Crafting an Equitable Carbon Pollution Tax for Vermont:
An Analysis of the Impacts of Bill H.412 on
Vermont’s Low-Income Community

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Executive Summary:

Vermont’s proposed carbon pollution tax, Bill H.412, is designed to incentivize Vermonters to reduce their use of greenhouse gas emitting fuel. The bill would establish a tax that would be assessed on distributors of fossil fuels within the state. These fuels include gasoline and diesel fuel for vehicles, as well as common heating fuels such as fuel oil, propane, coal, and natural gas. The tax would start at $10/mtCO$_2$e in the first year of implementation, increasing by $10/mtCO$_2$e each year to a maximum tax level of $100/mtCO$_2$e after 10 years. 90% of the revenue raised by the tax would return to Vermonters in several forms. The other 10% of the revenue raised would help fund low-income weatherization programs and a Vermont Energy Independence Fund that would support the development and deployment of cost-effective sustainable energy projects across the state.

Many taxes, including the proposed carbon pollution tax, can be regressive and negatively impact low-income individuals, who spend a higher percentage of their income on taxes compared to other income levels. Therefore, Bill H.412 should provide additional considerations for low-income Vermonters to prevent unnecessary harm on this population. As the bill is currently written, it does provide an additional rebate, but it does not specify how it will distribute the rebate. Addressing this area of concern in a thoughtful manner is necessary to ensure that Vermont’s carbon pollution tax is as equitable as possible. Recognizing this, we worked to determine the best rebate distribution system for both low-income Vermonters and the state of Vermont.

Our research methods included conducting expert interviews, examining case studies of existing and proposed carbon pollution taxes, distributing an online and paper survey throughout Vermont, and hosting focus groups in Middlebury, Vermont. Low-income Vermonters are defined in the proposed carbon pollution tax as those with an “income that is 200 percent or less of [the] federal poverty level”. It is estimated that these individuals account for about 29% of the state’s population. In speaking with the members of Community Action Agencies and other low-income advocates, we determined that 200% of the federal poverty level is widely used in Vermont, and therefore likely makes sense as a threshold in the bill. However, the low-income advocates with whom we talked expressed concern that individuals slightly above the low-income threshold will not receive any additional rebate, which could create a benefit cliff. A benefit cliff refers to a problem that occurs when a benefit is cut off entirely at a set income threshold. From our research, we found that other existing and proposed carbon pollution taxes address this issue. We believe that British Columbia’s approach, where the additional rebate for low-income individuals is reduced by 2% of net family income over the income threshold, is the most effective method to address benefit cliffs because it allows for a simple but gradual ramp-

1 Deen et al. An Act Relating to Establishing a Carbon Pollution Tax, 1
2 U. S. Census Bureau. “American FactFinder - Results.”
3 Another estimate puts the percentage of Vermonters living at or below 200% of the federal poverty level at 24% of the state’s total population. See "State Health Facts: Distribution of Total Population by Federal Poverty Level." Kff.org
down of the rebate for individuals over the income threshold.\textsuperscript{4,5} To ensure that Bill H.412 is as equitable as possible, legislators must consider the efficacy of different rebate distribution methods. Through our survey we found that 41\% of low-income respondents preferred to receive a rebate through an income tax. While British Columbia distributes the rebates associated with its carbon tax through the income tax system, it is crucial for Vermont legislators to recognize that following in the footsteps of other carbon pollution taxes, and distributing rebates solely through the income tax system would leave out a significant percentage of Vermonters. According to the Vermont Department of taxes, 8\% of Vermont residents live in households that do not file taxes.\textsuperscript{6} This percentage is primarily made up of low-income individuals who are not required to file taxes. 27\% of survey respondents expressed interest in receiving a rebate through an Electronic Benefit Transfer (EBT) card, a way in which many low-income individuals already receive benefits, such as food assistance. Focus groups conducted with low-income individuals in Middlebury, Vermont made it clear that while many low-income individuals recognize the importance of environmental issues, and expressed a desire to curb their fossil fuel usage, their economic status makes it especially difficult for them to adapt to the burden that would come with a carbon pollution tax. Despite this, many low-income Vermonters expressed support for Bill H.412. Both our survey and focus group results suggested that the rebate associated with Vermont’s proposed carbon pollution tax should be delivered as a cash equivalent, giving low-income residents the ability to choose how to spend their rebate; this could be accomplished both through the income tax system and an EBT card distribution method.

Given our research, we recommend a two-pronged rebate distribution system employing both income tax rebates and EBT cards with cash withdrawal accounts. We suggest that residents with existing EBT cards should automatically receive their rebate through a cash account linked to their card. All other low-income residents should receive the rebates associated with the carbon pollution tax through an income tax credit. However, beyond this default distribution structure, we suggest that low-income Vermonters should have a choice to opt into either rebate distribution system. After much research, we firmly believe that a two-pronged distribution system is most equitable for the largest number of Vermonters. While we believe our findings to be an important starting point, continued research must be conducted to address the issue of benefit cliffs, and to determine the feasibility of implementation of our two-prong rebate distribution system.

\textsuperscript{4} Income Taxation Branch, Revenue Division, and Ministry of Finance. “Low Income Climate Action Tax Credit.”
\textsuperscript{5} British Columbia’s carbon tax went into effect on July 1\textsuperscript{st}, 2008.
\textsuperscript{6} Facebook message with Rebecca Sameroff, a statistician for the Vermont Department of Taxes on November 18th, 2015
Background:

For more than a decade, Vermont has been setting goals for reducing greenhouse gas emissions, increasing the utilization of renewable energy, and increasing efficiency through weatherization and other programs. In terms of greenhouse gas emissions, the target is to reduce emissions to 50% below 1990 levels by 2028 and 75% below by 2050. For renewable energy, the Public Service Department’s Comprehensive Energy Plan calls for meeting 90% of the state’s energy needs with renewables by 2050. An additional stated goal is to increase the weatherization of 25% of the state’s housing stock (about 80,000 units) by 2020.

In 2014, a report prepared for the Vermont Department of Public Service noted that Vermont now requires strong and effective policies to achieve the stated goals, and the report suggested a number of policy options that the state could consider in order to help it meet its energy goals. The first among those options was putting a price on carbon, through a tax or a cap and trade system. In 2015 there were two bills, H.412 and H.395, introduced into the Vermont legislature that would put a tax on carbon pollution from fossil fuels sold and distributed in the state. The two bills are structurally similar and differ mainly in how fast they reach the final tax rate and how the revenue from the tax is allocated, with H.395 reaching the final tax rate more quickly and with H.412 returning a higher percentage of the revenue directly to Vermonters. Of these two bills, H.412 emerged as the favorite of Energy Independent Vermont (EIV), a coalition of diverse stakeholders including environmental organizations, low-income advocacy groups, business associations, and academics. According one of H.412’s cosponsors, Rep. Mary Sullivan, the bill’s goal is not just to bring in revenue but to change behavior and cause Vermonters to use less fossil fuels.

The bill would impose a tax on the sale of fossil fuels in the state in order to reflect external costs of greenhouse gas emissions in the price of these fuels, which will reduce fossil fuel use. The tax starts at $10 per metric ton of carbon dioxide emissions equivalent ($10/mtCO₂e) emitted by fuel sold in the state by distributors, increasing by $10/mtCO₂e each year and reaching a final price of $100/mtCO₂e after ten years.

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7 Public Service Department. “Total Energy Study.”
8 Public Service Department. “State Renewable Energy Goals.”
9 “Vermont Statutes Online,Title 10,Chapter 23, § 581: Building Efficiency Goals”
11 VTDigger. “State Carbon Tax Would Raise Gas Prices by as Much as 88 Cents a Gallon.”
12 Deen et al. An Act Relating to Establishing a Carbon Pollution Tax, 1
13 Ibid, 4.
The annual revenue from this tax would be used in the following ways:

- Offsetting administrative costs of the tax, up to $300,000
- 90% used for tax credits and rebates, including:
  - Specific dollar amounts put toward reducing the state sales tax down from 6% to 5%
  - 40% of the remaining revenue in this section put towards a per-employee rebate for employers
  - The remaining 60% in this section put towards an individual rebate for taxpayers.
    - Three quarters of this amount divided up and returned to all Vermonters as a tax credit
    - One quarter of this amount set aside as an extra low-income rebate to be divided up and allocated to Vermonters with income at or below 200% of the federal poverty level
- 10% put into funds for home weatherization assistance and a Vermont Energy Independence Fund for the development of clean energy resources

**Focus of Our Project:**

Many taxes have the potential to be regressive, and therefore disproportionately negatively impact low-income individuals. Low-income Vermonters are defined in the proposed carbon pollution tax as those with an “income that is 200 percent or less of [the] federal poverty level.” It is estimated that these individuals account for about 29% of the state’s population. Various stakeholders of the EIV coalition have raised concerns about the impacts of the tax on this specific population. This is because low-income people spend a higher percentage of their income on energy costs when compared to other income levels, and will be burdened by the additional tax. An analysis done by the Vermont Law School found that in 2012, the poorest income decile in Vermont had an average of only 72% of their income remaining after spending on energy, compared to over 90% of income remaining for people in the top half of incomes.

The EIV coalition and others are concerned that a carbon pollution tax would disproportionately negatively impact low-income people, a population with the least disposable income to invest in efficiency and the least flexibility to reduce their consumption. Some low-

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14 Ibid.
15 "Who Pays? 5th Edition | The Institute on Taxation and Economic Policy (ITEP)."
16 Deen et al., *An Act Relating to Establishing a Carbon Pollution Tax*, 1
17 U. S. Census Bureau, “American FactFinder - Results.”
18 Another estimate puts the percentage of Vermonters living at or below 200% of the federal poverty level at 24% of the state’s total population. See "State Health Facts: Distribution of Total Population by Federal Poverty Level." [Kff.org](https://www.kff.org)
income advocates, including Jan Demers of Champlain Valley Office of Economic Opportunity (CVOEO), believe that low-income Vermonters should be exempt from the proposed tax in order to protect them from these negative effects. However, assuming that low-income Vermonters would not be excluded from the tax, rebates delivered to this population should be distributed in a way that protects this group from the potential unintended negative impacts, and gives them the opportunity to choose how they spend the rebate.

Currently, the bill under consideration states that the “Commissioner [of Taxes], in consultation with the Secretary of Human Services, shall determine the manner in which this rebate is delivered to eligible taxpayers, and shall consider delivering this rebate through existing programs that provide resources to low-income Vermonters such as 3SquaresVT or Home Heating Fuel Assistance.” Additionally, the bill says that “eligible taxpayers shall receive this rebate on a monthly basis.”

Because the bill does not describe a specific method or program for distributing the rebate to low-income people, we have tried to determine the most effective, efficient, and equitable rebate distribution system that the state of Vermont could implement. The ideal distribution method would accomplish those goals without making it logistically unfeasible and too costly for the Vermont government. We aimed to determine the method that would reach the most low-income Vermonters while also allowing them to spend the rebate without any restrictions.

**Methods:**

**Case Comparisons**

Vermont’s proposed carbon pollution tax does not exist in isolation. Other nations and states have proposed and existing carbon pollution taxes. Recognizing this, Vermont can learn from the successes and shortcomings of other attempts to tax carbon pollution. We researched a variety of carbon pollution taxes throughout North America and Europe. Specifically, we were interested in learning how the design of these other taxes address low-income residents. We looked most deeply into the proposed and implemented taxes in British Columbia, Washington and Massachusetts. Other states and countries that have proposed or implemented taxes include Oregon, New York, Rhode Island, Denmark, Finland, Ireland, Norway, Sweden, the Netherlands, Australia, and Chile.
British Columbia

On July 1, 2008, British Columbia implemented a carbon tax.\textsuperscript{21,22} Seven years later, the success of British Columbia’s carbon tax makes it an important example for Vermont legislators to consider in their design of Vermont’s carbon pollution tax.

British Columbia’s carbon tax started at $10/mtCO\textsubscript{2}e and increased by $5/mtCO\textsubscript{2}e every year until 2012. Since then, the tax has stayed constant at $30/mtCO\textsubscript{2}e.\textsuperscript{23,24} It is revenue-neutral, meaning that every dollar raised by the tax is returned to individuals and businesses through tax reductions; none of the revenue from the carbon tax is used to fund government spending. Since the implementation of the tax, the first two individual income tax brackets have been reduced by five percent.\textsuperscript{25} Yet, tax reductions alone are not enough to make British Columbia’s carbon tax equitable.

Had no additional measures been taken, British Columbia’s carbon tax would have adversely impacted lower income residents who spend a higher percentage of their funds on energy and transportation than their wealthier counterparts. In recognition of this, legislators in British Columbia instituted the Low-Income Climate Action Credit. This credit is paid quarterly along with the Federal Goods and Services Tax Credit, a harmonized sales tax credit. Individuals can apply for the tax credit when they file their income tax return.\textsuperscript{26} This is significant, because it means that individuals who do not file income taxes are not be able to receive the rebates associated with British Columbia’s carbon tax. Information provided by the British Columbia Ministry of Finance, Tax Policy Branch, stated that the number of individuals in British Columbia who live in households where no one filed federal and provincial income tax (in Canada they are filed together) and therefore would not be able to receive the rebates associated with the tax fluctuates between 6% and 10% of the total population. The BC Ministry of Finance, Tax Policy Branch, emphasized that it is impossible to reach the entire population and that using the tax system to deliver a benefit creates an incentive for people to file their taxes.\textsuperscript{27} The Low-Income Climate Action Tax Credit is a non-table payment, meaning that an individual does not need to include it as income when they file their tax return. Only one person can apply for the credit on behalf of a family. Anyone who is nineteen years or older, has a spouse or common-law partner, or is a parent who resides with a child can apply for the tax credit as long as they reside in British Columbia.\textsuperscript{28}

The amount an individual receives from the tax credit depends on the size of their family and their adjusted net family income. The maximum annual payment for the tax credit in 2015 was $115.50 for an individual, $115.50 for their spouse, and $34.50 per child or $115.50 for the

\textsuperscript{21} British Columbia refers to its carbon pollution tax as a “carbon tax”. In the “Case Studies” section of our paper we refer to the various carbon pollution taxes as they are locally known.
\textsuperscript{22} Province of British Columbia. “Carbon Tax: Overview of the Revenue-Neutral Carbon Tax.”
\textsuperscript{23} ibid.
\textsuperscript{24} All monetary values under the sub-heading “British Columbia” are given in Canadian Dollars.
\textsuperscript{25} ibid.
\textsuperscript{26} Income Taxation Branch, Revenue Division, and Ministry of Finance. “Low Income Climate Action Tax Credit.”
\textsuperscript{27} Email with Daphna Mills on November 10th, 2015.
\textsuperscript{28} Income Taxation Branch, Revenue Division, and Ministry of Finance. “Low Income Climate Action Tax Credit.”
first child in a single parent family. In 2015, the net income threshold to receive the credit was $32,445 for single people, and $37,852 for married individuals or single parents. The credit is reduced by 2% of net family income over the income threshold.29 This minimizes any possibility for the creation of a benefit cliff, a problem that occurs when a benefit is cut off entirely at a set income threshold. With that in mind, there is disagreement among low-income advocates in Vermont over whether the rebates from the proposed carbon pollution taxes would be large enough to create significant benefit cliffs.

Unlike the United States, Canada does not have an official federal poverty line. Because of this, the income threshold for British Columbia’s carbon tax was created specifically for this piece of legislation. According to the BC Ministry of Finance, Tax Policy Branch, the thresholds were determined to best assist low-income households with the economic burden associated with the carbon tax while also ensuring the revenue neutrality of the bill.30

British Columbia also has an additional rebate for rurally located individuals. This additional rebate came about as a result of protests, and responds to the fact that most remote and rural communities are unfairly burdened by the carbon tax because of the long-distances they are required to travel for work and daily necessities, and higher home heating requirements than people in cities.31 The Northern and Rural Homeowner Benefit provides up to $200 for homeowners in the areas of the province outside of major metropolitan centers. Specifically, this refers to anywhere outside of the Capital Regional District, the Greater Vancouver Regional District, and the Fraser Valley Regional District.32 Individuals can receive both the Northern and Rural Homeowner Benefit and the Low Income Climate Action Tax Credit; the two rebates are not mutually exclusive. In contrast to British Columbia, the rural nature of Vermont would make the adoption of an additional rebate for rurally located individuals redundant; instead legislators would be better served by addressing the concerns of rurally located Vermon ters in the initial rebate that is associated with its carbon pollution tax.

In British Columbia, farmers are exempt from the carbon tax.33 Revenue from the agricultural sector in British Columbia accounts for over eleven billion dollars, and represents just under five percent of British Columbia’s GDP in 2013.34 This stands in contrast to Vermont’s proposed carbon pollution tax, which emphasizes the inclusion of all Vermonters in the tax as necessary for preserving the spirit of the bill. Significantly, Vermont’s agricultural sector accounts for less than 2% of the state’s GDP.35

29 ibid.
30 Email with Daphna Mills on November 8th, 2015.
31 Beck et al., A Rural Myth? The Perceived Unfairness of Carbon Taxes in Rural Communities
32 Income Taxation Branch, Revenue Division, and Ministry of Finance. “Low Income Climate Action Tax Credit.”
33 Province of British Columbia. “Certificate of Farmer Exemption.”
34 Ministry of Agriculture. “Agriculture Business and Economy.”
35 Jeffords, “Economic Impact of Agriculture in Vermont.”
What Can Vermont Learn from British Columbia’s Carbon Tax?

- Revenue neutrality: This may lower costs for administrators and dispel any concerns over increasing government spending that may exist amongst politicians and Vermont residents.
- Problems with distribution through the tax system: Many low-income folks do not file taxes. While it is simpler and likely cheaper for administrators to distribute the rebates through tax refunds, doing so leaves out a significant percentage of low-income individuals; the very people that the additional rebates are supposed to aid.
- Gradual ramp down of additional rebate: Unlike British Columbia’s carbon tax, in the case of Vermont’s proposed carbon pollution tax, individuals just above the low-income threshold would not receive any additional rebates. A gradual ramp down of the additional rebate, possibly mirroring British Columbia’s Low-Income Climate Action Tax Credit, could diminish Bill H.412’s chance of creating a benefit cliff.
- Lower maximum tax rate: Vermont’s proposed carbon pollution tax is much more ambitious than British Columbia’s. British Columbia’s tax plateaus at $30/mtCO₂e, while Vermont’s stabilizes at $100/mtCO₂e. Yet, British Columbia’s tax has been successful in curbing individual behavior. Lowering the maximum taxation rate could ease Bill H.412’s journey through legislation without compromising the goals of the carbon pollution tax.
- Frequency of rebate distribution matters: For low-income individuals, the frequency with which they receive their additional rebate is crucial, especially as the rebate increases in monetary value. As it is currently written, Bill H.412 would distribute the rebates monthly. Going forward, legislators should continue to emphasize the importance of having the rebates associated with Vermont’s carbon pollution tax be distributed frequently.
- Exemption of agriculture: There has been some resistance to Vermont’s proposed carbon pollution tax from its agricultural sector. While it stands in contrast to the spirit of the bill, and Vermont has a significantly smaller agricultural sector than British Columbia, special considerations for Vermont’s agricultural sector could help curtail some of that sector’s qualms with Bill H.412.

Washington

Washington state’s proposed a carbon tax, referendum I-732, needed at least 250,000 signatures to make ballot in November 2016. According to Yoram Bauman, an economist working on the tax for Carbon Washington, referendum I-732 appears to have obtained enough signatures to qualify for the ballot.\(^{37,38}\)

I-732 draws heavily on British Columbia’s carbon tax. If implemented, the tax would begin at $15/mtCO\(_2\)e, and increase to $25/mtCO\(_2\)e after two years. After this point, the tax would increase by 3.5% percent per year until it would plateau at $100/mtCO\(_2\)e; it would take forty years to reach this number in 2016 dollars.\(^{39}\) Like British Columbia, Washington state’s proposed carbon tax is designed to be revenue-neutral. Currently, people in Washington state with the lowest income pay the greatest percentage of their income in taxes. I-732 would attempt to make Washington’s tax code more progressive by reducing sales tax from 6.5% to 5.5%.\(^{40}\)

There would also be a rebate for low-income Washingtonians associated with the carbon tax. The revenue raised from I-732 would go to the Working Families Rebate, which was created in 2008, but never funded. The Working Families Rebate is a bump up of the Federal Earned Income Tax Credit (EITC), and comes in the form of a sales tax exemption.\(^{41}\) Through a refund of a portion of state sales tax, the Working Families Rebate aims provide up to $1,500 a year to the 400,000 households in Washington that qualify for the EITC. The Working Families Rebate would phase in at a 15% increase of the EITC in its first year, and in its second year and onward, it would be a 25% bump up of the EITC.\(^{42}\)

The EITC was established in recognition of the reality that federal payroll taxes cost low-income families a substantially higher share of their income when compared to middle or upper class families. Also, larger families face higher living expenses than smaller families, and this is taken into account in the design of the EITC. The maximum federal benefit for families with two children in tax year 2015 was $5,548; for families with three or more children, the max was $6,242. For families with one child the maximum is $3,359. Workers without a qualifying child can also receive an EITC, but at a much lower amount. The maximum credit for individuals or couples without children was $503 in 2015.\(^{43}\) For families with very low earnings, the dollar amount of the EITC increases as earnings rise. For example, families with two children receive a credit equal to 40 cents for each dollar earned up to $12,900, for a maximum benefit of $5,160. Families continue to be eligible for maximum credit until personal income reaches $16,840 (or $21,970 for married-couple families), after which the amount they receive goes down until it reaches zero when family income surpasses the eligibility level.\(^{44}\) For single-parent families with

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\(^{37}\) Email with Yoram Bauman on November 8th, 2015.

\(^{38}\) “Carbon tax seems to have enough signatures to make ballot.” *Greenwire*.

\(^{39}\) “Our Proposal.” *Carbon Washington*.

\(^{40}\) ibid.

\(^{41}\) ibid.

\(^{42}\) ibid.

\(^{43}\) “2015 EITC Income Limits, Maximum Credit Amounts and Tax Law Updates.” *IRS*.

\(^{44}\) ibid.
two children, eligibility for the EITC ends when income exceeds $41,341. Families with one child remain eligible until their income exceeds $36,372. Finally, for married couples, eligibility for the credit ends when income exceeds $46,471. Working families with incomes below the federal poverty line receive the largest benefits. However, because the EITC phases out gradually as income rises, many families with incomes well above the poverty line still benefit to some degree. Therefore, by distributing rebates through the EITC, I-732 avoids the possibility of creating a benefit cliff. But, because I-732 distributes its rebates through the tax system, Washingtonians who do not file taxes would not be able to claim the rebates to which they are entitled. In both of these senses, I-732 is similar to British Columbia’s carbon tax.

Parallelizing British Columbia’s carbon tax, I-732 plans to provide farmers with special treatment. The referendum calls for a forty-year phase in for farm diesel and fuel used in public transportation systems. The total amount of farm diesel and fuel used in public transportation systems is about 100 million gallons, and amounts to just 2% of statewide carbon dioxide emissions. The exemption of farm diesel from I-732 is not surprising because of the size Washington state’s agriculture sector. Washington has a $49 billion food and agriculture industry, which employs approximately 160,000 people and comprises 13% of the state’s GDP; farm diesel is also already exempt from the state’s existing fuel tax.

It is worthwhile to recognize that Washington state’s agricultural sector is significantly larger than Vermont’s agricultural sector.

What Can Vermont Learn from Washington’s Proposed Carbon Tax?

- Revenue neutrality: Like British Columbia, this could lower costs for administrators and dispel any concerns over increasing government spending that may exist amongst politicians and residents.
- Problem with distribution through the tax system: Many low-income folks do not file taxes. While it is simpler and likely cheaper for administrators to distribute the rebates through the tax system, doing so leaves out a significant percentage of low-income individuals; the very people that the additional rebates are supposed to aid.
- Gradual ramp down of additional rebate: Because it is a bump up of the EITC, Washington’s additional rebate for low-income individuals will gradually ramp up and ramp down. Following Washington’s lead, and making the rebate a bump up of the EITC, Vermont legislators could diminish Bill H.412’s chance of creating a benefit cliff.
- Timeframe to reach maximum tax rate: Like Vermont’s proposed carbon pollution taxes plateau at $100/mtCO₂e, but Washington’s does so over forty years while Vermont reaches its maximum rate in just ten years. Increasing the timeframe to

45 ibid.
47 ibid.
reach its maximum taxation rate could ease Bill H.412’s journey through legislation without compromising the ultimate goals of the carbon pollution tax.

- Exemption of agriculture: While Washington state has a significantly larger agricultural sector than Vermont does, there has been some resistance to Vermont’s proposed carbon pollution tax from its agricultural sector. Following Washington’s example and exempting farm diesel could help curtail the agricultural sector’s qualms with Bill H.412.

Massachusetts

In April of 2015, State Senator Mike Barrett proposed Massachusetts’ carbon dioxide emissions fee, Bill S.1747. Testimony from Barrett was heard by the state’s general assembly on October 27th, 2015.49 If enacted into law, the fee would begin at $10/mtCO$_2$e in its first year. Charges would increase by $5/mtCO$_2$e per year until the rate reached $40/mtCO$_2$e.50

The bill would be rhetorically classified as a fee and not a tax because all the revenue it raised would flow into a transparent fund, which was created specifically for the bill and would remain separate from the state government’s general treasury. This fund would be referred to as the Carbon Dioxide Emissions Charges Rebate Fund. Because none of the proceeds from the fee would go to the government, Bill S.1747 would be revenue-neutral.51

As currently designed, every resident in Massachusetts, with the exception of “rurally located” individuals, would receive an equal rebate from the bill.52 Residents of rural municipalities would receive an additional Motor Vehicle Fuel Rebate, the amount of which would also be annually determined by the Commissioner. The bill defines a “rural municipality” as one where residents drive, on average, 130% or more per year of the statewide average per household.53 According to one estimate, when the carbon charge rate reaches $40/mtCO$_2$e, the annual rebate associated with the bill would be $225.54 That being said, the Commissioner of Energy Resources would set the amount of the individual rebate that is distributed to residents.55 Bill S.1747 is unique amongst proposed the carbon pollution taxes we examined in that it contains no special considerations for low-income individuals. In fact, the bill only mentions low-income residents once, noting that “special attention” would be made to locate the names and addresses of low-income residents, so that rebates can be delivered to them.56 According to the bill, on average, people and employers would receive rebate payments that would fully offset the higher cost of gas and oil, with low and moderate-income households coming out ahead because they use less energy than wealthier households. Further differentiating itself from the

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49 Barrett, An Act Combating Climate Change
50 ibid.
51 ibid.
52 ibid.
53 ibid.
54 Schoenberg, “Environmentalists Push Carbon Fee in Massachusetts.”
55 Barrett, An Act Combating Climate Change
56 ibid.
other carbon pollution taxes that we examined, Bill S.1747 does not exempt farmers from its carbon charges; no one is exempt from the fee.⁵⁷ In this sense, it is similar to Vermont’s proposed carbon pollution tax.

**What Can Vermont Learn From Massachusetts’ Carbon Dioxide Emissions Fee?**

- Revenue neutrality: As we have previously mentioned, this may lower costs for administrators and dispel any concerns over increasing government spending that may exist amongst politicians and residents.
- Changing the tax to a fee: Due to the stigmatization of taxes, rhetorically, Bill H.412 may be meet with less resistance if it were a classified as a “fee”. Following Massachusetts’ lead, Vermont could do this by creating a transparent fund for the revenue raised from Bill H.412, which would remain separate from the state government’s general treasury.
- Lower maximum tax rate: Vermont’s proposed carbon pollution tax is much more ambitious than Massachusetts’ carbon dioxide emissions fee. Massachusetts’ fee plateau’s at $40/mtCO₂e, while Vermont’s tax stabilizes at $100/mtCO₂e. As discussed earlier, lowering the maximum taxation rate could ease Bill H.412’s journey through legislation.
- No exemptions: Like Massachusetts’ carbon dioxide emissions fee, no one is exempt from Vermont’s proposed carbon pollution tax because it goes against the spirit of the bill, which is to curb individual fossil fuel use across the board. While this concept may be met with some resistance, emphasizing that other states are following this framework may provide Bill H.412 with increased legitimacy.

⁵⁷ ibid.
### Table 1. Compares the various proposed and implemented carbon pollution taxes.

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<th>Washington</th>
<th>Massachusetts</th>
<th>Vermont</th>
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### Table 2. Compares additional rebates for low-income people in the various proposed and implemented carbon pollution taxes.

<table>
<thead>
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<th>Feature</th>
<th>British Columbia</th>
<th>Washington</th>
<th>Vermont</th>
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<td>Definition of “Low-Income”</td>
<td>Threshold created for bill</td>
<td>Uses Federal Earned Income Tax Credit (EITC)</td>
<td>200% or less of federal poverty line</td>
</tr>
<tr>
<td>Individuals Over Income Threshold</td>
<td>Rebate is gradually reduced</td>
<td>Follows EITC</td>
<td>No additional rebate</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>Tax System</td>
<td>Tax System</td>
<td>Still Uncertain</td>
</tr>
<tr>
<td>Distribution Frequency</td>
<td>Quarterly</td>
<td>Annually</td>
<td>Monthly</td>
</tr>
</tbody>
</table>
Key Takeaways from Other Carbon Pollution Taxes:

In contrast to the carbon tax in British Columbia, and the proposed carbon tax and fee in Washington and Massachusetts, Vermont’s proposed carbon pollution tax is not revenue-neutral. Making Vermont’s carbon pollution tax revenue-neutral could lower costs for administrators and dispel concerns over increasing government spending that may exist amongst politicians and Vermont residents. That being said, the 90-10 split that is currently delineated in Vermont’s proposed carbon pollution tax, where 10% of revenue raised from Bill H.412 goes to low-income weatherization programs and the creation of a Vermont Energy Independence Fund, may enable the state to curb its fossil fuel usage in ways that a revenue-neutral tax would not.

Of the carbon pollution taxes that we examined, Bill H.412 is the most ambitious. Similarly to Vermont’s proposed carbon pollution tax, Washington’s proposed carbon tax would plateau at $100/mtCO₂e. But, unlike Bill H.412, Washington’s proposed carbon tax would ramp up to its maximum taxation rate over a forty-year period; this is significantly longer than the ten-year ramp-up period found in Vermont’s proposed carbon pollution tax. Considering either adopting a more gradual ramp-up period or a lower maximum taxation rate, possibly more in line with British Columbia’s or Massachusetts’, could ease Bill H.412’s journey through legislation without necessarily compromising the goals of the proposed carbon pollution tax.

It is important to recognize that many low-income individuals do not file taxes. While British Columbia distributes the rebates associated with its carbon tax through the income tax system, and Washington plans on doing the same, it is crucial for Vermont legislators to recognize that following in the footsteps of other carbon pollution taxes, and distributing rebates solely through the income tax system would leave out a significant percentage of Vermonters. According to the Vermont Department of Taxes, 8% of Vermont residents live in households that do not file taxes. This percentage is primarily made up of low-income individuals who are not required to file taxes. Whether or not an individual is obligated to file taxes is primarily based on a gross income threshold. Of the Vermonters who live in households where no one files taxes, many receive benefits from the state via an EBT card. Therefore, adding a rebate to the same benefit-delivery method they already use could help reach a portion of individuals who don’t pay taxes but do participate in state benefit programs.

Finally, as Bill H.412 is currently written, individuals who are even slightly above the 200% federal poverty line would receive none of the additional rebate. As we mentioned earlier, this could create a benefit cliff. Both British Columbia and Washington address this issue in interesting ways that Vermont legislators could draw from in crafting its policy. Also, Bill H.395, Vermont’s other proposed carbon pollution tax, addresses the creation of a benefit cliff in a unique manner. While Bill H.395 provides no additional rebate for low-income individuals, the monetary value of the rebates associated with Bill H.395 varies depending on the income quintile.

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58 Facebook message with Rebecca Sameroff, a statistician for the Vermont Department of Taxes on November 18th, 2015
59 Income tax thresholds vary depending on number of dependents, whether an individual is married or single, and whether an individual is over 65.
60 “Filing information.” IRS.
that an individual belongs to.\textsuperscript{61} Of the money that goes back to individuals through personal income tax credits, none will go to the top income quintile, 40\% will be distributed equally amongst the 2\textsuperscript{nd} and 3\textsuperscript{rd} highest income quintiles, and 60\% will be distributed equally amongst the two lowest income quintiles.\textsuperscript{62}

Clearly, crafting an equitable carbon pollution tax is no easy undertaking. It is therefore paramount to the success of Bill H.412 that Vermont legislators examine other existing and proposed carbon pollution taxes and see what Vermont can learn from them.

**Lessons Learned from Expert Interviews:**

*Jan Demers, Executive Director, Champlain Valley of Economic Opportunity (CVOEO)*  
*Steve Geller, Executive Director, Southeastern Vermont Community Action (SEVCA)*

We had the opportunity to speak with Jan Demers, the Executive Director of CVOEO, which serves Addison, Chittenden, Franklin, and Grand Isle counties as well as Steve Geller, the Executive Director of SEVCA, which serves Windham and Windsor counties. CVOEO works to address the “fundamental issues of economic, social, and racial justice and works with people to achieve economic independence”.\textsuperscript{63} Their services include weatherization, income tax assistance, fuel assistance, domestic violence and sexual assault assistance, housing assistance, food shelves, warmth assistance and a program called Community Action. SEVCA functions similarly to CVOEO, in that its mission is to lessen the hardships of poverty through programs that foster self-sufficiency. Specifically, SEVCA offers a number of business development and workforce preparation services, family services, home care and weatherization services, and also manages multiple thrift stores in both Windham and Windsor county. Demers (CVOEO) was reluctant to sign on in support of the carbon pollution tax in Vermont because of the possible unintended negative outcomes for the low-income population that her organization serves. Demers currently would rather have low-income people, at or under the 200\% poverty level, be exempt from the bill. She explained that low-income Vermonters spend a larger percentage of their income on gas, heating, and other energy sources than other Vermonters, and therefore will be impacted greater by the tax. Additionally, she believes that two other barriers low-income Vermonters face if they did have to participate in the tax would be not knowing that they qualified for a rebate, and not having access to the rebate if they do not file for taxes.

Geller (SEVCA) discussed similar concerns, noting the potential for a benefit cliff caused by this tax. He felt very strongly that a more complex mechanism to determine who would and would not qualify for the additional low-income rebate must be implemented into the proposed carbon pollution tax. Geller believed that a sliding income scale could be used, so that individuals who earn slightly above 200\% of the federal poverty line would receive an additional

\textsuperscript{61} Pearson et al. *An Act Relating to Establishing a Carbon Pollution Tax.*

\textsuperscript{62} ibid.

\textsuperscript{63} Champlain Valley Office of Economic Opportunity. “Mission.”
rebate that is slightly smaller. This system could also be used to protect those who make very little annually, as the additional low-income rebate could be increased for individuals at or below 100% of the federal poverty line.

Despite her views, Demers was open to discussing rebate distribution systems with us. Demers mentioned the importance of understanding a benefit cliff and how this should be considered in any rebate distribution system, to avoid negative consequences for low-income people that move slightly above the 200% poverty level. Demers described the large stigma associated with the use of Electronic Benefit Transfer (EBT) cards. Individuals that receive government benefits can authorize a transfer of these benefits from a Federal account to a card. This card looks like and function like a debit card, and can be used at participating grocery stores for example, or ATMs, through an unrestricted cash withdrawal account. Geller disagreed with Demers about the stigma associated with EBT cards: he believed that, because they “look like Mastercards”, they’re a large improvement from food stamps. Additionally, they would be effective in reducing the potential negative impacts of receiving a rebate just once a year. Geller explained that, as the tax increases, low income earners will have less ability to deal with fuel price increases, and would need to receive the tax rebate more frequently to cope with these price increases.

Demers does believe that an unrestricted cash benefit through an EBT card could work well, as it could empower low-income Vermonters to independently decide how they spend their rebate. She also pointed out the importance of creating a new account because adding the rebate to an existing account might put the amount of money over the total allowed, causing the cardholder to lose out on any benefit above the limit.

Chad Stone, Chief Economist, Center for Budget and Policy Priorities
The Congressional Budget Office Microeconomic Studies Division

In addition to our conversations with Vermont-based low-income advocates, we researched carbon pollution tax rebate options and approaches that have been analyzed at the federal level and were able to speak to two of the authors of these reports. Chad Stone is the chief economist for the Center for Budget and Policy Priorities (CBPP), a nonpartisan research and policy institute focused on poverty reduction and fiscal responsibility. We also talked to an advisor in the Congressional Budget Office’s Microeconomic Studies Division. Both reports provided multiple approaches that are capable of reaching different segments of the rebate-eligible community. The CBPP report, entitled “The Design and Implementation of Policies to Protect Low-Income Households under a Carbon Tax,” introduced a three-pronged approach for distributing rebates that they estimated would reach 95% of households in the bottom income quintile. Working low-income households would be rebated through a refundable income tax credit similar to the EITC. Recipients of federal money from programs such as social security and veterans benefits would receive their rebate as an increase to those benefits, an idea which is

64 “General Electronic Benefit Transfer Information”.
not directly applicable at the state level. Very low-income families would receive benefits through state human services agencies using the EBT card system already in place for several benefit programs including SNAP. The analysis for the CBO, “Offsetting a Carbon Tax's Costs on Low-Income Households,” did not propose a specific rebate system but instead outlined some of the policy options and provided criteria for analyzing the different choices. The report emphasized the trade-offs that are inevitable in any rebate system between equity, administrative costs, and preserving incentives to pursue efficiency. Both the CBO and the CBPP reports emphasized that a carbon pollution tax should do no harm, meaning it should not make the poor poorer or push more people into poverty.

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65 Stone, “The Design and Implementation of Policies to Protect Low-Income Households under a Carbon Tax.”
66 Dinan, “Offsetting a Carbon Tax’s Costs on Low-Income Households.”
From our research and expert interviews, we compiled a list of different rebate distribution options to consider:

<table>
<thead>
<tr>
<th>Potential Rebate Method:</th>
<th>Description:</th>
<th>Distribution method:</th>
<th>Average percentage of Vermonters who participate (as of 2014):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Benefit Transfer (EBT) Card</td>
<td>“allows a recipient to authorize transfer of their government benefits from a Federal account to a retailer account to pay for products received”; can have a cash withdrawal account[^67]</td>
<td>The United States Department of Agriculture, under Food and Nutrition Service, distributes EBT cards through Vermont’s Department of Children and Families[^68]</td>
<td>At least 14.3% of Vermonters participate, as this is the percentage of Vermonters that receive SNAP benefits. Additionally, some receive crisis fuel benefits through EBT cards[^69]</td>
</tr>
<tr>
<td>3SquaresVT / Supplemental Nutrition Assistance Program (SNAP)</td>
<td>“offers nutrition assistance to millions of eligible, low-income individuals and families and provides economic benefits to communities”[^70]</td>
<td>The United States Department of Agriculture, under Food and Nutrition Services, distributes SNAP benefits through Vermont’s Department of Children and Families[^71]</td>
<td>14.3% of Vermonters participate[^72]</td>
</tr>
<tr>
<td>LiHEAP (Fuel Assistance)</td>
<td>helps low-income people pay for their home heating bills[^73]</td>
<td>A national program distributed by Vermont’s Department of Children and Families[^74]</td>
<td>9.97% of Vermont households participate[^75,76]</td>
</tr>
</tbody>
</table>

[^67]: “General Electronic Benefit Transfer Information”, USDA  
[^68]: Ibid.  
[^69]: Ibid.  
[^70]: “Supplemental Nutrition Assistance Program (SNAP)”.  
[^71]: Ibid.  
[^72]: U. S. Census Bureau. “American FactFinder - Results.”  
[^73]: “Fuel Assistance”.  
[^74]: Ibid.  
[^75]: “Campaign for Home Energy Assistance: Vermont Facts.” Liheap.org  
[^76]: U. S. Census Bureau. “American FactFinder - Results.”
<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>Distribution</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach Up</td>
<td>“helps families with children by providing cash assistance for basic needs and support work and self-sufficiency”&lt;sup&gt;77&lt;/sup&gt;</td>
<td>A statewide program distributed by Vermont’s Department of Children and Families&lt;sup&gt;78&lt;/sup&gt;</td>
<td>1.93% of Vermonters participate per month&lt;sup&gt;79,80&lt;/sup&gt;</td>
</tr>
<tr>
<td>Dr. Dynasaur</td>
<td>“offers health care insurance for eligible Vermont children, teenagers up to 18, and pregnant women”&lt;sup&gt;81&lt;/sup&gt;</td>
<td>A statewide program distributed in Vermont&lt;sup&gt;82&lt;/sup&gt;</td>
<td>4.92% of Vermonters under the age of 18 participate&lt;sup&gt;83&lt;/sup&gt;</td>
</tr>
<tr>
<td>Medicaid</td>
<td>“a joint federal and state program that helps with medical costs for some people with limited income and resources”&lt;sup&gt;84&lt;/sup&gt;</td>
<td>A national program distributed by Green Mountain Care in Vermont&lt;sup&gt;85&lt;/sup&gt;</td>
<td>29% of Vermonters participate&lt;sup&gt;86&lt;/sup&gt;</td>
</tr>
<tr>
<td>Income Tax Credit</td>
<td>“a benefit for working people with low to moderate income”, that “reduces the amount of tax you owe and may give you a refund”&lt;sup&gt;87&lt;/sup&gt;</td>
<td>A national credit distributed by the Internal Revenue Service (IRS)&lt;sup&gt;88&lt;/sup&gt;</td>
<td>92% of Vermonters file for taxes</td>
</tr>
</tbody>
</table>

Through our interviews and case comparisons, we found that some information was not available to us. Specifically, we were interested in learning about the preferences of low-income Vermonters on different rebate distribution systems. We decided that distributing an online survey, a paper survey, as well as organizing several focus groups, would be the best ways to find this missing information.

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<sup>77</sup> “Reach Up”. Dcf.vermont.gov
<sup>78</sup> “Reach Up”. Dcf.vermont.gov
<sup>79</sup> “Reach Up: Families, Recipients, and Benefits.” Dcf.vermont.gov
<sup>80</sup> U. S. Census Bureau. “American FactFinder - Results.”
<sup>81</sup> “Vermont Dr. Dynasaur”. Benefits.gov
<sup>82</sup> “Vermont Dr. Dynasaur”. Benefits.gov
<sup>83</sup> "Children in the States: Vermont." Childrensdefense.org
<sup>84</sup> “Medicaid”. Medicare.gov
<sup>85</sup> "Green Mountain Care: Medicaid." Greenmountaincare.org
<sup>86</sup> “Vermont”. Medicaid.gov
<sup>87</sup> “Earned Income Tax Credit (EITC).” Irs.gov
<sup>88</sup> “Earned Income Tax Credit (EITC).” Irs.gov
A survey method was chosen because of its ability to collect a large amount of information from many individuals across the state without becoming a large burden to the participants. It also allowed the research team to gain insight into the lifestyles and living situations of Vermonters from different parts of the state and collect potentially sensitive information in an anonymous format. This is something we couldn’t do with focus groups, and literature reviews wouldn’t provide the information we required.

Our survey was designed using the online survey building website Qualtrics, which was selected because of its powerful data output capabilities and its flexible question structures. One of the major challenges that we encountered early on while building the survey was that most of our participants would know little, if anything, about the proposed carbon pollution tax. Our survey had to be educational without being cumbersome or biasing our results. While it would be best to have participants read the bill itself, this is an unrealistic expectation from both a time and effort standpoint, so we had to create an abridged description of the proposed legislation that captured the essence of the bill without becoming too technical or lengthy. We achieved this in two ways: first, we looked to the Energy Independent Vermont’s one-page description of the bill, which provided us with a summary of the bill, and second, we broke up informational sections of the survey with a series of questions. This allowed the survey to flow from one topic to the next in an organic fashion, rather than having two to three informational pages at the beginning, followed by all of the questions.

Questions included in the survey were either multiple choice, short answer, forced-response drill down, or preference ranking (Appendix C) The majority of the questions were multiple choice with participants selecting from a predetermined list (e.g. “In which county of Vermont do you reside?”). In order to maintain response accuracy and feasibility of the survey, we included some “exit choices” for questions, like a “no preference” option or an “other” option, although we did try to limit the number of exit choices where possible to gain the most information from the survey. Short answer questions often followed multiple choice questions and were intended to allow participants to elaborate on their multiple choice responses. This was an effective method to get more insight into the reasoning behind participants’ choices, and most participants took advantage of this additional response space to explain. Questions were written in plain, conversational English so that they were accessible to all participants, and were piloted extensively to avoid any potential ambiguity.

The forced-response questions were a series of questions with answers in the form of drop down menus. The answers to several early questions determined which questions were shown in the remainder of the survey. We used this approach in order to select who qualified as low-income based on their household income and size. If a participant was determined to be low-income, then a specific series of question appeared, focusing primarily on their preferred rebate method and frequency. It was important to extract only low-income residents for the rebate-focused questions, as the survey ultimately targeted this demographic. Responses from non low-income respondents were collected on several question, but were not the target of the survey.
We utilized two major distribution methods for this survey. We created both a paper version and an online version of the survey. The online version of survey was distributed using Front Porch Forum, a community-based blog where local residents may post advertisements, inquiries, and information about events. The survey was posted in the Middlebury, Vergennes, Newfane/Townshend, Guilford, Burlington, and Rutland blogs, reaching also into the towns that neighbor those towns, in order to reach a variety of communities in the state. This allowed us to look for patterns in rebate preference based on geography. We also believed that it was important to distribute a paper version of the survey in order to gain responses from Vermonters who may not have access to a computer. The paper version of the survey was distributed at the Charter House, which provides basic food and housing for those in need in Middlebury. One of the programs they offer includes providing free lunches for anyone in the community Monday through Thursday. Limitations with the paper survey included a lower level of confidentiality, because many of the surveys were distributed by hand, and an inability to select out participants by income level. The second issue was addressed by intentionally distributing the survey at a location that attracts predominantly low-income residents of the Middlebury area.

Focus Groups

While our survey was constructed to collect answers to specific questions about the needs and preferences of low-income Vermonters, we also decided that focus groups with low-income earners would provide us with an opportunity to hear perspectives and creative ideas about potential rebate systems for the carbon pollution tax. We worked closely with Doug Sinclair, President and Housing Programs Director of the Charter House in Middlebury, to organize our focus groups at this location. Our primary goal of the first visit to the Charter House was to distribute the paper version of the survey. During our second session at the Charter House, we hosted our focus groups with low-income individuals. Because the Charter House hosts free lunches Monday through Thursday, with additional funding from Middlebury College, we were able to host a Friday afternoon pizza lunch, utilizing the Charter House as a meeting space. In total, 26 adults participated in our focus groups. We separated into two smaller groups, in order to hear more in depth responses. Each group had one male-identifying and one female-identifying student leader to help make individuals feel more comfortable. With help from our community partner and professors, we developed a focus group guide focusing primarily on encouraging our participants to talk to us about their thoughts and concerns about the proposed carbon pollution tax. We started with personal introductions and then a brief description of the proposed carbon pollution tax. Our goal was to solicit new ideas for rebate distribution systems and how those systems would likely work. Additionally, we asked questions about what would likely change in our participants lives if the carbon pollution tax was in place, as well as how individuals would prefer to spend their rebate, if the tax were in place.

89 For more information on the Charter House, please see their website: http://www.charterhousecoalition.org.
Results:

Survey Results

After receiving responses from 333 Vermont residents throughout the state, we had a much clearer understanding of what many respondents preferred for a rebate method, as well as how they viewed the carbon pollution tax as proposed. Results from the survey were both enlightening and surprising at times. Of the 333 total completed surveys (both paper and online), 91 of those completed surveys were submitted by low-income participants. These responses were especially important, as they focused on our target demographic.

All 14 counties of the state were represented in the study. Addison County had the largest number of respondents (139), including the largest number of low-income respondents (43) (Figure 1). Addison County also had one of the largest percentages of total respondents that qualified as low-income (31%). This is largely due to the fact that Middlebury College is located in Addison County and people might have been more open to answering a survey from college students located in their county. Additionally, paper surveys were distributed solely at Middlebury’s Charter House, so all of these respondents are included in the Addison County respondent group. Other counties that had high numbers of low-income respondents include Essex, Orange, Grande Isle, and Rutland, although apart from Addison County, Rutland was the only county with a large percentage of low-income respondents and a high number of total respondents. Respondents by age group (broken down into deciles between 18 and 75) appeared to have an approximately normal distribution, with 56-65 being the largest age group represented (Figure 2). This did not hold true for low-income respondents, though. The largest number of low-income participants fell into the 26-35 age category.

38% of participants stated that they, on average, spend between $1000 and $2000 on heating each year. This finding holds true for just low-income participants, indicating that a tax without additional financial protection for low-income individuals has the potential to be regressive. The three most common home heating methods among all participants were fuel oil/kerosene, wood, and propane/natural gas. This was also found among low-income earners. 41% of low-income Vermonters used fuel oil or kerosene to heat their homes, 23% use wood, and 21% use propane or other natural gas (not including utility gas from neighborhood pipelines) (Table 3).

Respondents were asked to rank the likelihood that they would use different forms of transportation, including walking, biking, driving, carpooling, taking the bus, and taking the train. Low-income respondents ranked using the bus as their first, second or third choice (rank 1, 2 or 3) more often than non low-income respondents while non low-income respondents ranked bus as their 5th, 6th or 7th choice (rank 5, 6 or 7) the same or more often than low-income respondents.
Figure 1. Participants by county.

Figure 2. Participants by age group.
The most important result from the survey was the preferred rebate method of low-income individuals. Due to the design of the survey, this question was only shown to Vermonters considered low-income by bill H.412. Respondents were given the choice between an income tax rebate, a new EBT card, an addition to a pre-existing EBT card, an addition to an individual’s LiHEAP balance, or Other, which allowed respondents to specify another program that would work best for them. Some respondents selected Other and, rather than suggesting a specific program or rebate method, indicated that they did not support a carbon pollution tax. As these respondents did not actually answer the question, they were filtered out during the analysis of this question. After removing these responses, 41% of these residents indicated that their preferred rebate method would be through an income tax rebate (Figure 3). 27% of respondents indicated that a rebate through an account linked to an EBT card would work best (this is a combination of the new and pre-existing EBT card options). 3% of respondents indicated that they would like to receive a rebate as an addition to their LiHEAP balance. 29% indicated an Other response, and the majority of these respondents said that a rebate as cash or a check would be best.

After this question, respondents were asked to explain why this method would work best for them. One respondent, who selected an EBT card method, stated that this method “makes the most sense [and is a] better way to handle [the] distribution of money”. Another participant who also preferred an EBT card method said that they “Probably won't have the cash flow ... to wait for an income tax rebate”. Participants who preferred an income tax method stated that it would be “simple”, “easy” and “transparent”. When asked about preferred rebate frequency, 49% of participants indicated that an annual rebate would work best. This may be influenced by the fact
that 41% of respondents selected an income tax rebate method, which is delivered annually. 20% selected a quarterly rebate, and 12% chose a monthly rebate. 3% of respondents preferred a rebate delivered every two weeks, and 16% had no preference about when the rebate would be delivered.

Participants were prompted to consider what they may actually spend the additional low-income rebate on. Respondents chose from options like groceries, home heating, and savings, and were able to fill in their own preferred item if it were not mentioned in the pre-written choices. Based on our responses, low-income Vermonters would spend the additional low-income rebate on a multitude of things. The most popular choice was home heating, followed closely by groceries and transportation (Figure 4).

![Preferred Rebate Method](image)

*Figure 3. Preferred rebate method of low-income Vermonters.*
Respondents were also asked about the best usage for the Vermont Energy Independence Fund. Options included home weatherization for low-income earners, promotion and implementation of renewable energies (such as the installation of solar panels) or improvements to public transportation (Figure 5). 30% of the respondents stated that they would like this money to go towards weatherization of low-income households, 26% preferred that this money be used for improvements to public transportation, and 23% said that they would like this to fund renewable energy implementation. 21% of respondents chose Other and the majority of these respondents stated that they would like to see a combination of these programs funded through the Vermont Energy Independence Fund, as they viewed more than one of them as important.
Focus Group Results

The low-income Vermonters that we heard from in our focus groups provided important insights into their day-to-day realities. Though they expressed varying views in response to some specific questions, there were several points on which there was a general consensus.

First and foremost, the people we heard from made it very clear that many low-income Vermonters are conscious of environmental issues and want to be part of the solutions. Several individuals in our focus groups expressed strong support for recycling programs and renewable energy sources such as wind and solar. However, their low level of income and specific living situations can make being environmentally friendly very difficult. For example, everyday household products that are advertised as better for the environment are often more expensive, and many efficiency solutions such as purchasing a more fuel-efficient vehicle or home heating system require a significant up-front investment. For this population, many find that taking additional steps to protect the environment is often not a viable choice given their limited resources. This is why a carbon pollution tax needs a robust low-income rebate system to ensure that these people are not saddled with an additional economic burden to which they cannot adjust.

In terms of the preferred rebate delivery method, different individuals expressed different preferences. There were multiple supporters of both the income tax rebate and the EBT card.
delivery mechanisms. One participant put forward the idea of distributing rebates through Social Security or through community groups and charity organizations. Several participants said that either they themselves use an EBT card or that they know people who do, and that an EBT card rebate in a flexible cash account would be a good way for them to receive money from the state. Others expressed that an income tax rebate would work well for them. One thing that many participants agreed upon was that the rebate system should be easily accessible to low-income Vermonters. This means it should not require a lot of new paperwork and documentation, and people should not have to take a lot of time to search out how to apply for the rebate. One individual mentioned that this would be especially important if the rebate is not very large, such as in the early years of the tax, because many people would not bother to ‘jump through a bunch of hoops’ to receive the relatively small compensation to which they are entitled.

Other topics that were discussed during the focus groups included the value of receiving the rebate as a cash equivalent, the frequency of rebate distribution, and the issue of benefit cliffs. Participants wanted to receive the rebate in a form that would allow them to decide for themselves what to spend it on. For some, this pointed towards an income tax rebate while others voiced support for an EBT card unrestricted account, separate from the benefits they may receive through assistance programs. The frequency of distribution question received a variety of responses. Some would prefer a single rebate annually, while others wanted it in smaller, more-frequent disbursement such as monthly or every other week. Still others indicated that their preference could be affected by the size of the rebate, because if it were small they would want it in one lump sum annually but if it were larger it might be more useful to receive it more often. The topic of benefit cliffs also came up, and one participant noted that they knew people who had been faced with a difficult situation when they made a bit more money and lost benefits from some assistance programs that they relied upon.

Focus group members were also asked how they would like to see the money in the Vermont Energy Independence Fund spent. Ideas from the low-income Vermonters included investments to make public transportation cheaper and more accessible, funding to help people invest in renewable energy and efficiency projects such as heat pumps, and weatherization. There was significant support for the idea of weatherizing buildings, but some individuals were skeptical of the ability of the state government to follow through, or were concerned about the fact that renters have a more difficult time accessing weatherization programs than homeowners because they have to go through their landlords. The issue with renters is that they may not be able to invest in improvements to a residence they do not own, and that landlords may not have the incentive to improve a residence they do not live in. Additionally, one focus group participant suggested that landlords may be wary of weatherization because it might require inspectors to come into buildings which may not be up to code.
Discussion:

Definition of Low Income and Benefit Cliffs

In speaking with the members of Community Action agencies and other low-income advocates, we determined that 200% of the federal poverty level is widely used in Vermont, and therefore likely makes sense as a threshold in the bill. However, our focus groups and expert interviews provided us with insight into the potential benefit cliff associated with the carbon pollution tax if the additional rebate for low-income individuals does not decline slowly as income rises above this level. In our focus groups, several individuals mentioned their concern for losing benefits if their income increases above this threshold. Vermont’s Bill H.412 could benefit from considering the ways in which other proposed and existing carbon pollution taxes address benefit cliffs, and reduce unnecessary harm on low-income individuals. To address benefit cliffs, Bill H.395 gives the bottom two income quintiles of Vermont an increased benefit compared to the top three income quintiles. This increases the percent of Vermonters receiving the greatest rebate from 29% in Bill H.412 to 40%, which could help to reduce a benefit cliff.90 As described earlier, Washington’s low-income rebate gradually increases and then decreases as it follow the EITC, while British Columbia’s rebate gradually decreases for every dollar made over the income threshold, either of which could be an option for Vermont. We believe that British Columbia’s approach is the most effective method to address benefit cliffs because it is a simple but gradual ramp-down for individuals over the threshold and can stand on its own independent of EITC requirements.

Preferred Rebate Systems and Frequency

Overall, our survey and focus groups gave us insight into the preferred rebate systems of low-income individuals. Based on our survey, 41% of low-income Vermonters preferred an income tax rebate, while 27% preferred an EBT card (which included either using one they already had or adding a new one).

A conservative group that opposes Vermont’s proposed carbon pollution tax posted our survey on their social media page. Subsequently many of the group’s members filled out our survey and likely impacted the results of the aforementioned question.91 Responses were skewed toward an ‘other’ option that did not represent a preference for a different rebate method but rather was an opposition to the tax in general. In calculating the percentages for the different rebate systems, we removed all “Other” responses that did not mention a preferred rebate method. We did this in order to give a more accurate representation of rebate system preferences. Most of the “Other” responses we received that remained in our results (totaling 29%) preferred the rebate to be distributed through cash or a check. However, the experts we talked to emphasize the importance of using existing systems or programs to distribute the rebate, rather than creating new bureaucracies. The options most similar to a cash or check

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90 Pearson et al. H.395: An Act Relating to Establishing a Carbon Pollution Tax
91 See “Result Bias due to Survey Methods” on page 34.
option are an income tax rebate or a rebate on an EBT card in an unrestricted cash account. In our focus groups, participants also preferred EBT cards and income tax rebates. Most of those who did not already have an EBT card favored an income tax rebate because they were already familiar with this method. More than 14% of Vermonters currently use EBT cards to receive their 3SquaresVT benefits. The qualifications for 3SquaresVT are different from the low-income qualification in H.412. To qualify for 3SquaresVT, an individual must have an income at or below 185% of the federal poverty level. If we assume that all 3SquaresVT users are low-income as defined by H.412, then 48.2% of low-income Vermonters likely already hold EBT cards, and could be easier to reach through this rebate distribution system.

In our survey we asked respondents what they would be likely to spend this hypothetical rebate on, and the responses showed a wide variety of preferences (Figure 4). Home heating and groceries were the most frequently selected choices. This points to preferences for a rebate system that allows low-income Vermonters to determine for themselves how the money is spent. Both an income tax rebate and an EBT card with an unrestricted cash account provide this option. However, some survey respondents and focus group participants wanted more of the revenue of the tax to go to the Energy Independence Fund to help them adapt to the carbon pollution tax. Low-income Vermonters in the focus groups expressed strong interest in becoming more environmentally friendly but cited high costs as a barrier. They felt that increasing the funding to the Energy Independence Fund would directly improve their ability to be more environmentally conscious. Additionally, one of our survey results shows that low-income Vermonters ride buses more than other income levels showing that this population would be the greatest beneficiaries of improved public transportation systems.

In considering a rebate system that would work for low-income Vermonters, however, the preferred method of an income tax rebate has two main downsides. First, the timing of distribution is likely to be limited to once a year, and second, about 8% of Vermonters do not file taxes and would not be reached by a rebate delivered in this form. Using EBT cards for distribution might be more logistically difficult, as cash accounts linked to EBT cards have monetary limits. Given these restrictions, it may be necessary to develop a new, unrestricted cash accounts that can be linked to all EBT cards, which would not have spending guidelines or value limits. There also is still stigma attached to using an EBT card according to some of our low-income advocates, which may discourage people from receiving the rebate using this method. This stigma is lessened by the fact that EBT cards now look and function in a similar manner to most debit cards, so it is hard to tell whether or not an EBT card is being used at a register.

Our survey results and focus groups both confirmed that a plurality of low-income respondents were in favor of receiving the rebate annually (49%). From the focus groups, we learned that this would be especially true if the additional rebate would be small. However, 20% of low-income survey respondents preferred receiving the rebate four times a year and 12% preferred monthly. This sentiment, of a higher rebate frequency, was echoed in both our focus

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92 3SquaresVT, dcf.vermont.gov
93 Facebook message with Rebecca Sameroff, a statistician for the Vermont Department of Taxes on November 18th, 2015
groups and survey results. These survey respondents saw a benefit of receiving the rebate more frequently, so they would have access to it during the times of the year when they needed it the most.

**Administrative Costs**

In our expert interviews and case studies, we briefly explored administrative costs associated with different rebate methods. An income tax rebate would likely not cost the state much because there would be no additional forms or mailings that would require an administrative presence. Government staff would need to learn the mechanisms behind the new rebate system, but beyond that, prior examples show that new income tax rebates have relatively low administrative costs. Implementing an EBT card method would be more labor-intensive at the outset of the program, as all new cash accounts would need to be created and linked to EBT cards. However, after this initial set up, there would not be a significant amount of additional staff time required, as rebate transfers theoretically would occur at a set frequency.

**Vermonters Excluded under Specific Rebate Systems**

As mentioned above, approximately 8% of Vermonters would not be able to receive an income tax rebate because they do not live in households that file taxes. The exact demographics of this population are unknown. It is also unknown how many of these Vermonters might participate in other programs for which they use an EBT card. A national study found that these individuals who exist outside of the state’s reach are primarily women who are single parents. While this study was not conducted for Vermont specifically, it may help provide an insight into the types of individuals who do not file income taxes or receive assistance benefits. However, it would be important to reach these individuals using methods other than an income tax rebate. Special outreach to this group would be necessary. One method of outreach that could be beneficial to single parents could occur through schools, and perhaps specifically to students who are a part of the free or reduced lunch program in Vermont. From the focus groups, we also heard that an unknown percentage of Vermonters who do not file taxes receive Social Security benefits, which is supported by the fact that the income level requiring Vermonters to pay taxes is higher for those over 65. A potential method to reach out to this population could be by including information in all Vermonters’ Social Security mailings about how to join the EBT card rebate system.

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94 Stone, Chad. “The Design and Implementation of Policies to Protect Low-Income Households under a Carbon Tax.”
95 Facebook message with Rebecca Sameroff, a statistician for the Vermont Department of Taxes on November 18th, 2015
96 Zedlewski et al., “Families Coping without Earnings or Government Cash Assistance.”
97 “Filing Information.” IRS.gov
Result Bias due to Survey Methods

Our results answered many of our questions posed at the beginning of our project, answered questions we did not know were important, and raised new ones. Our results were also biased in particular ways based on our collection methods. Addison County is over represented in the survey partially because it was the only county in which we distributed a paper version of the survey. It is also possible that more residents in this county were familiar with Middlebury College and therefore were more interested in participating. Some of our results were also impacted by the discourse around the proposed carbon pollution tax in Vermont, which is currently very contentious. In general, politically conservative groups in the state do not support the proposed carbon pollution tax. A conservative group found our online survey, misinterpreted it as a petition for the carbon pollution tax, and asked members of their group to fill out the survey and mark “strongly oppose” to questions about opinions of the tax. One of these groups was a Facebook page titled “Vermonters Against Peter Shumlin” which posted our survey asking members to fill out the survey in this way.\textsuperscript{98} We noticed the increase in responses to our survey because of this post, and the questions asking for opinions about the tax were skewed toward “strongly opposed” after the post. However, most of these respondents were not low-income, and our survey design included filter questions to determine if the respondent was low-income. Therefore, questions targeting low-income individuals specifically received minimal traffic from the circulation by this conservative group. However, there were a few cases in which results were skewed, which we addressed on a case-by-case basis below.

The table below (Table 4) shows our survey results compared to the American Community Survey data for Vermont.\textsuperscript{99} The rate of participation in assistance programs by low-income individuals in our survey was not representative of the rate of participation by the general population in Vermont. Overall in our survey, we found an under representation of Vermonters who participate in assistance programs. This may be a result of our sample method, which was largely through Front Porch Forum, which may be frequented by demographics that do match Vermont’s general low-income population. Since our sample size was small, we also do not have enough evidence to say that these are non-random results. The percentage of respondents who qualified as low-income was a survey demographic that was most similar to the American Community Survey; 29% of Vermonters qualify as low-income, while 27% of our survey respondents also qualified as low-income.\textsuperscript{100}

\textsuperscript{98} Mullin, Valerie. “Vermonters against Peter Shumlin.”
\textsuperscript{99} U. S. Census Bureau. “American FactFinder - Results.”
\textsuperscript{100} ibid.
Table 4. Percentage of Vermonters that participate in specific assistance programs.

<table>
<thead>
<tr>
<th>Vermonters that Participate in:</th>
<th>American Community Survey Statistics:</th>
<th>Survey Results:</th>
</tr>
</thead>
<tbody>
<tr>
<td>LiHeap</td>
<td>9.97%</td>
<td>1%</td>
</tr>
<tr>
<td>3SquaresVT</td>
<td>14.3%</td>
<td>7%</td>
</tr>
<tr>
<td>Reach Up</td>
<td>1.93%</td>
<td>0%</td>
</tr>
<tr>
<td>Medicaid and Dr. Dynasaur</td>
<td>29% and 4.92%</td>
<td>17% in total</td>
</tr>
</tbody>
</table>

**Household or Individual?**

Our research also looked into the question of whether rebates should be distributed to individuals or households. Our survey results showed that distribution at the household level was marginally preferred, with 39% of low-income respondents choosing this option. However, 31% preferred individual distribution and 30% had no preference. Because filing taxes can be done as a household or as an individual, an income tax rebate method could provide potential flexibility to individual preferences. Additionally, EBT cards are administered at the household level. None of the focus group participants or experts we spoke to expressed any concern about children not receiving the rebate, especially considering that the federal poverty level takes into account household size, so families with children would qualify for the additional rebate at higher income levels.

**Visibility of Rebate**

Finally, we considered whether certain rebate methods would change the visibility of the rebate, and in doing so, create a more positive response to the carbon pollution tax. Rebate methods that deliver money back as a stand-alone sum rather than being lumped in with other benefits may foster support for a carbon pollution tax, as Vermonters will have a heightened awareness of the exact amount given back to them.

**Uses for the Vermont Energy Independence Fund**

The main objective of the carbon pollution tax is to reduce carbon emissions by changing Vermonters’ behavior. For low-income folks this is especially difficult and therefore the use of the 10% of revenue set aside for weatherization programs and the Vermont Energy Independence Fund is very important. From our survey, we found that home weatherization was most important to low-income individuals (30%) but that public transportation (26%) and renewable energy projects (23%) were important as well (Figure 5). We found that a much higher percentage of low-income Vermonters walk and take the bus than other income levels. Low-income individuals were also about twice as likely as higher income levels to be renters (31% of low-income, 16% overall), and concerns specific to renters were brought up in our focus groups.
as well. Participants were also concerned that some landlords do not have enough incentive to participate in weatherization programs. One particular concern we heard was that some landlords do not want to participate in weatherization programs because an inspection would reveal that their property is not up to code. To address these renter issues it is important for the programs to have strong incentives for landlords. Additionally, many focus group participants expressed that they would like to be financially supported in joining things like solar cooperatives.

**Recommendations:**

To ensure that the low-income rebates associated with Bill H.412 reach the largest number of Vermonters possible, we recommend that the proposed carbon pollution tax employs a combination of rebate distribution methods. Specifically, we suggest that Vermont should deliver revenue from the carbon pollution tax to low-income individuals as income tax rebates and an unrestricted cash account accessible through EBT cards. As the Vermont Department of Taxes indicated, the 8% of Vermonters who do not file taxes would not receive the rebates that are associated with Bill H.412 if they were distributed exclusively through the income tax system. Concern for those who do not file taxes was clearly voiced by numerous Vermonters in our survey and focus groups. Thus, we believe that individuals who already have EBT cards should automatically receive the additional rebates from Bill H.412 on their EBT cards. These individuals should also be given the option to opt out and receive their rebates through the income tax system if they so desire. Individuals who do not have an EBT card would automatically receive the rebate through the income tax system. They could however opt into receiving the rebate through a new EBT card.

We recognize that this combination of rebate distribution methods would not reach every low-income Vermonter; specifically, individuals who do not file taxes and do not have an EBT card would not be able receive the rebates associated with Vermont’s proposed carbon pollution tax. As we previously discussed, these individuals are especially difficult for the state to reach. The state must continue to pursue any and all avenues to reach these Vermonters, and provide them with the benefits that they are entitled to, and it is our firm recommendation that they do so. Moving forward, Vermont legislators must address the possibility that Bill H.412, as currently written, could create or exacerbate a benefit cliff. By looking at existing and proposed carbon pollution taxes, Vermont policymakers can determine a remedy to this problem. Additionally, it is crucial for Vermont legislators to recognize and address the frequency that individuals receive their rebates, which is especially important for those who live paycheck-to-paycheck. Finally, while we recognize that distributing rebates through EBT cards and the income tax system may be more complicated for the state, we firmly believe that this policy design is necessary to ensure that Bill H.412 is as equitable as possible, and its rebates reach as many low-income residents as possible.
Acknowledgements:

Our group would particularly like to thank: Middlebury College Professors Chris Klyza and Mez Baker-Medard; Diane Munroe, Middlebury College Coordinator for Community Based Environmental Studies; Amy Shollenberger of Action Circles; Doug Sinclair and everyone at the Middlebury Charter House; Jan Demers, Executive Director of CVOEO; Steve Geller, Executive Director of SEVCA; Karen Lafayette of the Vermont Low Income Advocacy Council; the Vermont Department of Taxes; the British Columbia Ministry of Finance; the hundreds of Vermonters that participated in our survey or focus groups. We could not have done it without you!
Work Cited:


Appendices:

Appendix A: Paper Survey

Appendix B: Selected Survey Responses from Low-Income Individuals

Appendix C: Communications Document for Community Partners and Legislators

Appendix D: Scenario Analyses
Introduction

We are a group of seniors at Middlebury College. We are doing research on Vermont’s proposed Carbon Pollution Tax (Bill H.412). We believe that your response to this survey will help inform policy that best benefits Vermonters.

We recognize that your time is valuable. Upon completion of this survey, you will be given the opportunity to enter into a raffle, with multiple cash prizes up to $50 each.

Summary of the Carbon Pollution Tax

The tax associated with the bill will be applied to fossil fuel distributors in Vermont. These include heating and transportation fuels, such as oil, gas, propane, and coal. The proceeds from the Carbon Pollution Tax will be given back to Vermonters. 90% of the proceeds will be directly distributed to all Vermonters, and 10% will be set aside for home efficiency projects. While there will be a rebate distributed to all residents, the sponsors of the proposed policy acknowledge that low-income earners may be disproportionately affected by the Carbon Pollution Tax. In order to alleviate that burden, low-income earners will receive an additional rebate from Vermont.

Our Goals

Legislators are unsure how to best distribute the rebates associated with the Carbon Pollution Tax. We are collecting information about energy usage in Vermont, with the hopes of ensuring an equitable distribution of the money that is raised by the Carbon Pollution Tax. We are not affiliated with the Vermont Legislature; we only seek to explore methods of creating the fairest version of the bill. We hope that your answers to this survey will help shape future policy.

Participation and Confidentiality

Participation in this research study is completely voluntary. There is no penalty for withdrawing during the survey.

All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones).

Thank you for your participation!
With which gender (if any) do you identify? _______________________

What is your age? __________

In which county of Vermont do you reside?

- Addison
- Bennington
- Caledonia
- Chittenden
- Essex
- Franklin
- Grand Isle
- Lamoille
- Orange
- Orleans
- Rutland
- Washington
- Windham
- Windsor

Number of people in household: ______________
Total annual household income: ______________

Which programs do you or your household participate in, if any? (Check all that apply)

- LiHEAP
- 3SquaresVT
- Receive Social Security benefits
- Reach Up
- Medicaid or Dr. Dynasaur
- Other: ______________________
- None

What is your living situation?

- Currently without residence
- Staying with friends/relatives
- Renter
- Homeowner
- Other: ______________________

Are you employed? (Check all that apply)

- Full-time
- Part-time
- Self-employed
- Student
- Unemployed
- Retired
- Other: ______________
- Prefer not to say
Are you a veteran of the U.S. Armed Forces?

☐ Yes  ☐ No

Approximately how much does your household spend on heating a year?

☐ $0 - 500
☐ $500 - 1,000
☐ $1,000 - 2,000
☐ $2,000 - 3,000
☐ $3,000 - 4,000

What is your household's primary mode(s) of heating in the winter? (Check all that apply)

☐ Utility gas from underground pipes serving neighborhood
☐ Propane, Butane or other liquefied petroleum gas
☐ Electricity
☐ Fuel oil, kerosene, other liquid fuels
☐ Coal or coke
☐ Wood
☐ Solar energy
☐ No fuel used
☐ Other: ____________________________

On an average week, approximately how many miles do you personally drive?

☐ 0-50  ☐ 300-400
☐ 50-100  ☐ 400-500
☐ 100-200  ☐ 500-600
☐ 200-300  ☐ 600+

On an average week, approximately how many miles does your entire household drive
(including the miles you personally drive)?

☐ 0-100  ☐ 400-600
☐ 100-200  ☐ 600-800
☐ 200-400  ☐ 800+
What types of transportation are you most likely to use during an average week? (Please rank, 1 = Most Likely, 7 = Least Likely)

_____ Car (single occupant)
_____ Car (multiple people/carpool)
_____ Bus
_____ Train
_____ Bicycle
_____ Walk
_____ Other: ___________________________

Have you or your household participated in a home weatherization program?

☐ Yes
☐ No

If you answered “yes”, please explain what changes you made to your home in a few sentences.

As explained at the beginning of the survey, the Vermont State Legislature is considering a new Carbon Pollution Tax. The tax will be applied to fossil fuel distributors in Vermont. These include heating and transportation fuels, such as oil, gas, propane, and coal. The proceeds from the Carbon Pollution Tax will be given back to Vermonters. 90% of the proceeds will be directly distributed to all Vermonters, and 10% will be set aside for home efficiency projects. While there will be a rebate distributed to all residents, Vermont acknowledges that low-income earners may be disproportionately affected by the Carbon Pollution Tax. In order to alleviate that burden, low-income earners will receive an additional rebate from Vermont.

After reading the above description, how supportive might you be of this Carbon Pollution Tax? (circle one)

Strongly Support  Support  Oppose  Strongly Oppose  Unsure
Since the proposed Carbon Pollution Tax gradually increases over 10 years, the rebate will also increase over that same time period. Estimates of the rebate per adult start around $100 per year and increase to $700 per year over the ten-year period.

If you received this rebate in the next year, what would you be likely to spend it on? (Check all that apply)

- Rent
- Groceries
- Transportation
- Home heating and utilities
- Entertainment
- Health care
- Insurance
- Education
- Clothing
- Savings
- Other: ______________________

How would you personally prefer to receive a rebate from the Carbon Pollution Tax?

- Through an income tax rebate
- Through an existing electronic benefit transfer (EBT) card in an account with unrestricted use
- Through a new electronic benefit transfer (EBT) card with rebate in an account with unrestricted use
- Through an addition to your LiHEAP balance (if applicable)
- Other

In a few sentences, please explain why this is your preferred rebate option. If you selected "Other", please explain what your preferred method would be and why you chose it.

Assuming the total amount of your household rebate would be the same, how would you prefer to receive the rebate?

- Distributed to your household
- Distributed to individual adults
- No preference
How frequently would you prefer to receive the rebate?

- Annually
- Four times a year
- Monthly
- Every two weeks
- No preference
- I don't know

10% of the revenue generated by the Carbon Pollution Tax will go into an Energy Efficiency Fund, which may assist Vermonters in switching to renewable energy sources, fund public transportation, or weatherize old or inefficient households. Proposals for the use of this money are currently being developed.

Where would you like to see this money go? (Check all that apply)

- Home weatherization
- Public transportation
- Financing programs for individual or community renewable energy projects
- Other:
  
  ______________________________________________________
  ______________________________________________________
  ______________________________________________________

In a few sentences, please explain why you chose these proposal(s) for the Energy Efficiency Fund:
Appendix B: Selected Survey Responses from Low-Income Individuals

Pro-income tax rebate distribution system:

Seems to be the easiest and most cost efficient.
[Addison County]

Because I do taxes every year and it would be easy to add this rebate to my tax return.
[Windham County]

It seems the most simple, both for myself and the government
[Chittenden County]

Would be more likely to get it into savings (vs spending it without intention).
[Rutland County]

If I get it mailed home, I know I get it.
[Addison County]

An income tax rebate gives the most flexibility and ease of use
[Rutland County]

Don't participate in LiHEAP or EBT
[Addison County]

It would not require me to do anything in addition to filing my tax return. (I'd prefer the carbon tax not happen in the first place, since the rebate will simply be a bit less than whatever the oil company increases its rates by.)
[Addison County]

This seems like the most cost effective way for the government to give it back. I don't think mailing out hundreds of thousands of plastic cards (in which the production process involves CO2 generation) would be a good method for giving a carbon rebate.
-Low-income resident from Addison County
Income tax rebate money gets set aside for us for needed upgrades/purchases and sometimes vacation. It'd be nice to have extra there.
[Addison County]

Anything I can do to offset high taxes ...
[Lamoille County]
Pro-EBT card:

That would benefit my family the most
[Addison County]

Then you're allowed to spend the rebate on what you choose
[Addison County]

Makes the most sense AND easier AND better way to handle distribution of money
[Rutland County]

Electronic is easier
[Chittenden County]

Probably won't have the cash flow to allow me to wait for an income tax rebate.
[Chittenden County]

It ensures that the money doesn't disappear into taxes if I make a little more money in a particular year and might be sooner than a tax refund or at a different time of the year when I am desperate
[Chittenden County]

Because I got an EBT card, so it's easy to get the cash
[Rutland County]

The EBT card would be easier due to already having one and so do so many other Vermonters.
[Addison County]

I already have a EBT card would be most convenient
[Addison County]

It would be most helpful to be able to use the rebate freely.
[Chittenden County]

So that we can determine how we need to use the rebate. We might use it towards our fuel bill, however, we might need it for rent or groceries or transportation costs more at the time it is distributed. Or we may want to distribute it among the above categories as we see fit.
[Addison County]
Vermont Energy Independence Fund:

They're all equally important to combating climate change!
[Addison County]

All of those issues are important and given the disparity in the income levels, lower-income people often need assistance in all those areas.
[Addison County]

I think it should benefit communities as a whole, and not just people that know what they need to say to get the government to give them solar panels. It definitely should NOT go to funding privately held solar "farms" (which is a very ironic name for them- solar plant would make more sense). I'm skeptical that this tax would actually benefit individuals, and not just raise the price of oil and heating while giving solar panels to well connected people.
[Addison County]

People living in poverty can't get ahead. Everyone deserves to be warm in these cold months.
[Addison County]

Help low income vermonters get off grid solar panels.
[Addison County]

There is a need for weatherization of old homes particularly for low-income housing. & public transportation in Vermont does leave much to be desired
[Addison County]

Public transportation is the only option that ought to fall under the umbrella of state services. It is not for the state to dictate how or to what extent individuals use renewable energy. Annual rebates would minimize transactions and thus hopefully minimize the costs of running the program. My household's energy bill is paid by the landlord, not the tenants, so the rebate should not be distributed to the individual tenants.
[Addison County]

Getting homes for people without one. Have been homeless before and it is a huge problem in this state. NO JOKE.
[Addison County]

Home weatherization will help people save money over time. Having a good public transportation system will help people get to work, appts., etc.
[Addison County]

Low or no interest loans to people/companies to properly insulate basements/homes and to install insulated windows. people may not have the start-up money to insulate homes, install new windows but these are money-saving measures that will be realized over the years to come and will increase energy savings [Chittenden County]
Public transportation on a large scale is unrealistic given the low population density in Vermont, so I chose the other two methods which are at least feasible.

[Rutland County]

Public transportation IS badly needed and helps cut down pollution as well as cuts down ON vehicle numbers. Weather programs for homes help cut down ON fuel usages and increasingly make homes worth more. AND if communities bond together for energy efficiency efforts that helps many people.

[Rutland County]

If the goal is to reduce carbon emissions, then I believe the biggest win in Rutland city would be Home Weatherization. Rutland City has many rental properties (so people are not invested in putting money into the building) which also happen to be very old (the curtains in our apartment literally blow when the wind blow outside!). If these buildings could be properly weatherized, I believe there would be a huge reduction in overall energy usage (for heating and cooling in particular). Public transportation would be a distant second. If there was an efficient bus route to places I needed to go (ie it didn't take me an hour longer than using my car), I would take it. I believe that the more efficient the bus the more people that will use it and the more people that use it instead of a car the less carbon emissions. A side benefit would be that it would help give families without a car (which are usually also the low income families) a leg up (ie broaden the type of jobs they could take).

[Rutland County]

Renewable energy projects are essential for developing a more sustainable lifestyle.

[Windham County]

Home weatherization and public transportation are two areas that would create immediate improvement to the quality of life for many people in my town and Windham County.

[Windham County]

Old homes are energy hogs in Vermont. They seem to be a far greater pollution problem than automobiles. Many people, like our family, don't have the money and/or time to properly weatherize our homes. I'd love to weatherize our home, but haven't been able to make it happen due to these reasons.

[Windham County]

To make this really effective, redistribute only 10% of the cash directly - the 90% should go to energy efficiency improvements.

[Addison County]
Pro Carbon Pollution Tax:

We need more free market solutions (in conjunction with environmental regulation) to attack climate change from all sides.
[Addison County]

It is good to give back to consumers and also take care of our environment.
[Addison County]

Bring awareness to consumers about the real costs of fossil fuels and their extraction.
[Addison County]

I feel it is vital to the future of our children and our planet to finally put a price on carbon pollution.
[Chittenden County]

I support it because companies should be discouraged from polluting and these resources belong to all the people.
[Addison County]

We need more help
[Addison County]

I think it's a good idea because it creates incentives for EVERYONE to reduce reliance on fossil fuels. Also it sounds like it will piss off conservatives and hopefully they'll move away.
[Addison County]

I think it is a good idea and I like getting money back.
[Chittenden County]

It's got to happen, and it passes at least some of the money to Vermonters to help offset cost and is income sensitive
[Chittenden County]

I support it because it makes people think about their consumption and impact on the environment. If working to be as energy efficient and minimize their impact on the earth is not enough to motivate people to think about their consumption, maybe this tax will.
[Chittenden County]

It makes sense and has potential for being administered fairly.
[Windham County]
Against Carbon Pollution Tax:

Yet another layer of bureaucracy for the low income families to have to navigate. It costs them money they don't have for a situation they can't fix. Anytime you take a dollar out of the working poor's pocket, they are having to do without something.
[Chittenden County]

It is counter productive to tax necessities and will impact the poor the most. Vermont does NOT need new taxes, what we need is a government which will make better use of the taxes we already pay and eliminate the waste.
[Chittenden County]

I think this is a foolish idea, to tax people on the necessities of life in the northeast! Most of us are already using the minimum amount of fuel possible. My personal landscaping pretty much offsets my carbon footprint. We should be taxing the developers of wind and solar sites to offset their negative environmental impacts.
[Chittenden County]

I would like the tax to disappear. We have no need for it.
[Rutland County]

Strongly oppose any further tax of ANY kind imposed on working people in Vermont. We are being taxed right out of this state now & most can't afford to live here.
[Rutland County]

I am strongly opposed. It will instantly become a bureaucratic nightmare and impose economic hardship on those struggling to heat themselves in the winter and transport themselves year round, while doing nothing to affect global warming.
[Orleans County]

heating products are expensive enough. A whole dollar per gallon increase would make fuels unaffordable for many. and if the cost of fuels rose significantly, no one could afford to heat their homes.
[Franklin County]

I do not support the tax. This is Vermont not some damn social experiment. This liberal bs has been destroying a great state for years now.
[Grand Isle County]

I'd like to look you in the eye and tell you how wrong and evil you really are!
[Rutland County]

We can't afford the heat house now you're going to drive people out of state
[Lamoille County]
Crafting an Equitable Carbon Pollution Tax for Vermont

How a rebate distribution system for Bill H.412 can work best for the State Government and low-income Vermonters

A Middlebury College Environmental Studies Senior Research Project

Did you know?

Bill H.412 defines low-income Vermonters as those at or below 200% of the Federal Poverty Level, which is estimated to be between 24% and 29% of the state’s population.¹

In the absence of an additional rebate for low-income Vermonters, the CPT would disproportionately negatively impact this population, because they spend a higher percentage of their income on energy costs when compared to other income levels.

The CPT could be an effective means to help Vermont reach its goal of 90% renewable energy by 2050 and 75% reduction in emissions below 1990 levels by 2050.

The Proposed Carbon Pollution Tax (CPT)

One of Vermont’s proposed CPTs, Bill H.412, is primarily designed to incentivize Vermonters to reduce their use of greenhouse gas emitting fuels. The bill would establish a tax that would be assessed on distributors of fossil fuels within the state. These fuels include gasoline and diesel fuel for vehicles, as well as common heating fuels such as fuel oil, propane, coal, and natural gas. The tax would start at $10/mtCO2e in the first year of implementation, increasing by $10/mtCO2e each year to a maximum tax level of $100/mtCO2e after 10 years.

The proposed tax would raise significant revenue. 90% of the revenue would return to Vermonters in several forms. These include (1) a reduction in a state sales tax, (2) a per-employee rebate for businesses, (3) an individual rebate distributed to all Vermonters, and (4) an additional rebate to low-income Vermonters. The remaining 10% would be set aside to fund low-income weatherization programs and a Vermont Energy Independence Fund that would support the development and deployment of cost-effective sustainable energy in Vermont.

¹ The Kaiser Family Foundation estimated 24% in 2015, while estimates calculated from the American Community Survey were 29% in 2014.

Middlebury College students researched potential distribution methods for the additional low-income rebate. Research methods included conducting expert interviews at the national and state level, studying case studies of existing and proposed CPTs in British Columbia and Washington, distributing an online and paper survey throughout Vermont, and hosting focus groups in Middlebury, Vermont.

Full report at http://www.middlebury.edu/academics/es/work/communityconnectedlearning/envs0401/archive
The survey had 333 completed respondents from all 14 counties in Vermont, 27% of those being low-income Vermonters. 41% of low-income respondents wanted their additional rebate distributed through an individual tax rebate, due to its simplicity. However, this rebate distribution method occurs infrequently, which is difficult for those living paycheck to paycheck. Additionally, 8% of Vermonters live in households that do not file for taxes, and therefore these individuals would not receive their rebate if an income tax rebate method were selected.

27% of low-income survey respondents would like to receive their rebate through an Electronic Benefit Transfer (EBT) card. American Community Survey data shows that 14.3% of Vermonters already receive their SNAP benefits through EBT cards, and therefore this method would be relatively familiar to low-income individuals. Additionally, this rebate method could occur more frequently than an income tax rebate.

29% of respondents chose ‘Other’, specifying that they would want the rebate as cash or a check, which cannot be done. The next best option would be either distribution through an EBT card or income tax rebate, or both.

Key takeaways from our focus groups in Middlebury include:
1. Lower levels of income would make it harder for low-income individuals to adapt to the CPT.
2. Rebate options need low barriers to entry, such as minimal

Low-Income Rebate Recommendation and Areas for Further Research

We recommend a two-pronged rebate distribution strategy:

A. **EBT Card**: Residents with an existing EBT card, or those who choose to receive a new EBT card, should receive their rebate through a cash account linked to the card.
B. **Income Tax Rebate**: All other low-income residents should receive the CPT rebate through an addition to their income tax rebate.

Further research is needed to:
1. Address the issue of benefit cliffs, potentially using British Columbia’s, Washington’s, or Vermont’s Bill H.395 as models.
2. Integrate the feasibility of implementation of the two-pronged rebate distribution system for the Vermont Government.

Full report at http://www.middlebury.edu/academics/es/work/communityconnectedlearning/envs0401/archive
Appendix D: Scenario Analyses

The following is data from our survey used to create the inputs of the scenarios below. We used data from the Vermont Natural Resources Council (VNRC) to predict the costs and rebates of the proposed carbon pollution tax. These numbers are simply predictions, should not be treated as fact and are subject to change.

1. Alex and Rory from Rutland

   Alex and Rory are a couple with 1 child who live in Rutland. Their combined income is 100% of Federal Poverty Line. Together, they drive about 75 mi per week, using a relatively fuel-inefficient car and spend about $1,700 on heating per year using primarily fuel oil. They have already done some initial home weatherization and have an EBT card, which they use to receive 3Squares Vermont benefits.

   Without any changes to their lifestyle, Alex and Rory net about $480 in the first year, $1,933 in the 5th year and $2,184 in the 10th year of the carbon pollution tax being implemented. They automatically receive their rebate in a cash account on their EBT card, which allows them to receive it in monthly installments. However, they are also able to participate in a weatherization program and save 10% of their heating money. After this home improvement, they are able to net $486 in the first year, $1,962 in the 5th year and $2,242 in the 10th year of the carbon pollution tax being implemented.

### Rutland, before home weatherization

<table>
<thead>
<tr>
<th>Couple, 1 child, Rutland; 75 mi/wk; $1700/yr fuel oil</th>
<th>$10/ton</th>
<th>$50/ton</th>
<th>$100/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESTIMATED Rebates/Tax Cuts</td>
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</tr>
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<td>Estimated Per-Adult Rebate</td>
<td>60</td>
<td>277</td>
<td>378</td>
</tr>
<tr>
<td><strong>Per-Adult Rebate Times # of Adults</strong></td>
<td>120</td>
<td>554</td>
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</tr>
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<td>Low-Income Rebate</td>
<td>176</td>
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<td><strong>Low-Income Rebate Times # Adults</strong></td>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil - annual cost $1700 = 574 gal</td>
<td>59</td>
<td>293</td>
<td>586</td>
</tr>
<tr>
<td>Transportation Gas - 75 miles/wk = 3900 miles/yr = 229 gallons; 17/mpg truck</td>
<td>20</td>
<td>101</td>
<td>201</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
<td>394</td>
<td>787</td>
</tr>
</tbody>
</table>

**NET**  
480 1,933 2,184
Rutland, after home weatherization

<table>
<thead>
<tr>
<th>Couple, 1 child, Rutland; 75 mi/wk; $1530/yr fuel oil</th>
<th>Year 1</th>
<th>Year 5</th>
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Carbon Pollution Tax

| Fuel oil - annual cost $1530 = 517 gal               | 53     | 264    | 528     |
| Transportation Gas - 60 miles/wk = 3120 miles/yr = 184 gallons 17/100 truck | 20     | 101    | 201     |
| Total                                               | 73     | 365    | 729     |
| **NET**                                             | 486    | 1,962  | 2,242   |

2. Sam and Hayden from Burlington

Sam and Hayden are a couple with 2 young children who live in Burlington. Their combined income is 185% of Federal Poverty Line. Together, they drive about 50 mi per week, using a relatively fuel-efficient car and spend about $1,225 on heating per year using primarily utility gas. They do not have an EBT card.

Without any changes to their lifestyle, Sam and Hayden net about $502 in the first year, $2,043 in the 5th year and $2,404 in the 10th year of the carbon pollution tax being implemented. They automatically receive their rebate once a year through their income tax rebate. However, they are also able to participate in a weatherization program and save 25% of their heating costs. They are also able to reduce the amount that they drive by 10 miles per week. After these changes, they are able to net $516 in the first year, $2,112 in the 5th year and $2,541 in the 10th year of the carbon pollution tax being implemented.

Burlington, before home weatherization

<table>
<thead>
<tr>
<th>Couple with 2 young children, Burlington; 50 mi/wk; $1225/yr gas</th>
<th>Year 1</th>
<th>Year 5</th>
<th>Year 10</th>
</tr>
</thead>
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<td><strong>Natural gas - annual cost $1225 = 881 ccf</strong></td>
</tr>
<tr>
<td><strong>Trans Gas - 50 miles/wk =2600 miles/yr=104 gallons; 25/mpg car</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

| **NET** | 502 | 2,043 | 2,404 |

**Burlington, after home weatherization and driving reduction**

**Couple with 2 young children, Burlington; 40 mi/wk; $918/yr gas**

<table>
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<tr>
<td><strong>Natural gas - annual cost $918 = 660 ccf</strong></td>
</tr>
<tr>
<td><strong>Trans Gas - 40 miles/wk =2080 miles/yr=83 gallons; 25/mpg car</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

| **NET** | 516 | 2,112 | 2,541 |

3. Harper from the Northeast Kingdom

Harper is a single parent and U.S. veteran with 1 child who lives in the Northeast Kingdom. Her income is 150% of Federal Poverty Line. She drives about 225 mi per week, using a relatively fuel-inefficient car and spends about $2,500 on heating per year using primarily propane. She does not have an EBT card.

Without any changes to their lifestyle, Harper nets about $174 in the first year, $631 in the 5th year and $421 in the 10th year of the carbon pollution tax being implemented. She automatically receives her rebate once a year through their income tax rebate. However, she is also able to participate
in a weatherization program and saves 35% of her heating costs. After these changes, she is able to net $190 in the first year, $712 in the 5th year and $582 in the 10th year of the carbon pollution tax being implemented.

Northeast Kingdom, before home weatherization

<table>
<thead>
<tr>
<th>Single mother, 1 child, NEK; 225 mi/wk; $2500/yr propane</th>
<th>Year 1</th>
<th>Year 5</th>
<th>Year 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESTIMATED Rebates/Tax Cuts</td>
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</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>1,164</td>
<td>1,486</td>
</tr>
</tbody>
</table>

Carbon Pollution Tax

<table>
<thead>
<tr>
<th>Propane - annual cost $2500 = 806 gal</th>
<th>46</th>
<th>231</th>
<th>461</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trans Gas - 225 miles/wk = 11700 miles/yr = 688 gallons; 17/mpg truck</td>
<td>60</td>
<td>302</td>
<td>604</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>533</td>
<td>1,065</td>
</tr>
</tbody>
</table>

NET

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<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>174</td>
<td>631</td>
</tr>
</tbody>
</table>

Northeast Kingdom, after home weatherization

<table>
<thead>
<tr>
<th>Single mother, 1 child, NEK; 225 mi/wk; $1625/yr propane</th>
<th>Year 1</th>
<th>Year 5</th>
<th>Year 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESTIMATED Rebates/Tax Cuts</td>
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Carbon Pollution Tax

<table>
<thead>
<tr>
<th>Propane - annual cost $1625 = 524 gal</th>
<th>30</th>
<th>150</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trans Gas - 225 miles/wk = 11700 miles/yr = 688 gallons; 17/mpg truck</td>
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<td>302</td>
<td>604</td>
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</tbody>
</table>
4. Taylor and Riley from Southeastern, Vermont

Taylor and Riley are an elderly couple living without children who live in Southeastern Vermont. Their combined income is 185% of Federal Poverty Line. Together, they drive about 125 mi per week, using a relatively fuel-efficient car and spend about $1,700 on heating per year using primarily fuel oil. They have an EBT that they use to receive 3Squares Vermont benefits.

Without any changes to their lifestyle, Taylor and Riley net about $477 in the first year, $1,920 in the 5th year and $2,157 in the 10th year of the carbon pollution tax being implemented. They automatically receive their rebate monthly on their EBT card, however they decide to opt out of the program and instead receive the rebate annually with their income tax rebate. However, they are also able to participate in a weatherization program and save 15% of their heating costs. They are able to reduce their driving to 100 mi per week. After these changes, they are able to net $491 in the first year, $1,987 in the 5th year and $2,291 in the 10th year of the carbon pollution tax being implemented.

### Southeastern VT, before home weatherization

<table>
<thead>
<tr>
<th>Elderly couple, southeastern VT; 125 mi/wk; $1700/yr fuel oil</th>
<th>Year 1</th>
<th>Year 5</th>
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<tr>
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<td>2,327</td>
<td>2,971</td>
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</tbody>
</table>

Carbon Pollution Tax

| Fuel oil - annual cost $1700 = 574 gal                       | 59     | 293    | 586    |
| Trans Gas - 125 miles/wk =6500 miles/yr=260 gallons; 25/ mpg car | 23     | 114    | 228    |
| Total                                                        | 82     | 407    | 814    |

NET

| 477 | 1,920 | 2,157 |

### Southeastern VT, after home weatherization and reduced driving

<table>
<thead>
<tr>
<th>Elderly couple, southeastern VT; 100 mi/wk; $1445/yr fuel oil</th>
<th>Year 1</th>
<th>Year 5</th>
<th>Year 10</th>
</tr>
</thead>
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<tr>
<td>ESTIMATED Rebates/Tax Cuts</td>
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\*Per-Adult Rebate Times # of Adults\* | 120 | 554 | 756
Low-Income Rebate | 176 | 701 | 922
\*Low-Income Rebate Times # Adults\* | 351 | 1,402 | 1,844
Reduced Sales Tax | 44 | 186 | 186
\*Reduced Sales Tax Times # Adults\* | 88 | 371 | 371
Total | 559 | 2,327 | 2,971

**Carbon Pollution Tax**

| Fuel oil - annual cost $1445 = 488 gal | 50 | 249 | 498
| Trans Gas - 100 miles/wk = 5200 miles/yr = 208 gallons; 25/mpg car | 18 | 91 | 182
| Total | 68 | 340 | 680

NET | 491 | 1,987 | 2,291

5. Jordan from Addison County

Jordan is a single parent with three children who lives in Addison County. His income is 150% of Federal Poverty Line. He drives about 100 mi per week, using a relatively fuel-inefficient car and spends about $2,000 on heating per year using primarily fuel oil. He does not have an EBT card.

Without any changes to his lifestyle, Jordan nets about $183 in the first year, $685 in the 5th year and $528 in the 10th year of the carbon pollution tax being implemented. He automatically receives her rebate once a year through their income tax rebate, however chooses to opt-in to the EBT card program. He receives his rebate monthly in a cash account on a new EBT card. However, he is also able to participate in a weatherization program and saves 20% of his heating costs. He is also able to participate in a program that allows him to purchase a more fuel-efficient car. After these changes, he is able to net $210 in the first year, $814 in the 5th year and $786 in the 10th year of the carbon pollution tax being implemented.

**Addison County, before home weatherization and fuel-efficient car**

<table>
<thead>
<tr>
<th>Single father with 3 children, Addison County; 100 mi/wk; $2000/yr fuel oil</th>
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<td>60</td>
<td>277</td>
<td>378</td>
</tr>
<tr>
<td>Low-Income Rebate</td>
<td>176</td>
<td>701</td>
<td>922</td>
</tr>
<tr>
<td>*Low-Income Rebate Times # Adults*</td>
<td>176</td>
<td>701</td>
<td>922</td>
</tr>
<tr>
<td>Reduced Sales Tax</td>
<td>44</td>
<td>186</td>
<td>186</td>
</tr>
<tr>
<td>*Reduced Sales Tax Times # Adults*</td>
<td>44</td>
<td>186</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td>Year 1</td>
<td>Year 5</td>
<td>Year 10</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>280</td>
<td>1,164</td>
<td>1,486</td>
</tr>
</tbody>
</table>

**Carbon Pollution Tax**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuel type - annual cost $2000 = 676 gallons</strong></td>
<td>70</td>
<td>345</td>
<td>690</td>
</tr>
<tr>
<td><strong>Trans Gas - 100 miles/wk = 5200 miles/yr = 306 gallons; 17/mpi truck</strong></td>
<td>27</td>
<td>134</td>
<td>268</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>97</td>
<td>479</td>
<td>958</td>
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**NET**

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<table>
<thead>
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</thead>
<tbody>
<tr>
<td></td>
<td>183</td>
<td>685</td>
<td>528</td>
</tr>
</tbody>
</table>

**Addison County, after home weatherization and fuel-efficient car**

**Single father with 3 children, Addison County; 100 mi/wk; $1500/yr fuel oil**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
<th>Year 10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESTIMATED Rebates/Tax Cuts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated Per-Adult Rebate</td>
<td>60</td>
<td>277</td>
<td>378</td>
</tr>
<tr>
<td><strong>Per-Adult Rebate Times # of Adults</strong></td>
<td>60</td>
<td>277</td>
<td>378</td>
</tr>
<tr>
<td>Low-Income Rebate</td>
<td>176</td>
<td>701</td>
<td>922</td>
</tr>
<tr>
<td><strong>Low-Income Rebate Times # Adults</strong></td>
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<td>701</td>
<td>922</td>
</tr>
<tr>
<td>Reduced Sales Tax</td>
<td>44</td>
<td>186</td>
<td>186</td>
</tr>
<tr>
<td><strong>Reduced Sales Tax Time # Adults</strong></td>
<td>44</td>
<td>186</td>
<td>186</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>280</td>
<td>1,164</td>
<td>1,486</td>
</tr>
</tbody>
</table>

**Carbon Pollution Tax**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuel type - annual cost $1500 = 507 gallons</strong></td>
<td>52</td>
<td>259</td>
<td>517</td>
</tr>
<tr>
<td><strong>Trans Gas - 100 miles/wk = 5200 miles/yr = 306 gallons; 25/mpi car</strong></td>
<td>18</td>
<td>91</td>
<td>183</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>70</td>
<td>350</td>
<td>700</td>
</tr>
</tbody>
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**NET**

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<table>
<thead>
<tr>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>210</td>
<td>814</td>
<td>786</td>
</tr>
</tbody>
</table>

6. Non Low-Income resident

This scenario is for a single person who makes $65,000 per year, drives 18,000 miles per year, has a vehicle that gets 30 mpg, and spends $1200 on natural gas per year.
Reduced Sales Tax

<table>
<thead>
<tr>
<th></th>
<th>44</th>
<th>186</th>
<th>186</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduced Sales Tax Time # Adults</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>104</td>
<td>463</td>
<td>564</td>
</tr>
</tbody>
</table>

Carbon Pollution Tax

<table>
<thead>
<tr>
<th></th>
<th>47</th>
<th>233</th>
<th>466</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural gas - annual cost $1200</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trans Gas - 18,000 miles/yr @ 23 mpg</strong></td>
<td>53</td>
<td>263</td>
<td>527</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>496</td>
<td>993</td>
</tr>
</tbody>
</table>

**NET**

|      |   4   |  -33  |  -429 |

Survey information used to create inputs

1. Person from Rutland
   a. Drives not too far but maybe could have more access to transportation (67% below 100mi)
   b. Uninsulated homeowner (82% homeowner) (41% 1000-2000, 16% below that)(70% fuel oil)(62% not participated in home weatherization)

2. Person from Burlington
   a. Doesn’t drive as much (50% between 0-50mi per week)
   b. Uninsulated renter (30% renters)(45% $1000-2000, 30% below that) (60% gas) (84% not participated in weatherization program)

3. Person from the Northeast Kingdom
   a. drives a lot for work and probably can’t have more access to public transport (40% 100-200, 20% below that)
   b. uninsulated homeowner (80% homeowners)(50% 1000-2000, 20% below that)(40% propane)(70% not participated in home weatherization)

4. Person from southeastern VT
   a. drives a fair amount for work..(38% below 100mi, 35% between 100-200mi)
   b. uninsulated homeowner (90% homeowner) (53% 1000-2000, %17 below that)(68% wood, 60% fuel oil) (65% not participated in home weatherization)

5. Person from Addison county
   a. drives mid range(58% under 100mi)
   b. uninsulated homeowner (75% homeowner, 15% renter)(30% 1000-2000, 35% below that)(53% fuel oil, 30% wood, 27% propane) (75% not participated in home weatherization)