Preliminary Report on All-Fuels Energy Efficiency Pursuant to Act 62

Senate Natural Resources and Energy Committee

January 17, 2020

Margaret Cheney, Commissioner
Thomas Knauer, Policy Director

VERMONT
PUBLIC UTILITY COMMISSION

Act 62 Questions to the PUC

Lawmakers asked the PUC to consider:

1) **Creation of an all-fuels energy efficiency program** to provide for the coordinated development, implementation, and monitoring of efficiency, conservation, and related programs and services **for all regulated and unregulated fuels**
2) **Expansion** of the programs and services that existing efficiency utilities may provide
3) **Funding** and other related issues

Two Reports

1) **Preliminary Report due January 15, 2020:** to the Senate Committee on Natural Resources & Energy and the House Commission on Energy & Technology.

   Progress made and any preliminary findings and recommendations

2) **Final Report due January 15, 2021:**

   Findings and detailed recommendations

What Is in the Preliminary Report

1) **Laws, goals, and policies** that guide Vermont's existing and disparate energy programs – a comprehensive inventory
2) **Progress** made to date on State goals
3) Summary of the **current energy programs and funding** mechanisms
4) **Gaps in programs and funding** that prevent Vermont from achieving its goals
5) **Principles** and previously identified options for program funding

What Is *Not* in the Preliminary Report

- Whether to create an all-fuels efficiency program

  No participants advocated for this. The Question will be directly addressed in the 2021 report and will be significantly informed by whether lawmakers identify a new funding source to support an all-fuels efficiency program.

- Whether to expand the programs and services that current energy efficiency utilities (EEUs) may provide

  It should *not* be assumed that the incumbent EEUs would be appointed to administer an all-fuels program. More time is needed to analyze this.

1) Existing Laws, Goals, Policies

- High-level energy policy: 30 VSA Sections 218c, 218e, 202a(1), 8001
- Comprehensive Energy Plan: Section 202b
- Greenhouse gas targets: 10 VSA Section 578(a) and utilities' IRPs
- Renewable Energy Standard: Sections 8004, 8005 (Tiers 1, 2, 3)
- Energy efficiency – electricity and natural gas: Section 209(d)
- Energy efficiency – thermal energy and process fuel: Section 209(e)
- Weatherization: 10 VSA Section 581

Regional and Global Efforts

- Paris Climate Agreement
- NEG-ECP Climate Change Action Plan: 35-45% GHG reduction 1990-2030
- Regional Greenhouse Gas Initiative (RGGI) cap-and-trade in 9 NE states
- EPA Affordable Clean Energy Rule: 11M-ton GHG reduction 2005-2030
- DOE Appliance and Equipment Standards (-$2 trillion operating costs 1987-2030)

2) Progress Made to Date

- Transportation: 5% renewable (4.6% ethanol and <1% electric vehicles)
- Thermal Energy: 19% renewable (11% cordwood, 4% pellet stoves, 3% electric heat, 2% automated wood heat)
- Electricity: 63% renewable

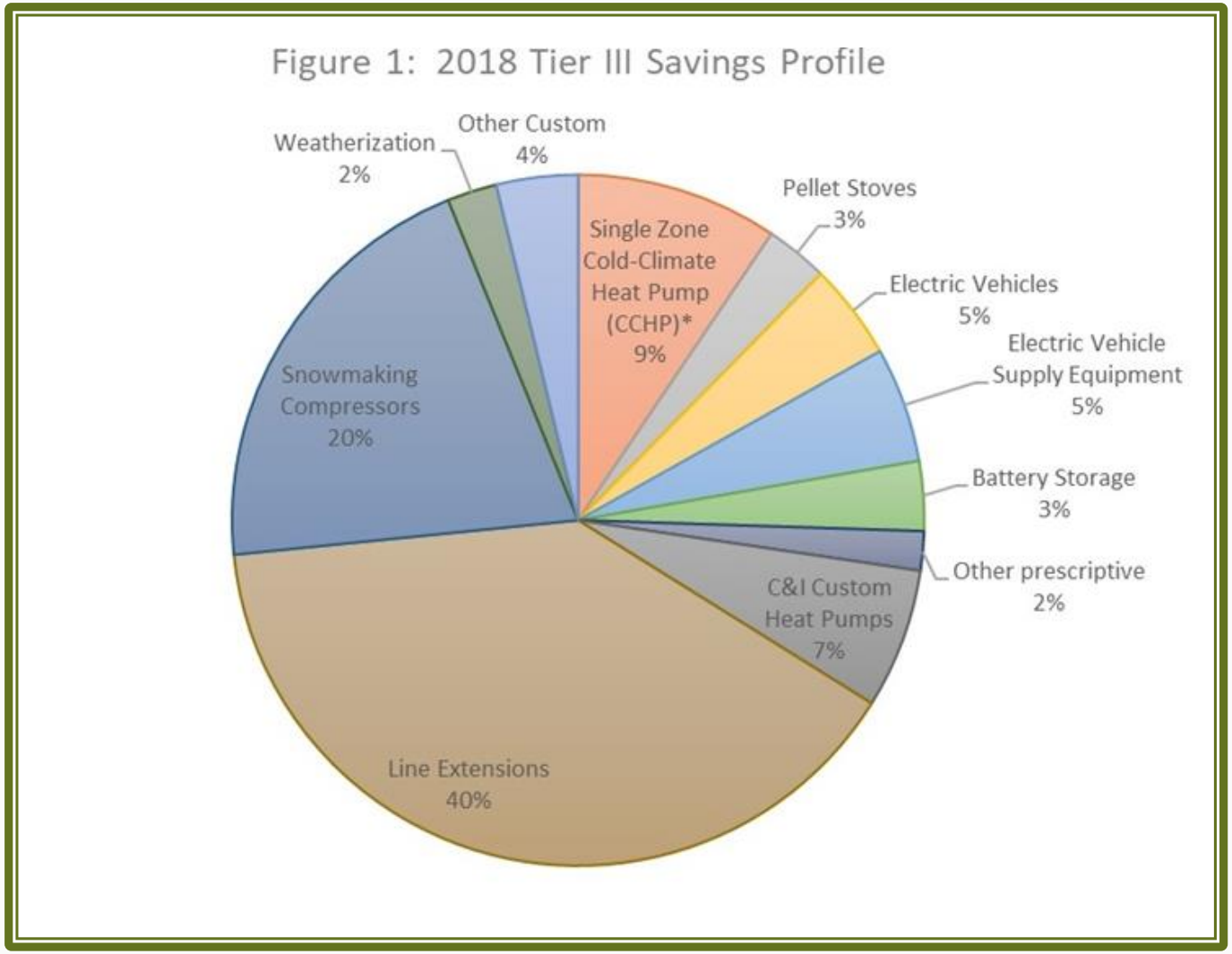
Progress Toward Specific Goals

- Renewable Energy Standard <*All 3 Tiers on track*>
- Traditional electric energy efficiency <*Continued success*>
- Weatherization (80,000 homes by 2020) <*50,000 homes short*>
- GHG emissions (10 VSA Section 578 goals – 25% below 1990 levels by 2012, 50% below 1990 by 2028) <*Going backwards due to emissions from transportation and heating: 13% higher than 1990*>

Why Are We Not Achieving Our Goals?

Participants in this investigation identified the following impediments:

- Limited funding sources
- High up-front costs / constrained consumer budgets
- Inadequate financing options at all income levels
- Scarcity of trained workers



RES Tier 3

In 2018, utilities' energy transformation projects reduced fossil-fuel consumption through upstream or direct incentives as well as technical assistance.

Energy Burden

Of their annual total energy costs, Vermonters spend:

- ✓ On transportation: 45% ($2,636)
- ✓ On thermal energy: 35% ($2,050)
- ✓ On electricity: 20% ($1,150)

Source: Efficiency Vermont's Energy Burden Report

Sector Disparities

1) Vermont's energy successes have come in the electric sector.
2) Substantial work is needed to meet the State's thermal and transportation goals.
3) Transportation and thermal energy cause more than 70% of the state's greenhouse gas emissions and represent 80% of household energy costs.

3) Current Energy Programs with Funding

- Energy efficiency by regulated utilities: Efficiency VT, BED, Vermont Gas

  Funded by customer usage charge and PUC-approved budgets

- Business/industrial efficiency programs: SMEEP, ESA, Customer Credit program
- Renewable Energy Standard

  Funding embedded in electric rates

Current Energy Programs with Funding (cont.)

- Low-income weatherization: Weather Assistance Program/LIHEAP

  Funded by Gross Receipts Tax on all fuels, plus some funding from US DOE non-low-income weatherization

- Non-low-income weatherization (TEPF programs)

  Funded by RGGI and Forward Capacity Market revenue (fluctuates – projected down)

- Clean Energy Development Fund for advanced wood heating

  Remaining ARRA funds will soon run out

Current Energy Programs with Funding (cont.)

- Electric Vehicle programs

  Some utility incentives to help meet RES Tier 3 (sustainable funding) plus varying incentives from State VW settlement fund and federal tax credits (will expire). Incentives also vary by utility territory and income level.

  Note: The PUC's report "Promoting the Operation and Use of Electric Vehicles in the State of Vermont" (June 27, 2019) contains multiple recommendations on how to remove barriers and speed the adoption of EVs in Vermont, not all of which require new revenue.

Immediate Recommendation for EVs

Add language to 30 VSA Section 209(d)(2)(A):

Programs approved by the Commission may support transportation electrification upstream programs that are complementary to distribution utility energy transformation projects under Section 8005 of this title. Funding for upstream transportation electrification programs that is collected via Section 209(d)(3) of this title shall be limited to the actual or estimated electric efficiency charge revenues collected from electric vehicle charging.

** See page 47 of the Preliminary Report*

4) Where Are the Gaps?

- Current programs in the regulated utility sector (electricity and natural gas) deliver statewide benefits but address only a small percentage of Vermont's economy.
- **Programs in the thermal and transportation sectors** – where the bulk of GHG emissions come from and where Vermonters spend most of their energy budget – **are uncoordinated, inconsistent, and severely underfunded if we hope to achieve our goals.**

5) Funding: Preliminary Observations

- Existing law governing electric and natural gas efficiency programs provides consistent, adequate, and equitable funding for regulated energy efficiency.
- Funding levels for unregulated-fuels efficiency and fuel-switching (including low-income weatherization) are nowhere near what is needed to put Vermont on a path to achieving its environmental goals and commitments.
- Significant additional funding is needed – an estimated $30-60 million/year, based on prior studies.

Funding Weatherization

The Commission has not independently assessed the level of funding that would be necessary to put Vermont on a path toward meeting its goals for this sector, but nearly every participant in the investigation agrees that **additional funding is needed to achieve Vermont's thermal efficiency goals**.

One Example: Fossil Fuel Excise Tax

- Levied on fuel oil, kerosene, propane, and coal, using the same basis – either a BTU energy content or CO_2 content.
- Based on the estimated fuel use at the time of the 2013 Thermal Efficiency Task Force report, an MMBTU-based fee would annually raise $10 million, $20 million, and $30 million combined from fuel oil, kerosene, propane, and natural gas.*

* Natural gas was included in this analysis before Vermont Gas was appointed as an EEU with an efficiency charge to ratepayers

An Example of the Type of Analysis the PUC Will Look at for Final Report

The Task Force estimated that the total incremental tax revenue needed to implement its portfolio of thermal efficiency recommendations would be approximately $267 million, or about $30-40 million per year between 2014 and 2020.

* *The Commission has not independently assessed this figure.*

Fuel	Unit	Tax/Unit to Raise $10M	Tax/Unit to Raise $20M	Tax/Unit to Raise $30M
Fuel Oil	Gallon	$0.041	$0.081	$0.122
Kerosene	Gallon	$0.040	$0.080	$0.120
Propane	Gallon	$0.027	$0.054	$0.081
Natural Gas	Therm	$0.029	$0.059	$0.088

Another Example: Efficiency Obligation on Suppliers

- Fuel dealers would have an annual savings target based on sales.
- Fuel dealers could choose how to meet the standard – for example, by partnering with efficiency contractors, by providing weatherization services themselves, or by paying a compliance amount to another entity to acquire the savings for the dealer.

- Source: *Meeting the Thermal Efficiency Goals for Vermont Buildings*, Report to the Vermont General Assembly by the Thermal Efficiency Task Force, January 2013, page 106

GHG Reductions Needed

- To meet Vermont's GHG reduction goals (10 VSA Section 578):

  Reduce emissions by **3.22 million metric tons of CO2e by 2028** and **7.85 million metric tons by 2050**

- To meet Paris Climate Agreement commitment:

  Reduce emissions by 2.53 million metric tons of CO2e by 2025

Measure	Annual Public Investment (millions of $)	Lifetime CO_2 Reduced Over 10 Years (millions of metric tons of CO2E)	$/Ton of CO_2 Reduced (total cost perspective)
Cold-Climate Heat Pumps	$19	1.80	$8
Light-Duty *(personal)* Electric Vehicles	$7	4.4	$16
Non-Low-Income Weatherization	$18	1.46	$75
Low-Income Weatherization	$18	0.82	$84

Examples of Dollars Invested / CO2 Reduction

Source: Regulatory Assistance Project's "Economic Benefits and Energy Savings through Low-Cost Carbon Management"

Principles Informing Future Recommendations

- It is essential to identify adequate, sustainable funding sources to transform Vermont's heating and transportation sectors.
- Any new funding should be consistent and equitable.
- Programs and revenue sources should be coordinated statewide and equally accessible.

Principles (cont.)

- Any new or expanded programs and any new sources of funding should be sensitive to the needs of low-income Vermonters.
- It has been a long-standing principle that electric and natural gas ratepayers should not subsidize unregulated-fuels programs. Investments funded by the electric efficiency charge continue to deliver significant long-term benefits to the electric system – while reducing GHG emissions and lowering ratepayers' bills.

Looking Forward to Final Report

A comprehensive approach to reducing greenhouse gas emissions should consider a large portfolio of programs and measures to provide opportunities for more Vermonters to participate.

With appropriate funding identified, Vermont can rely on its decades of experience implementing energy programs to craft efficiency and fuel-switching for all fuels. The work represented by Act 62 will present opportunities to bring Vermont back on track to achieve its environmental goals, create more clean energy jobs, and make homes more comfortable and affordable.