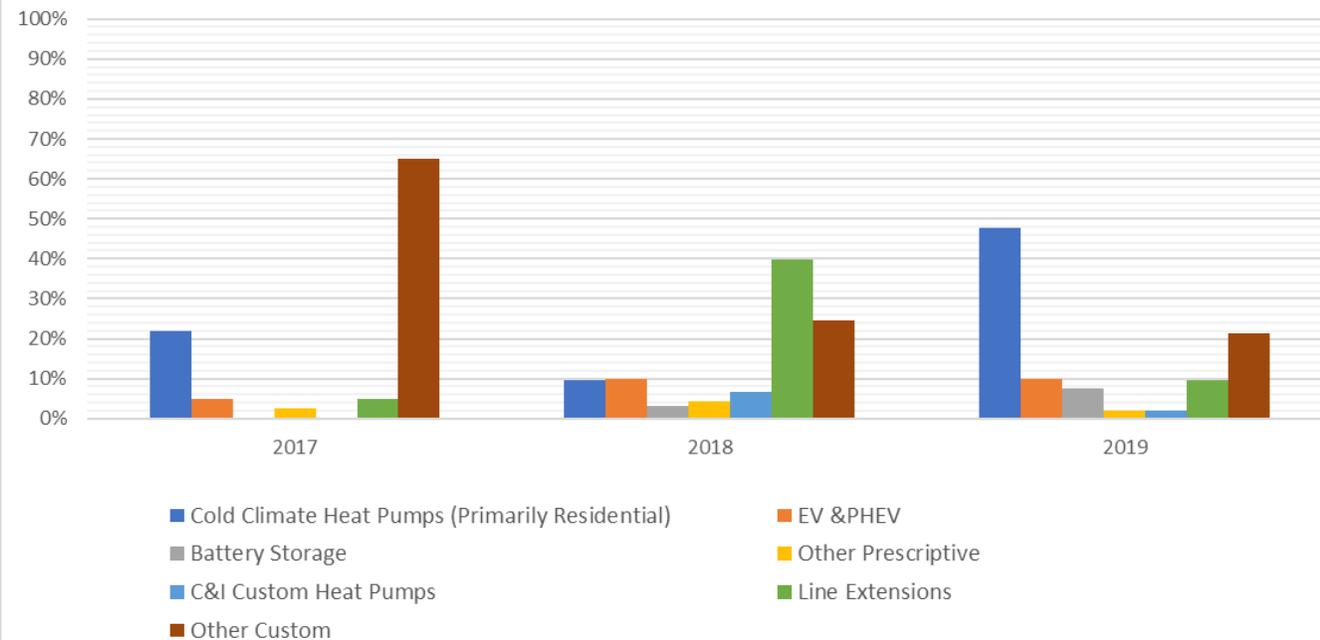
RES “Tier 3”

- Act 56 of 2017 - Requirement of electric Distribution Utilities to cause fossil fuel reductions for their customers
- Costs vary considerably across utilities in terms of incentives paid to customers and costs borne by ratepayers.
Average gross cost: \$34/ MWh in 2019

2019 Tier III Compliance Measures

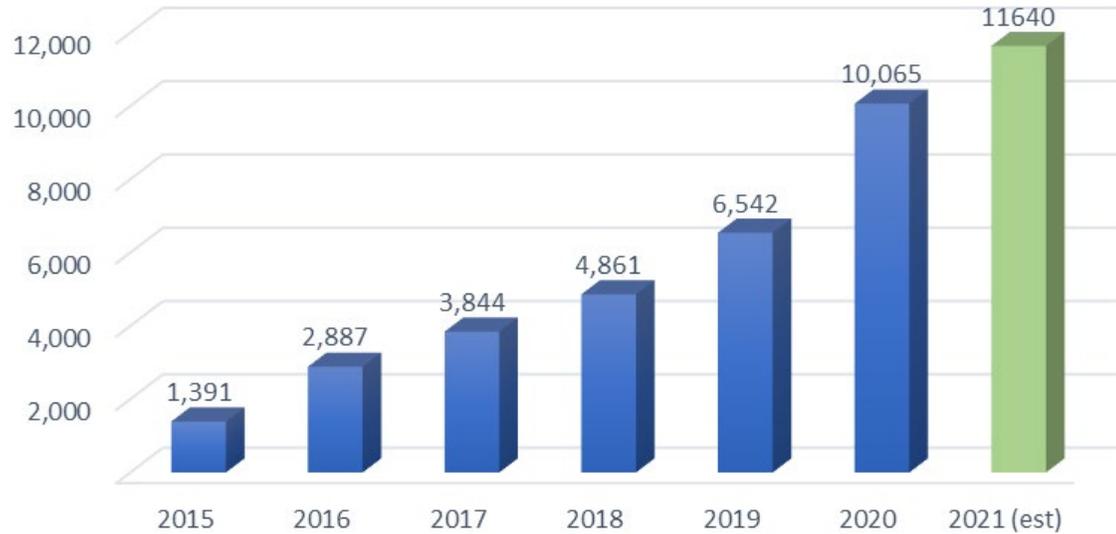


Tier 3 Measure Distribution 2017-19

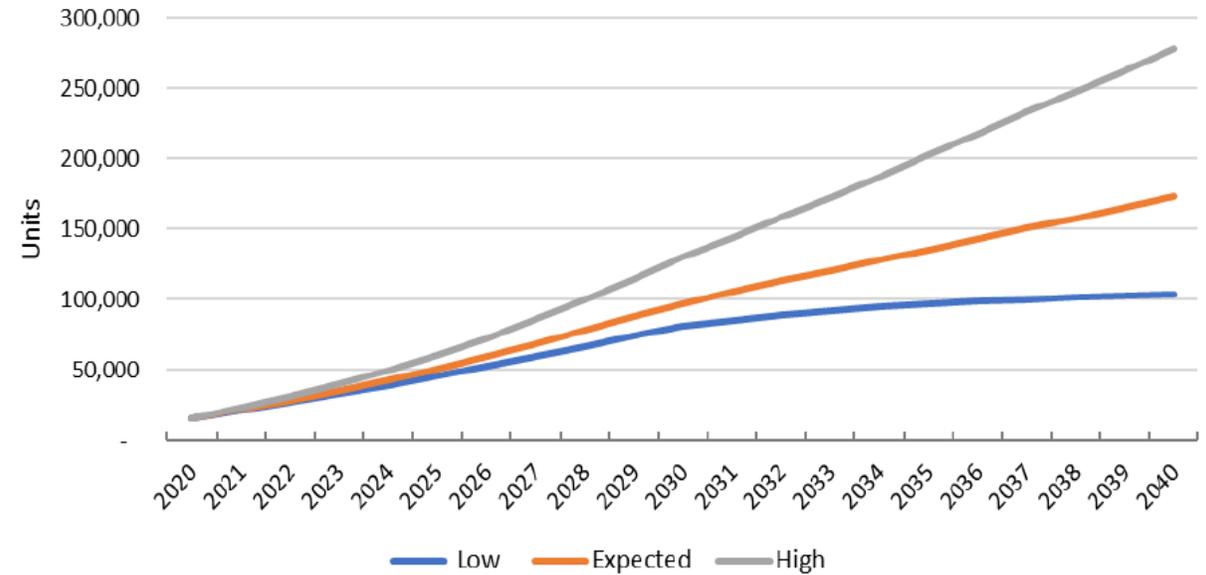


Heat Pumps

VT Annual Heat Pump Sales

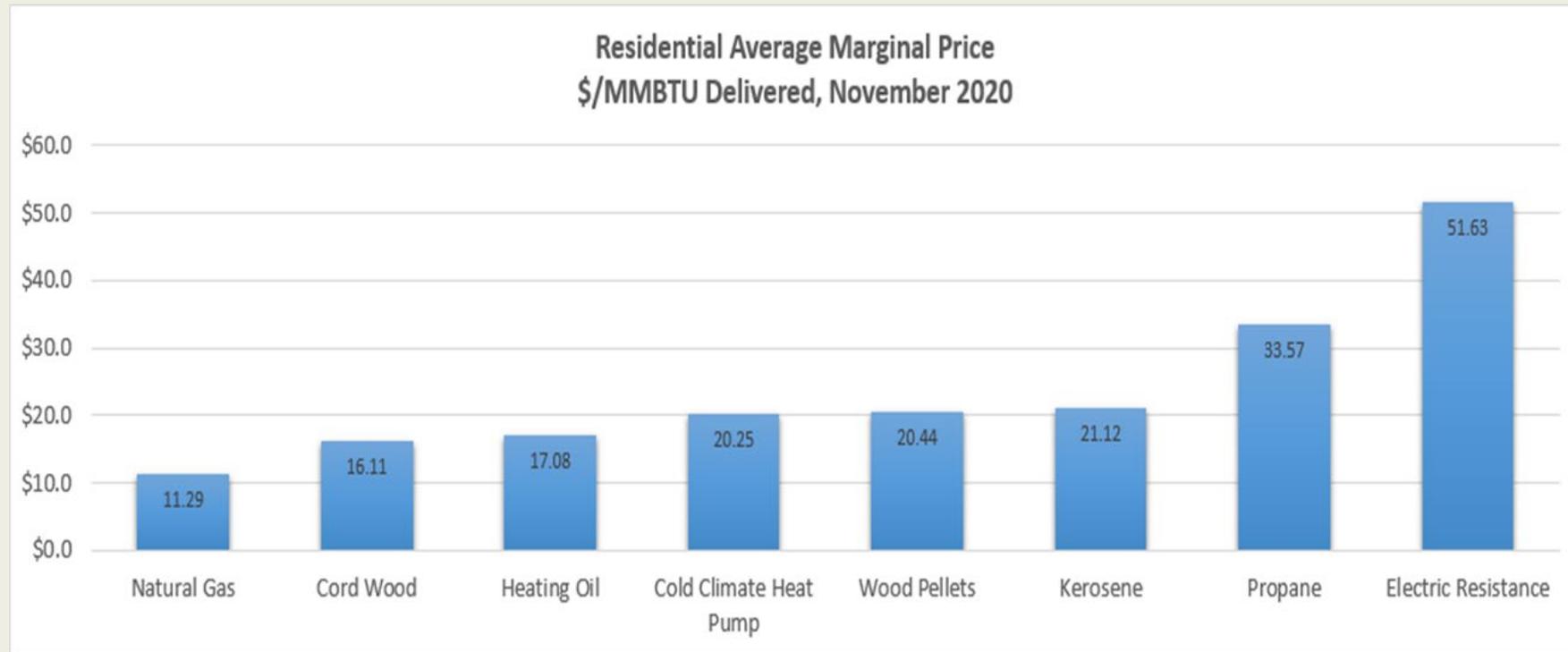


Heat Pump Projections



- Includes both residential and commercial (~90/10 split)
- Projections used in VELCO Long Range Transmission Plan based on known programs and requirements

Thermal Supply Prices



Clarifying questions?

- Type your questions in the chat, “raise your hand” to be called on and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.

Equity in Buildings Policy

Sarah Philips

Office of Economic Opportunity

August 19, 2021

Questions?

- Type your questions in the chat, “raise your hand” to be called on and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.

Proposed Policy Recommendations & Considerations

Dave Farnsworth, Cross-Sector Mitigation Subcommittee

Buildings/ Thermal Sector Potential Pathways



- Weatherization at Scale
- Clean Heat Standard
- Rental Efficiency Ordinance

Complimentary Policies:

- Decarbonizing the Grid
- Demand Management (direct load control/electric rate design)
- Workforce Development

Consideration for the Breakouts: Decision-Making Framework

TJ Poor, PSD

Workshop Objectives

Gather input on building sector policies, programs, and strategies currently in place or that should be in place with an eye toward:

How should the state consider and balance tradeoffs among criteria when assessing policy options?

- What decision-making criteria should be used to make such trade-offs?
- How should these criteria be employed in the context of making choices regarding the State's energy future?

What state strategies, policies, and programs are needed to achieve Comprehensive Energy Plan (CEP) and Global Warming Solutions Act (GWSA) Climate Action Plan (CAP) goals in the buildings sector?

- Recommendations regarding alternatives to consider (ex. Climate Council policy drafts)
- How to address equity in the sector/what is currently being done and/or planned to address
- Strategies and options for regions and municipalities to employ

Some Questions to Consider in a Decision-Making Framework

- Benefit/Cost Tests – What perspective?
 - Global Societal? Vermonter? Public/Program Investment?
 - Valuing benefits/costs/impacts that are not easy to quantify, e.g. affordability
- How to value risk of acting, risk of not acting
- Time value
- How to make decisions are robust in the face of uncertainty
- Evaluation and ability to adapt

Clarifying questions?

- Type your questions in the chat, “raise your hand” to be called on and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.

Breakout Group Instructions & Break

Three Breakout Groups:

- Residential (including Multi-family bldgs.)
- Commercial
- Heating Fuels

We will reconvene in breakout groups at 11:10 am!

Welcome Back!

- Breakout Group Reports
 - Residential Sector
 - Commercial Sector
 - Heating Fuels
- Group Discussion

Additional Opportunities for CEP/CAP Comment

Comprehensive Energy Plan:

- Website (information on upcoming events and other avenues for providing input):
<https://publicservice.vermont.gov/content/2022-plan>
- Email (to submit comments on the CEP): PSD.ComprehensiveEnergyPlan@vermont.gov

Climate Action Plan:

- Website (information on upcoming events and other avenues for providing input):
<https://aoa.vermont.gov/content/vermont-climate-council>
- Public Comment Portal:
<https://anrweb.vt.gov/ANR/ClimateCouncil/PublicInputForm.aspx?PKID=3209>

Thank You!