



## STUDY SESSION MEMORANDUM

**TO:** Mayor and Members of City Council

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**DATE:** May 14, 2019

**SUBJECT:** Study Session for May 14, 2019: Update on Proposed Vehicle Climate Fee and Natural Gas Tax

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### EXECUTIVE SUMMARY

At an [Oct. 23, 2018 study session](#)<sup>1</sup>, staff explained that existing revenue sources are insufficient to achieve Boulder's aggressive climate commitment goals and that these current goals need to be accelerated to align with new climate science. Because there is already a climate tax applied to electricity use in Boulder, council provided guidance to staff to pursue the development of both a Vehicle Climate Fee and Natural Gas Tax. The purpose of this study session is to provide an update to council on both of these options and seek feedback on next steps.

The Vehicle Climate Fee would be tied to the efficiency of a vehicle (miles per gallon or MPG) and applied during annual vehicle registration for vehicles registered within the City of Boulder. The purpose of this fee would be to cover the costs of programs and policies aimed at reducing on-road transportation-related emissions. Unlike this fee, the Natural Gas Tax would be a potential 2019 ballot measure and would fund programs and policies to reduce greenhouse gas (GHG) emissions, particularly those from natural gas use.

Specifically, the two options would primarily fund the efforts in Table 1.

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<sup>1</sup> The memo from this study session covers the following background topics that are NOT repeated in this memo: (1) an overview of carbon taxes and pricing globally; (2) details on current funding sources, funding allocations, achievements to date, and why the revenues are declining and insufficient to meet current goals; and (3) detailed analysis of various carbon pricing mechanisms.

**Table 1: Proposed Use of Funds**

<b>Vehicle Climate Fee</b>	<b>Natural Gas Tax<sup>2</sup></b>
<ul style="list-style-type: none"><li>• Drive Less: multi-modal transportation</li><li>• Electrify Vehicles</li><li>• Reduce Vehicle Emissions</li></ul>	<ul style="list-style-type: none"><li>• Reduce Building Energy Use</li><li>• Electrify Buildings</li><li>• Install Local Solar + Storage</li><li>• Pilot New GHG Reduction Technologies</li></ul>

Following the study session, staff engaged with a variety of community members and key stakeholders to solicit feedback on these options. Part of that engagement included hiring a consultant to conduct a statistically valid voter survey on various forms of carbon pricing. This survey showed that 63% of respondents would support some form of local carbon pricing that would increase the cost of fossil fuels by as much as 5%. When specifically asked about a Vehicle Climate Fee that would cost between approximately \$10 and \$40 annually per vehicle, 64% of respondents said they would support this option. When asked whether they would support a local tax on natural gas use, 70% of respondents said they would support this. The survey questions indicated that discounts or exemptions would be available for residents with lower incomes.

The purpose of this study session is to provide the results of the analysis and outreach on both the proposed Vehicle Climate Fee and the Natural Gas Tax. Staff requests feedback and guidance from City Council regarding the timeline and next steps for both efforts.

If Council wishes to increase funding for climate mitigation strategies, staff recommends the following (based on stakeholder feedback and a comprehensive evaluation of both options):

1. **Natural Gas Tax:** staff recommends adding the Natural Gas Tax, at the medium or high tax rate, on the 2019 ballot as a modification/update to the existing Climate Action Plan (CAP) Tax, which currently only applies to electricity use. Staff also recommends the following as part of this ballot measure:
  - a. Eliminate the sunset date to allow for future bonding and to align with the city's long-term commitment to mitigating climate changes;
  - b. Allow exemptions or rebates for residents with lower incomes;
  - c. Give Council the authority to reduce the electricity tax rates (and proportionally increase the natural gas tax rates) as the grid gets cleaner;
  - d. Implement maximum consumption thresholds over which additional usage does not get taxed; and
  - e. Provide a one-year implementation period before the tax is collected to allow the set-up of necessary systems and processes.

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<sup>2</sup> If the higher tax rate is chosen, and the Vehicle Fee is not pursued, these funds could also be used to reduce transportation GHG emissions.

2. **Vehicle Climate Fee:** staff seeks council guidance on whether to pursue this fee. If pursued, staff recommends setting the fee no lower than the moderate fee option (average fee of \$42/year). If not pursued, staff recommends considering the high rate option for the Natural Gas Tax (average tax of \$65 per year for a single-family home) so that necessary transportation-related climate programs can also be implemented.

### KEY ISSUES IDENTIFIED

Research and analysis identified the follow key issues with the introduction of any new climate related tax or fee, as well the key issues identified for both proposed options:

Need to balance revenue needs with economic burden of total taxes/fees on business and residents

Must better address equity in existing and future climate related taxes and fees: both in structure and use of funds

Need to level the playing field for all fossil fuels - currently only electricity has a climate tax, but not natural gas or gasoline

Must consider the timing of any climate related ballot measure in the content of the upcoming electric utility municipalization vote

**Key Issue with Vehicle Fee:**  
This would not apply to in-commuters and does not reflect miles driven

**Key Issue with Natural Gas Tax:** How to fairly assess a tax on industrial users that don't currently have commercially viable alternatives

These issues have been addressed throughout this memo and provide the basis for staff's recommendation and questions for council.

If council wishes to increase funding for climate mitigation strategies, staff is recommending that council include a 2019 ballot measure that modifies the existing CAP Tax to cover natural gas. Staff is seeking council feedback on this recommendation as well as the following:

### Questions for Council

1. Does council support staff's recommendation to develop a 2019 ballot measure to modify the existing CAP Tax to cover natural gas?
  - a. If yes, does council support staff's other recommendations related to the sunset date, low income exemptions or rebates, council authority to change future rates, a maximum consumption threshold and the implementation period?
  - b. If yes, what rate does council support? (low is not recommended by staff)
2. Should staff continue to develop the Vehicle Climate Fee for a council vote?
  - a. If yes, what is council's preferred timeline?

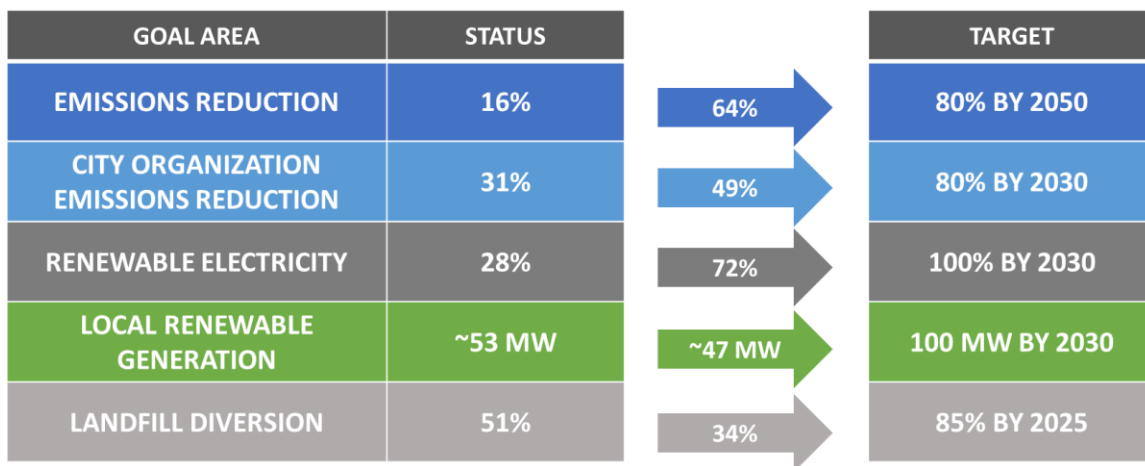
- b. If yes, what fee level does council support? (minimal is not recommended by staff)

## BACKGROUND

### **Boulder's Climate Commitment Goals**

Boulder's current climate action plan, the "Climate Commitment," was approved by council in 2016. Figure 1 details the progress to-date towards the city's Climate Commitment goals. The community has made significant achievements thus far: reducing GHG emissions 16% while the population and economy have grown, installing over 50 MW of local renewable generation and diverting over half of all waste from landfills.

**Figure 1: Progress Towards Climate Commitment Goals**



While celebrating these accomplishments, staff also recognize that the bulk of the work is ahead, with far more aggressive targets set for 2030, and a need to achieve the 2050 goals even sooner based on recent climate science.

### **Urgency for Climate Action and Carbon Pricing**

Recent reports and studies indicate that the targets set under the Paris Agreement, and even aggressive goals like Boulder's Climate Commitment, are not going far enough, fast enough. In 2018, the International Panel on Climate Change (IPCC) issued a [landmark report](#) that paints a dire picture of the immediate threat of climate change and says that avoiding worse consequences than are already being seen requires transforming the world economy at a speed and scale that has "no documented historic precedent."<sup>3</sup> The report describes a world of worsening food shortages, climate refugees, drought, wildfires and a

<sup>3</sup> IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp. Accessed from <https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/>

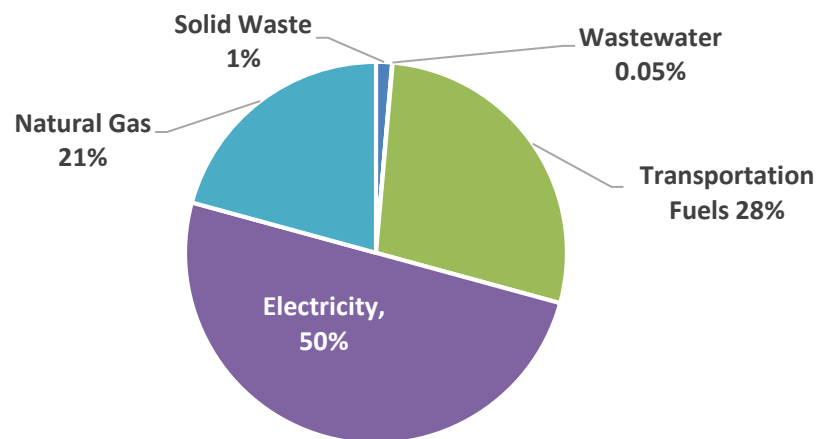
mass die-off of coral reefs as soon as 2040, and states that a price on carbon is central to prompt mitigation.

Finally, the report concludes that the emissions targets set under the Paris Agreement are insufficient to limit global temperature rise to 1.5 degrees Celsius (2.7 degrees Fahrenheit).<sup>4</sup> *In fact, Boulder's 2050 goal of 80% emissions reduction would need to be achieved by ~2032 (18 years ahead of schedule) to do our part to limit temperature rise below this critical threshold.*<sup>5</sup> Staff will discuss this need to accelerate our climate goals in a July 2019 Study Session.

### **The Need to Reduce Emissions from Transportation Fuels and Natural Gas**

Based on Boulder's [most recent \(2017\) greenhouse gas \(GHG\) inventory](#) (Figure 2) transportation fuels represent 28% of the community's total emissions by source, with nearly all of those emissions (99%) coming from on-road vehicle fuels. Natural gas represents 21% of the community's emissions.

**Figure 2. 2017 Community GHG Inventory Results by Source**



As the grid gets cleaner, the share attributable to transportation and natural gas will grow. Once the community achieves a 100% renewable electricity supply, *the contribution from the transportation sector will exceed 50% and natural gas will exceed 40%.*

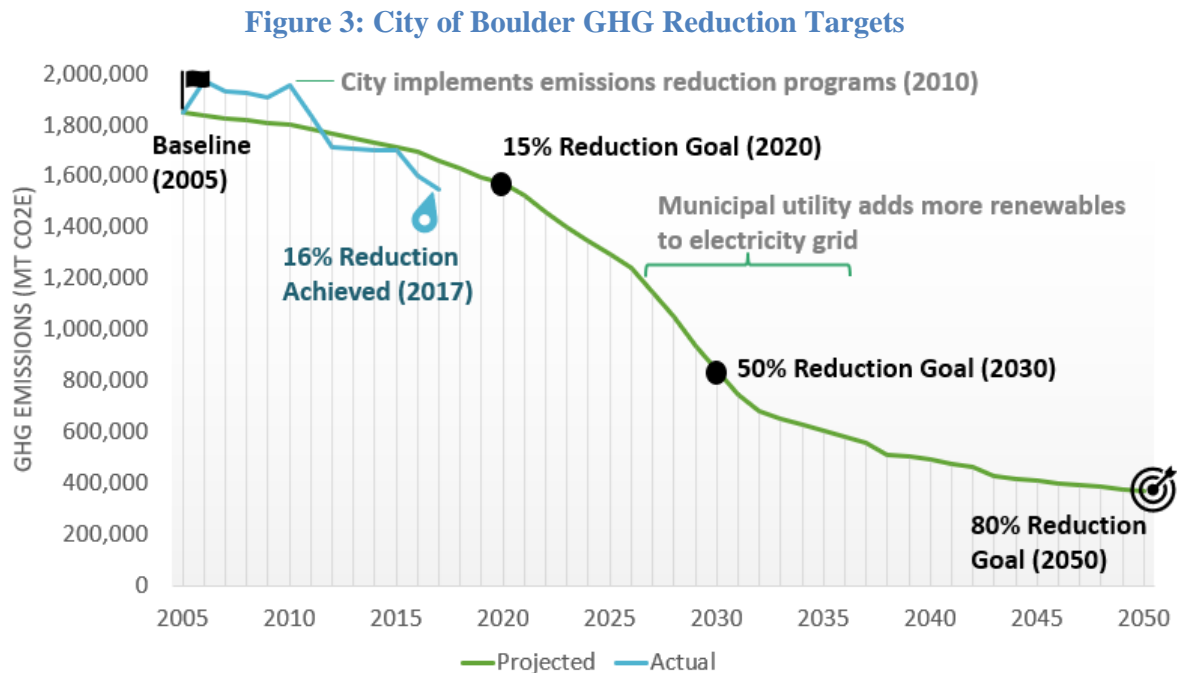
Significant additional investment will be needed to achieve even the current emissions targets, which are insufficient to limit global temperature rise to 1.5 degrees Celsius. While the city has achieved the modest interim target of 15% emissions reductions by

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<sup>4</sup> While the IPCC report also presents a scenario of limiting temperature rise to 2°C, it stresses that the severity of impacts is vastly higher under this model, especially for the most vulnerable populations. Examples: (1) by 2100, global sea level rise would be 10 cm lower with global warming of 1.5°C vs 2°C, (2) the likelihood of an Arctic Ocean free of sea ice in summer would be once per century with 1.5°C, compared with at least once per decade with 2°C, and (3) Coral reefs would decline by 70-90% with 1.5°C, whereas virtually all (> 99%) would be lost with 2°C.

<sup>5</sup> "Deadline 2020", a Report by C40 Cities and Arup, Table 2: [https://c40-production-images.s3.amazonaws.com/researches/images/59\\_C40\\_Deadline\\_2020\\_Report.original.pdf?1480609788](https://c40-production-images.s3.amazonaws.com/researches/images/59_C40_Deadline_2020_Report.original.pdf?1480609788)

2020, the target for 2030 is a **50%** emissions reduction.<sup>6</sup> As shown in Figure 3, the rate of reduction must drastically increase from 2020 onward. In addition to the need to accelerate the rate of reduction, much of the “low hanging fruit” has already been captured, and the remaining work will be increasingly difficult and more complex.



### **Current and Future Funding Sources**

The programs and initiatives underway to achieve Boulder’s Climate Commitment goals are funded by the city’s voter-approved (with over 80% support) [Climate Action Plan \(CAP\) Tax](#), and the [Trash Tax](#). Each collect about \$1.8 million per year (for a total of \$3.6 million), with the CAP Tax declining slightly in recent years due to the success of the city’s efficiency programs. The CAP Tax was originally adopted in 2007 and only applies to electricity. Currently, there is no climate-related tax or fee on natural gas or gasoline use. The CAP tax currently funds variety of programs and policies aimed at reducing GHG emissions<sup>7</sup> – energy efficiency, solar, lobbying for legislative and regulatory changes to enable a renewable electricity grid, ecosystems health, etc. – but does not provide sufficient funding to reduce emissions from transportation and natural gas.

Boulder residents also pay the [Utility Occupation Tax \(UOT\)](#), a voter-approved tax on the electric utility (Xcel Energy) that pays into the city’s general fund and pays for the city’s municipalization effort. In 2010, voters approved the UOT, which replaced the

<sup>6</sup> The city has surpassed the original Kyoto target of 7% emissions reduction compared to 1990 levels.

<sup>7</sup> Please visit <https://bouldercolorado.gov/climate/climate-action-plan-cap-tax> for more information on how CAP Tax dollars are spent and the outcomes achieved.

previous franchise fee and kept the city's general fund whole.<sup>8</sup> In 2011, voters narrowly approved an increase to the UOT to fund the city's efforts to explore the development of a local electric utility (i.e. municipalization). In 2017, voters narrowly renewed and increased the municipalization portion of the tax, which collected about \$6 million in 2018, an expected \$5 million in 2019, and a projected \$2 million in 2020, 2021 and 2022. The balance of the UOT goes into the general fund to replace the previous franchise fee which supported municipal services such as police, fire, snow removal and the library.

In 2016, Boulder County voters approved a Boulder County Sustainability Tax (BCST), a sales tax, that passed with 70% support and will go into effect in 2020. This tax is intended to reduce greenhouse gas emissions, conserve natural resources, support the local economy, protect the health of residents and ecosystems and encourage citizens to be environmental stewardship leaders. While this is not a city tax, and the city will only receive approximately \$135,000/year<sup>9</sup> directly for city climate programs, it's included in this discussion because Boulder residents will pay this and receive benefits of the county-wide efforts.

For reference, all sustainability-related taxes and fees that Boulder residents and businesses currently pay, and the estimated impact of both the potential tax and fee are shown in **Attachment A: Annual Impacts from Taxes and Fees**.

### **Public Engagement**

Prior to the October 2018 study session, staff engaged with large commercial businesses and building owners, as well as the Boulder Chamber of Commerce Community Affairs Council to collect feedback on a possible future Vehicle Climate Fee and Natural Gas Tax. Further, staff met with the Environmental Advisory Board (EAB) and the Clean Energy Tech Team to inform the analysis and recommendations provided to City Council for that study session. Please refer to the [Oct. 23, 2018 Study Session](#) memo for a summary of the engagement conducted prior to that memo.

Since the October 2018 study session, staff developed a community engagement and communications plan specific to the Vehicle Climate Fee and Natural Gas Tax (**Attachment B: Community Engagement Plan**) and conducted additional engagement in line with that plan. Each outreach event is listed in Table 2 below and a summary of feedback since the Oct. 23 study session is provided in **Attachment C: Stakeholder Engagement Summary**.

The community engagement plan recognizes that any potential fee or tax, even if well-intentioned, could have a disproportionate impact on residents who are already struggling to make ends meet in Boulder. As such, the city is applying an equity lens to both how the tax is collected and how any money raised is spent, as described in the **ANALYSIS: EQUITY** section.

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<sup>8</sup> While this is a tax on the utility, just as with the franchise fee, Xcel Energy passes the costs through to the customers. Utilities pay local municipalities a franchise fee for their use of alleys, streets and rights-of-way where electric or natural gas equipment is located.

<sup>9</sup> Requires a 25% cash match from the city.



**Table 2. Public Outreach Activities to Solicit Stakeholder Feedback**

	Respondents/ Attendees	Description
<b>July 13, 2018:</b> Clean Energy Tech Team Discussion	~20	Feedback session on all potential funding options under review and criteria to support analysis.
<b>Aug. 1, 2018:</b> Environmental Advisory Board	7	Feedback session on all potential funding options under review and criteria to support analysis.
<b>Sept. 18, 2018:</b> Business Community Outreach	~30	Meeting with key businesses that are traditionally high energy users to define the problem, goals, objectives and analysis around climate funding options. There was a presentation and open discussion of the main options under consideration that would directly impact businesses, specifically the electricity and natural gas tax options.
<b>Oct. 11, 2018:</b> Boulder Chamber Community Affairs Council	20	Feedback session on all potential funding options under review and criteria to support analysis.
<b>Jan. 15, 2018:</b> Commercial Fleet Owners Session	6	Feedback session with commercial fleet owners, including the University of Colorado Boulder, Boulder Valley School District, Western Disposal, Eco-cycle, the City of Boulder and Via Mobility.
<b>Feb. 20, 2019:</b> Equity Focus Group	14	Three-hour equity focus group with representatives from three organizations that support less connected communities: Boulder Housing Partners, the Just Transition Collaborative at the University of Colorado Boulder and the Coalition of Manufactured Homeowners in Boulder. (See <b>Attachment D: Equity Focus Group Summary</b> )
<b>Jan. 2019 - Feb. 2019:</b> Carbon Pricing Community Survey	838 registered voters via phone and online surveys	A statistically valid survey to gauge voter sentiment regarding various forms of carbon pricing, including the Vehicle Climate Fee. The results showed that 64% of respondents supported this fee. (More information can be found in the <a href="#">March 14, 2019 Information Packet</a> )



Respondents/ Attendees	Description
<b>April 8, 2019:</b> Transportation Advisory Board	5  Feedback session on the proposed Vehicle Climate Fee, with a focus on the fee structure and scope.
<b>April 12, 2019:</b> Clean Energy Tech Team Discussion	~20  Staff provided an update on the proposed Vehicle Climate Fee and Natural Gas Tax and a summary of the community survey and other engagement. Staff collected feedback on ballot language and messaging.
<b>Ongoing:</b> Be Heard Boulder: A <a href="#">dedicated page</a> on the city's online engagement platform	612 visits, 45 engaged visitors, 197 informed visitors and 442 aware visitors <sup>10</sup>  The city used its online engagement platform to invite feedback from community members on two key topics, “ <i>What do you think the average fee should be?</i> ” and “ <i>Submit your ideas for how the funding from the proposed Vehicle Climate should be used.</i> ”
<b>Potential Future Activity (late 2019-2020):</b> Participatory Budgeting Process	TBD  If council adopts the fee or tax, community members will be invited to make recommendations for how to spend a portion of the revenue (~15-20%), based on a set of criteria related to the emissions reduction goals. Community members will be led through a facilitated process to choose from the ideas generated and prioritize the city's expenditures. (See <b>Attachment B: Community Engagement Plan</b> , for more information)

All feedback and input that was gathered through the public engagement process has informed the content of this memo. Specifically, the engagement process helped to inform the following for the Vehicle Climate Fee:

- Scope of the fee
- Fee structure
- Rate options for the fee
- Exemptions
- Use of funding

The Natural Gas Tax was informed in the following ways:

- Rate options for the tax
- Exemptions
- Use of funding

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<sup>10</sup> As of April 17, 2019

## ANALYSIS: USE OF FUNDS

### Vehicle Climate Fee

The need to reduce transportation emissions is clear. This is a challenging task that requires a fundamental shift in thinking about mobility and individual changes to vehicle purchasing habits and commuting patterns. Transportation emissions in Boulder can be reduced in three ways:

1. **Drive Less:** Provide safe and attractive mobility options to minimize single occupant vehicle (SOV) trips.
2. **Electrify Vehicles:** Nearly all vehicles on the road (passenger vehicles, commercial fleets, trucks, etc.) must be electric.
3. **Reduce Tailpipe Emissions:** Ensure that any fossil fuel vehicles on the road have the lowest emissions possible.

The following programs, policies and infrastructure are required to accomplish these goals and support Boulder's Transportation Master Plan vision and goals. **Attachment E: Anticipated Use of Funds** shows how much funding is needed for each of these efforts.

•DRIVE LESS: Multi-modal transportation	•ELECTRIFY VEHICLES: Widespread adoption of EVs	•REDUCE TAILPIPE EMISSIONS
<ul style="list-style-type: none"><li><input type="checkbox"/> Bike and pedestrian safety programs;</li><li><input type="checkbox"/> Rebates and bulk purchasing programs for electric bikes;</li><li><input type="checkbox"/> Encouraging employer commute programs;</li><li><input type="checkbox"/> Restoring transit service levels; and</li><li><input type="checkbox"/> Rebates for transit passes.</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Accessible and affordable charging stations;</li><li><input type="checkbox"/> Electrification of buses and ride share fleets; and</li><li><input type="checkbox"/> Rebates and bulk purchase programs for EVs.</li></ul>	<ul style="list-style-type: none"><li>• Lobbying for adoption of increasingly stringent state-wide and national vehicle emissions standards;</li><li>• Subsidizing shared facilities for alternative fueling and maintenance;</li><li>• Rebates or policies (e.g. anti-idling devices or policies, or EV conversions).</li></ul>

Full program implementation from 2020 to 2030 (excluding the costs to offset remaining on-road emissions) would require approximately \$12.7 million in annual funding, which includes one additional full-time-employee (FTE). If the fee is adopted, staff is recommending it be set no lower than the moderate rate of an average fee of \$42/year, which would collect \$2.7 million/year to fund for the highest-priority efforts as described in **Attachment E: Anticipated Use of Funds**.

Please note: these annual funding needs (and corresponding potential revenue) address only a small portion of the Transportation Department's total unfunded needs. While all of the Transportation Department's work is either directly or indirectly aiming to reduce emissions, this unfunded amount accounts for needs *specifically* related to decarbonization of transportation and some portion of operational needs for large-scale transit service improvement. The comprehensive view of transportation funding priorities

and investment needs, including capital needs and new service delivery models for public transit, is covered in the Transportation Master Plan (TMP) update.

### **Natural Gas Tax**

A funding needs analysis identified and prioritized several avenues for addressing emissions from natural gas through the following programs and efforts:

1. **Energy Efficiency:** Encourage households and businesses to reduce energy use;
2. **Electrification:** Assist the transition of building heating loads (such as furnaces and water heaters) from natural gas to clean electricity, specifically using electric heat pumps;
3. **Local Solar + Storage:** Encourage local, renewable and resilient energy systems; and
4. **Pilot New Technologies:** Pilot innovative sustainability and resilience strategies locally and regionally around energy, emissions and ecosystems.

ENERGY EFFICIENCY	ELECTRIFICATION	LOCAL SOLAR + STORAGE	PILOT NEW TECHNOLOGIES
<ul style="list-style-type: none"> <li>• Rebates</li> <li>• Advising services</li> <li>• Policy development</li> </ul>	<ul style="list-style-type: none"> <li>• Rebates and mid-stream incentives</li> <li>• Advising services</li> <li>• Policy development</li> <li>• Education/marketing campaigns</li> <li>• Supply chain training</li> </ul>	<ul style="list-style-type: none"> <li>• Rebates</li> <li>• Performance-based incentives</li> <li>• Advising services</li> <li>• Policy development</li> </ul>	<ul style="list-style-type: none"> <li>• Innovative strategies on city facilities</li> <li>• Regional innovation support</li> <li>• Protect and restore Urban Tree Canopy (UTC)</li> <li>• Pilot and scale sequestration efforts</li> </ul>

Full program implementation *for just the natural gas programs* from 2020 to 2030 would require approximately \$3.2 million in annual funding as further described in **Attachment E: Anticipated Use of Funds**. This amount also includes the need of one additional FTE. If the CAP Tax is modified to cover natural gas, staff is recommending either the medium or high tax rate, which would provide an annual revenue between \$2.3 and \$3.8 million (\$3 to \$4.9 million if the natural gas rate is raised as the electricity rate is lowered to reflect the greening of the grid).

Clearly, if the high natural gas tax rate is chosen, the resulting revenues would surpass the funding need for only the natural gas reduction programs. The remaining funding (\$0.6 to \$1.6 million/year) would be dedicated to a portion of the high priority unfunded electric vehicle and transportation programs detailed in **Attachment E**, specifically VMT reduction programs, electric vehicle initiatives, and programs to reduce emissions from fossil fuel vehicles. Therefore, the high natural gas tax rate should only be an option if the Vehicle Climate Fee is **not** implemented.

Please refer to **ANALYSIS: RATES AND REVENUE MODELING** for more information on rate development for the natural gas tax. A detailed analysis showing how the funds would be spent is provided for both the Vehicle Climate Fee and Natural Gas Tax in **Attachment E: Anticipated Use of Funds**.

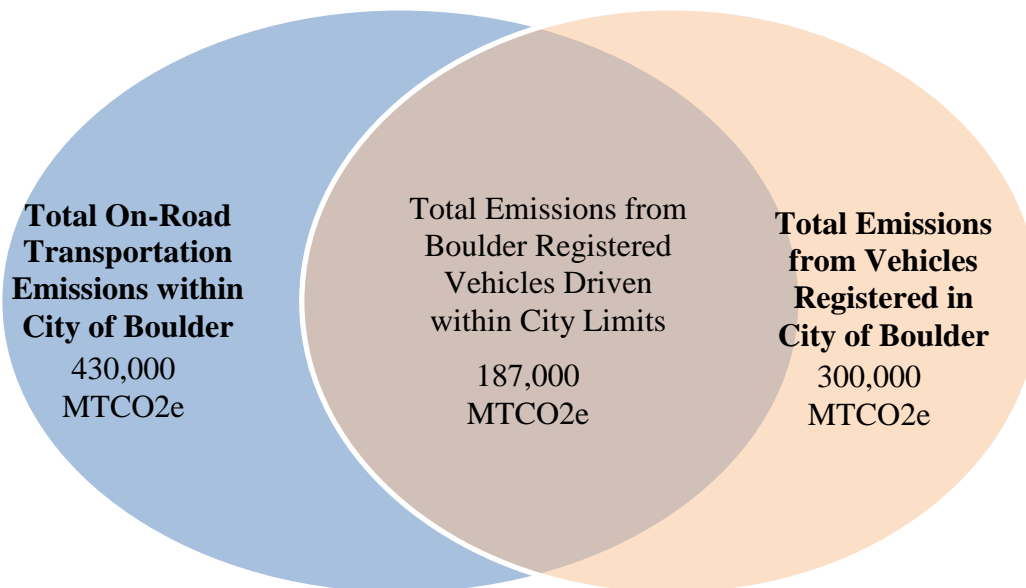
## **ANALYSIS: SCOPE AND STRUCTURE**

### **Vehicle Climate Fee**

All vehicles registered within the City of Boulder would be subject to this proposed fee, excluding the vehicle types and classes showed in Table 3. This means that while the fee will not target all transportation emissions included in the GHG inventory, it will include some transportation emissions outside of the inventory.

As shown in Figure 4, the community GHG inventory encompasses emissions from all vehicles operating within city limits (the blue circle in the figure below) regardless of where they are registered. The proposed Vehicle Climate Fee would only apply to the vehicles registered within the city (the light orange circle in the figure below) regardless of where those vehicles are emitting.

**Figure 4. Emissions Covered by Proposed Vehicle Climate Fee**



While this fee would apply to about 44% of the transportation sector emissions reported in the community GHG emission inventory, the programs funded by this (such as publicly available EV charging and improved public transit) will likely contribute to reducing emissions outside of the orange circle as well. For instance, expanding transit service hours and routes within the city may more enable in-commuters to rely on this commuting option.

Because the proposed fee targets the emissions of on-road vehicles, the fee should be

based on an indicator of emissions performance of that vehicle and how efficiently it performs. The best proxy for vehicle efficiency is the fuel economy, or miles-per-gallon (MPG) rating. This indicator shows how efficiently the vehicle uses fuel. While the amount of driving (commonly referred to as vehicle-miles-traveled – VMT) is also an indicator for emissions generated from a vehicle, VMT data is not monitored or collected for individual vehicles and therefore cannot be used to set this fee. To address this concern, the city is proposing exemptions for those who drive their vehicle below a certain mileage threshold, as explained below in **ANALYSIS: EQUITY** and in **Attachment F: Equity Analysis**.

To implement this fee, city staff must coordinate and enter into contracts with the state Department of Revenue (DOR), which maintains the registration software system (DRIVES) for the county’s Department of Motor Vehicles, as well as Boulder County, which would collect and remit the fee to the city. This will necessitate a one-year implementation phase before the fee can be collected and will result in additional administrative costs, described in **Attachment G: Nexus Study Analysis**. The amount of the fee will be based on the vehicle type and vehicle efficiency per its miles-per-gallon (MPG) fuel economy as shown in Table 3.

**Table 3. Fee Structure by Vehicle Type**

CLASS	TYPE	EST. 2017 COUNT (Boulder City Limits)	STATUS	FEE
<b>Class A</b>	Over the road trucks	N/A (registered at the state level)	N/A	N/A
<b>Class B</b>	Trucks	5,063	Subject to Fee	Rate Based on EPA Fuel Economy/MPG <sup>11</sup>
	Trailers	Unknown	Exempt	0
<b>Class C</b>	Bus	170	Exempt	0
	Motorcycle	1,482	Subject to Fee	Assigned rate based on <u>most</u> efficient MPG
	Motorhome	236	Subject to Fee	Assigned rate based on <u>least</u> efficient MPG or flat fee
	Passenger Car	34,360	Subject to Fee	Rate Based on EPA Fuel Economy/MPG
<b>Class D</b>	Trailer	Unknown	Exempt	0
<b>Class F</b>	Special Mobile Machinery (SMM) equipment	Unknown	Exempt	0
<b>Total</b>		<b>64,751<sup>12</sup></b>		

<sup>11</sup> If no EPA rated MPG exists, then a rate will be assigned based on least efficient MPG rate or flat fee

<sup>12</sup> Due to limitations in the newly implemented vehicle registration system, the County is unable to provide a breakout of all registered vehicles by type. There were 23,440 additional vehicles registered in 2017 that may be subject to the fee but are unable to be further broken out in the data provided from the County.

Information on approaching the proposed Vehicle Climate Fee as a fee versus a tax is available in **Attachment H: Tax Versus Fee and Scope Issues**. This attachment also further explains the issues with the scope of this fee.

### **Natural Gas Tax**

The Natural Gas Tax would apply to all therms consumed within city limits, regardless of supplier, by residents and businesses in Boulder. This natural gas use is represented in the community GHG inventory and therefore this fee would apply to all the natural gas emissions reported annually in the inventory.

Rather than adding a new, separate natural gas tax, staff is proposing a modification to the existing CAP Tax, which currently taxes only electricity consumption (per kWh), by incorporating a tax on natural gas consumption (per therm). This will reduce potential voter confusion over the differences between multiple taxes and will allow the combination of taxes to fulfill the original intent of the CAP Tax. While the intent of the CAP Tax was always to broadly reduce GHG emissions, at the time of the initial adoption it was decided to apply the tax only to electricity. At that time, electricity was the largest source of emissions, and the implementation was much simpler than for natural gas, which is deregulated in Colorado and has multiple third-party suppliers.

Like the existing tax on electricity use, the natural gas tax revenues would fund a broad range of climate initiatives, but with a focus on reducing natural gas consumption. Several of the natural gas program priorities represent enhanced efforts of existing programs that are not fully funded by the current CAP Tax. Both taxes would be based on energy use (and the associated emissions) to incentivize efficient end-user behavior and be applied on the monthly utility bill and collected by the fuel supplier.

Staff recognizes there are differences between the use of natural gas by the residential sector compared to the commercial and industrial sectors. While the residential sector can better control the amount of natural gas consumed and has proven electrification technology available (i.e. residential heat pumps), this is not always the case for commercial and industrial users that are dependant on natural gas for process heat or even for space heating in existing buildings with complex mechanical systems. Further, while resident voters polled in the carbon pricing survey reported 70% support for a Natural Gas Tax, businesses in the community do not have the opportunity to vote on such a tax. Given these differences, staff has developed Natural Gas Tax rates that are scaled by sector, similar to the current CAP Tax scaling. Please refer to **Attachment I: CAP and Proposed Natural Gas Tax Rates by Sector** for a detailed discussion of this.

In addition to the staff recommendation of adopting the medium or high natural gas tax rate as a modification to the CAP Tax, other staff recommendations are:

1. Eliminate the sunset date in the existing CAP Tax to allow for future bonding and to align with the city's long-term commitment to mitigating climate change.
  - Any future bonding will need to consider projected revenue impacts over time as the rates are adjusted and as natural gas consumption decreases.

2. Allow exemptions or rebates for residents with lower incomes (see next section for more information).
3. Give council the authority to reduce the electricity tax rates (and proportionally increase the natural gas tax rates) as the grid gets cleaner.
  - This will allow council to evaluate and adjust the proportion of the tax applied to electricity and natural gas (every 3-5 years), in a way that offers stabilized funding for climate programs while aligning the rates to the respective emissions impacts.
  - At a future point the electricity grid will have an emissions factor that would result in the residential CAP Tax rate exceeding the Environmental Protection Agencies (EPA's) predicted social cost of carbon.<sup>13</sup> Staff estimates this will occur when the grid mix has at least 85% renewables. At that point, the CAP Tax rates should be decreased to reflect this.
  - This will allow council to adjust the rates by sector, if there is a future need to level the rate differences between the residential, commercial and industrial sectors.
4. Implement a maximum consumption threshold over which additional usage does not get taxed.
  - The impacts of the modeled natural gas tax rates to commercial and industrial users range drastically depending on the amount of natural gas consumed. While less than ten facilities are expected to consume more than 250,000 therms annually, for those that do the tax impacts are quite significant. By setting a maximum threshold the city can mitigate the cost impact of the tax to the few highest users while limiting the impact to annual revenues. Further, at least one of these large users is a non-profit, so setting a lower threshold is recommended for non-profit large users.
5. Provide a one-year implementation period before the tax is collected to allow the set-up of necessary systems and processes.
  - This time is necessary to work with the multiple natural gas suppliers, including the third-party suppliers, to incorporate this tax into their systems and develop processes to collect and remit to the city. This time is also necessary to set up systems and processes for low income and financial hardship exemptions, discount and/or rebates.

## **ANALYSIS: EQUITY**

Informed by stakeholder feedback, staff is applying a social equity lens to the development of both the Vehicle Climate Fee and the Natural Gas Tax.

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<sup>13</sup> "Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866." Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. Accessed online April 2019 from: [https://19january2017snapshot.epa.gov/sites/production/files/2016-12/documents/sc\\_co2\\_tsd\\_august\\_2016.pdf](https://19january2017snapshot.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf)



### **Vehicle Climate Fee**

Staff has developed several proposed exemptions and discounts from the Vehicle Climate Fee. The purpose is to provide exemptions or discounts to those that have selected the best available vehicle to meet their needs, either due to technological limitations (i.e., compressed natural gas for heavy commercial trucks, as no electric alternative is available) or for those who depend on a very specific vehicle type for their business. Further, because the mileage of a vehicle contributes to the overall emissions generated, those who can demonstrate they drive infrequently (fewer than 2,000 miles per year) can also receive a discounted fee.

Because this fee is based directly on the efficiency of a vehicle, there may be disproportionate impacts to low-income residents or those undergoing financial hardship, and staff is proposing exemptions for these residents, as well. However, because the Vehicle Climate Fee must be implemented through the state registration system, and these exemptions and discounts are based on data that is not available within that system, the city cannot implement automatic, up-front exemptions and discounts and would therefore need to develop a rebate process.

### **Natural Gas Tax**

Staff has also developed a low income and financial hardship exemption from the Natural Gas Tax and an up-front exemption may be more feasible for this option. If possible, those with low incomes will be exempt from the tax prior to receiving their utility bill. Xcel Energy offers Energy Assistance to customers through federal and state programs and in the Xcel Energy system, customers who have qualified for those programs and received payments are flagged. For the existing CAP Tax, Xcel Energy has flags for customers who opt-in to Windsource or Renewable Connect programs, and that flag allows Xcel Energy to exempt those customers from the CAP Tax. Staff will work with Xcel Energy to determine if the Energy Assistance flag may be able to serve as an indicator to exempt those accounts from the natural gas tax. While this approach is ideal because it provides the exemption upfront, it will require collaboration with Xcel Energy to understand system capability. However, because not all customers with low income and financial hardship may be participating in the Energy Assistance program offerings, the city will still need to develop a rebate process for those who qualify.

Since a rebate program is necessary for both the fee and the tax, staff are working with other city departments and Boulder County to explore the development of a future Affordability Portal. This portal would act as a one-stop-shop for those with low incomes or experiencing financial hardship to identify and apply for programs for which they are eligible and could allow a resident to apply for several rebate programs at once, reducing the annual burden from the various taxes and fees to which they are subject (see **Attachment A: Annual Impacts from Taxes and Fees** for a graphical example of the annual financial impact to an affordable housing unit from sustainability-related taxes and fees). The development of a future portal such as this is a driving factor in the need to have a one-year implementation period before the collection of any new taxes or fees.

More information on how equity is addressed in both options is available in **Attachment F: Equity Analysis**.

## ANALYSIS: RATES AND REVENUE MODELLING

### Vehicle Climate Fee

A third-party consultant, TischlerBise, was hired to complete a study to determine the nexus of the proposed fee to the costs necessary to mitigate the impact of on-road vehicles within Boulder city limits. The nexus study identified the total cumulative 10-year (2020-2030) costs of mitigating the emissions impact from on-road vehicle within the city at \$177 million, or \$17.67 million annually, representing the combined costs of fully funding the city's programs, administering the fee, and offsetting remaining on-road emissions. The annual cost is divided by the average number of carbon emitting vehicles registered in Boulder to find the annual fee amount (\$17.67 million / 69,089 vehicles = \$256 per vehicle). This is the maximum annual value attributable to the fee to address the impact of vehicle emissions.

While this fee of \$256 per vehicle results in the highest revenues and highest amount of mitigated emissions, this fee places a high economic burden on residents. Given that annual registration costs average \$165, an additional fee of \$256, almost double the current total fee, is likely an unreasonable rate. Therefore, the fee has been scaled down to two more reasonable amounts, of approximately \$42 and \$16. These three fees and their resulting impacts - anticipated revenues collected and anticipated amount of emissions mitigated - are shown in Table 4.

**Table 4. Fee Scenarios and Impacts**

Fee Amount	Average Annual Fee for 22 MPG Vehicle (\$/year)	Revenue Estimates (Ten Year Cumulative)	Mitigated Emissions Estimates (Ten Year Cumulative)
<b>Full Cost Fee</b>	\$256	\$177 million*	336,964 MTCO <sub>2</sub> e
<b>Moderate Fee</b>	\$42	\$27 million	72,600 MTCO <sub>2</sub> e
<b>Minimal Fee</b> (not recommended)	\$16	\$9.3 million	47,500 MTCO <sub>2</sub> e
<i>* \$127 million over 10 years for program costs only (excluding purchasing offsets for remaining on-road emissions)</i>			

The minimal fee is difficult to justify for two reasons:

1. Because the total transportation funding needs are so great, an additional much larger and more comprehensive funding strategy will be needed (these are being explored through the TMP Update). Implementing the Vehicle Climate Fee first, or in parallel, may diminish community support/political will for the larger effort. Staff does not think this risk is justified for the minimal fee, which would collect only about 5% of the full revenue needed.
2. The administrative costs and implementation complexity is relatively high for this

fee vs the Natural Gas Tax. Staff does not think this is justified for the minimal fee.

To better understand the impact of these average fees on different vehicle types, staff has modeled various examples, listed below in Table 5.

**Table 5. Fee Examples by Vehicle Type**

<b>Vehicle Type</b>	<b>Full Cost Fee</b>	<b>Moderate Fee</b>	<b>Minimal Fee (not recommended)</b>
2009 Subaru Forrester (22 mpg)	\$256	\$42	\$16
2014 Toyota Corolla Sedan (28 mpg)	\$164	\$27	\$10
2019 Ford F-150 4WD Truck (19 mpg)	\$295	\$48	\$18

See **Attachment G: Nexus Study Analysis** for the nexus study background and complete nexus study report.

### **Natural Gas Tax**

Full program implementation *for just the natural gas programs* from 2020-2030 would necessitate **\$3.2 million in average annual funding**. Several rate scenarios were developed to determine how that funding could be met or exceeded.<sup>14</sup> Per the carbon pricing survey, residents supported a tax that would raise their utility bill no more than 5%. The support declined between a 5% and 10% increase. Using this feedback, as well as information on revenue needs and the price of natural gas in Colorado, staff developed the rate scenarios in Table 6 for consideration.

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<sup>14</sup> Clearly, if the high natural gas tax rate is chosen, the resulting revenues would surpass the funding need for only the natural gas reduction programs. The remaining funding (\$0.6 to \$1.6 million/year) would be dedicated to a portion of the high priority unfunded electric vehicle and transportation programs detailed in Attachment H.

**Table 6. Tax Rate Analysis**

Tax Rate Scenario	Sector	Tax Rate Proposed (\$/Therm)	Anticipated Average Annual Revenues (from 2020-2030)		Mitigated Emissions Estimates (Ten Year Cumulative)
			Rates stay constant as usage declines	Rates are increased as grid get cleaner**	
Low*	Residential	0.041	\$1 million	\$1.3 million	96,700
	Non-Residential	0.010			
Medium	Residential	0.097	\$2.3 million	\$3 million	222,800
	Non-Residential	0.012			
High	Residential	0.162	\$3.8 million	\$4.9 million	325,600 <sup>15</sup>
	Non-Residential	0.020			
<i>* Not recommended by staff</i>					
<i>** This assumes that the ballot language would give council the authority to adjust future CAP Tax rates as the grid gets cleaner (the electricity rate would go down, and the natural gas tax rate would go up).</i>					

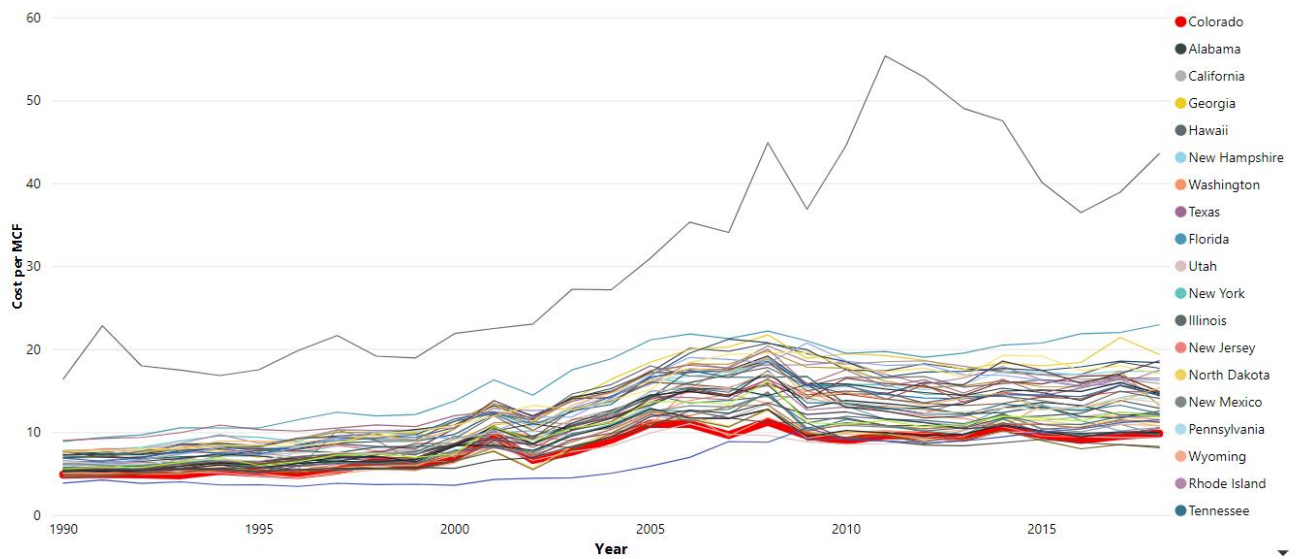
The proposed tax rates for the residential sector result in an increase in the monthly rate ranging from 7.5% to 30% (an additional \$16 to \$65 per year), depending on the scenario. While this is higher than the ideal increase based on the community survey, this reflects that Boulder's natural gas rates are among the lowest in the country.

As a point of comparison, the Colorado state average residential natural gas rate is one of the lowest in the country, as shown below in Figure 5. In fact, according to [this report from the Public Policy Institute](#), Colorado is ranked 45<sup>th</sup> in the rankings of state residential natural gas prices. The price is so low that even with the addition of the highest proposed Natural Gas Tax rate, Boulder residents would still be paying less per therm than the national average.

The proposed tax rates for the non-residential sector have a less predictable impact on the monthly rate, since non-residential rates are already variable and dependent on customer rate class, fuel supplier, market behavior and time of year.

<sup>15</sup> The emission savings here represent full funding of the natural gas programs with remaining funds attributed to unfunded transportation needs including programs to reduce VMT, reduce emissions from fossil fuel vehicles, and to promote electric vehicle adoption.

**Figure 5. Average Residential Natural Gas Price (\$/thousand cubic feet)<sup>16</sup>**



To better understand how these rate scenarios would impact the annual utility costs for residents and businesses based on typical use, staff analyzed bill impacts in Table 7.

**Table 7. Estimated Annual Average Bill Impacts**

Space Type	Additional Annual Cost due to Tax		
	Low Tax Rate Scenario	Medium Tax Rate Scenario (minimum recommended)	High Tax Rate Scenario
<b>Residential</b>			
Single-Family Home <sup>17</sup>	\$16	\$39	\$65
Low-Income Affordable Unit <sup>18</sup>	\$10	\$23	\$39
<b>Commercial</b>			
Office (average 56,000 sf)	\$200	\$380	\$630
Retail (average 68,000 sf)	\$300	\$565	\$950
Lodging (average 110,000 sf)	\$500	\$950	\$1,600
Supermarket (average 60,000 sf)	\$350	\$660	\$1,100
<b>Industrial</b>			
Facility Using 50,000 therms/yr	\$500	\$950	\$1,600
Facility Using 500,000 therms/yr <sup>19</sup>	\$5,000	\$9,500	\$16,000

<sup>16</sup> Data from U.S. Energy Information Administration [Average Residential Natural Gas Price](#) data series

<sup>17</sup> Assumes annual natural gas use of 400 therms and electricity use of 4,285 kWh.

<sup>18</sup> Based off a 34-unit affordable housing complex in Boulder with units ranging from 614-1280 sf. The is the estimated annual amount affordable units would pay if not receiving an upfront exemption.

<sup>19</sup> The largest natural gas consumers in Boulder range from 250,000 to 1 million therms consumed annually, which would result in a tax amount up to \$19,000/year under the medium tax rate scenario and up to \$32,000/year under the high tax rate scenario.

Under the non-residential rate scenarios, the impacts to commercial and industrial range drastically depending on the amount of natural gas consumed. While few facilities are expected to consume more than 250,000 therms annually, for those that do the tax impacts are significant. Therefore, council may want to consider setting different rates for the largest consumers or implementing a rate cap where any usage over a maximum is excluded from the tax. More information on impact to commercial and industrial customers is provided in **Attachment A: Annual Impacts from Taxes and Fees**.

## MATRIX OF OPTIONS

















Table 8 below compares each option against the following evaluation criteria:

- Political/public support: *What will the voter/community support likely be?*
- Social equity: *How easy is it to structure this to reduce the burden to residents with lower incomes?*
- Technical feasibility: *How easy is this to implement in terms of technical feasibility?*
- Administrative time/ease: *How much can this minimize the one time and recurring costs and staff time required for the city?*
- Revenue stability: *Will this provide revenue diversity and longevity?*
- Impact on local business: *How much does this contribute to local economic vitality? Does this option ensure that businesses do not bear an inequitable burden?*<sup>20</sup> *To what extent can rate stability and predictability be provided?*
- Alignment with strategic objectives: *Will this encourage efficient and sustainable behavior and purchasing choices and discourage use of natural gas and petroleum?*

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<sup>20</sup> Special consideration was given to the fact that Boulder houses industrial facilities with very high energy use that are very important to the local economy, and that businesses do not get to vote for these taxes.

**Table 8. Evaluation Matrix**

	Vehicle Climate Fee	Natural Gas Tax
<b>Public Support</b>		
<b>Social Equity</b>		
<b>Technical Feasibility</b>		
<b>Administrative Ease</b>		
<b>Revenue Stability</b>		
<b>Impact on Local Business</b>		
<b>Alignment with Strategic Objectives</b>		
<b>KEY</b>		
 = Fully achieves goal  = Fails to achieve goal		

The benefits and challenges to consider for both options are described in Table 9.

**Table 9. Benefits and Challenges**

	Benefits	Challenges
<b>Vehicle Climate Fee</b> <i>Add an annual fee to registration based on vehicle fuel economy to reduce GHG emissions from transportation and drive the market toward electric vehicles (EVs).</i>	<ul style="list-style-type: none"> <li>✓ Aligns with strategic objective to drive the market towards EVs and creates a revenue source for unfunded EV work.</li> <li>✓ Many other neighboring cities are interested in this and it's highly replicable.</li> <li>✓ Boulder County is willing and able to collect and remit this tax or fee for the city.</li> <li>✓ Well suited to a fee (vs a tax) because of the clear link to how the funding would be used. This would allow future adjustment of rates as DRIVE (the state</li> </ul>	<ul style="list-style-type: none"> <li>– DRIVE is still a new and relatively unstable system and the data produced from it is currently unreliable.</li> <li>– Does not apply to in-commuter vehicles.</li> <li>– Does not align with community GHG inventory boundaries.</li> <li>– The fee could have a disproportionate impact to residents with lower incomes or service workers and would require several exemption options to address social equity.</li> </ul>



	Benefits	Challenges
	<p>registration system) evolves, without going back to the voters.</p> <ul style="list-style-type: none"> <li>✓ Would level the playing field as EV owners are charged an extra \$50 registration fee.<sup>21</sup></li> <li>✓ 64% of the voter community surveyed would support it.</li> </ul>	<ul style="list-style-type: none"> <li>– Implementation logistics are complex due to the interface with the Department of Revenue's (DOR) and Boulder County's registration systems.</li> <li>– Implementation logistics are complex for exemptions and discounts as the city does not control and administer vehicle registration.</li> <li>– This fee will not generate the amount of funding needed for transforming the public transit system (i.e. vastly improving routes, ridership and service) and is too low to have an impact on vehicle choice.</li> </ul>
<p><b>Natural Gas Tax</b></p> <p><i>Update the current CAP Tax to include a natural gas tax in \$/therm and apply this to end user consumption.</i></p>	<ul style="list-style-type: none"> <li>✓ Aligns with city's efforts to encourage a switch from natural gas to electricity and creates a revenue source for currently largely unfunded electrification work.</li> <li>✓ Aligns with community GHG inventory boundaries.</li> <li>✓ Administrative requirements to add line item to Xcel Energy bills should be minimal.</li> <li>✓ Social Equity: Possible to exempt those on Xcel Energy's Energy Assistance Programs upfront or rebate those with low income.</li> <li>✓ The proposed Natural Gas Tax targets the end-user who consumes the fuel. Therefore, the tax is aligned with end-user behavior, as the fewer therms consumed, the lower the tax.</li> <li>✓ 70% of the voter community surveyed would support it.</li> </ul>	<ul style="list-style-type: none"> <li>– There are multiple suppliers in the natural gas market which will require administrative resources to ensure awareness and processes for collection, remittance and enforcement.</li> <li>– Tax-exempt entities, including state and federal entities, could elect to opt-out of the tax.</li> <li>– The business community will be impacted but does not get to vote on the measure.</li> </ul>

<sup>21</sup> To compensate for the fact that they don't pay gasoline tax, which funds road maintenance.

## **STAFF RECOMMENDATION**

If Council wishes to increase funding for climate mitigation strategies, staff recommends the following (based on stakeholder feedback and a comprehensive evaluation of both options):

1. **Natural Gas Tax:** staff recommends adding the Natural Gas Tax, at the medium or high tax rate, on the 2019 ballot as a modification/update to the existing CAP Tax, which currently only applies to electricity use. Staff also recommends the following as part of this ballot measure:
  - a. Eliminate the sunset date to allow for future bonding and to align with the city's long-term commitment to mitigating climate changes;
  - b. Allow exemptions or rebates for residents with lower incomes;
  - c. Give Council the authority to reduce the electricity tax rates (and proportionally increase the natural gas tax rates) as the grid gets cleaner;
  - d. Implement maximum consumption thresholds over which additional usage does not get taxed; and
  - e. Provide a one-year implementation period before the tax is collected to allow the set-up of necessary systems and processes.
2. **Vehicle Climate Fee:** staff seeks council guidance on whether to pursue this fee. If pursued, staff recommends setting the fee no lower than the moderate fee option (average fee of \$42/year). If not pursued, staff recommends considering the high rate option for the Natural Gas Tax (average tax of \$65 per year for a single-family home) so that necessary transportation-related climate programs can also be implemented.

## **NEXT STEPS**

Council's feedback and guidance from this study session will inform staff's next steps. If encouraged to move forward with the recommendation of the Natural Gas Tax, staff will proceed in developing ballot language per the 2019 election timeline and conducting education and outreach. Staff will also determine what systems and processes are necessary for implementation should the tax be approved by voters.

Similarly, if encouraged to move forward with the Vehicle Climate Fee, staff will prepare this for a council vote in Q4 2019.

## **ATTACHMENTS**

**Attachment A:** Annual Impacts from Taxes and Fees

**Attachment B:** Community Engagement Plan

**Attachment C:** Stakeholder Engagement Summary

**Attachment D:** Equity Focus Group Summary

**Attachment E:** Anticipated Use of Funds

**Attachment F:** Equity Analysis

**Attachment G:** Nexus Study Analysis

**Attachment H:** Tax Versus Fee and Scope Issues

**Attachment I:** CAP and Proposed Natural Gas Tax Rates by Sector

## ANNUAL IMPACTS FROM TAXES AND FEES

All of the sustainability-related taxes and fees that residents currently pay in Boulder are shown below in Figure 1 and **Error! Reference source not found.**<sup>2</sup> for a typical single-family home and for an affordable housing unit respectively. These figures also demonstrate the additive impact from the proposed Vehicle Climate Fee (moderate rate) and the proposed Natural Gas Tax (medium rate).

**Figure 1. Total Sustainability Taxes Paid Annually by Example Single-Family Home<sup>1, 2, 3, 4</sup>**

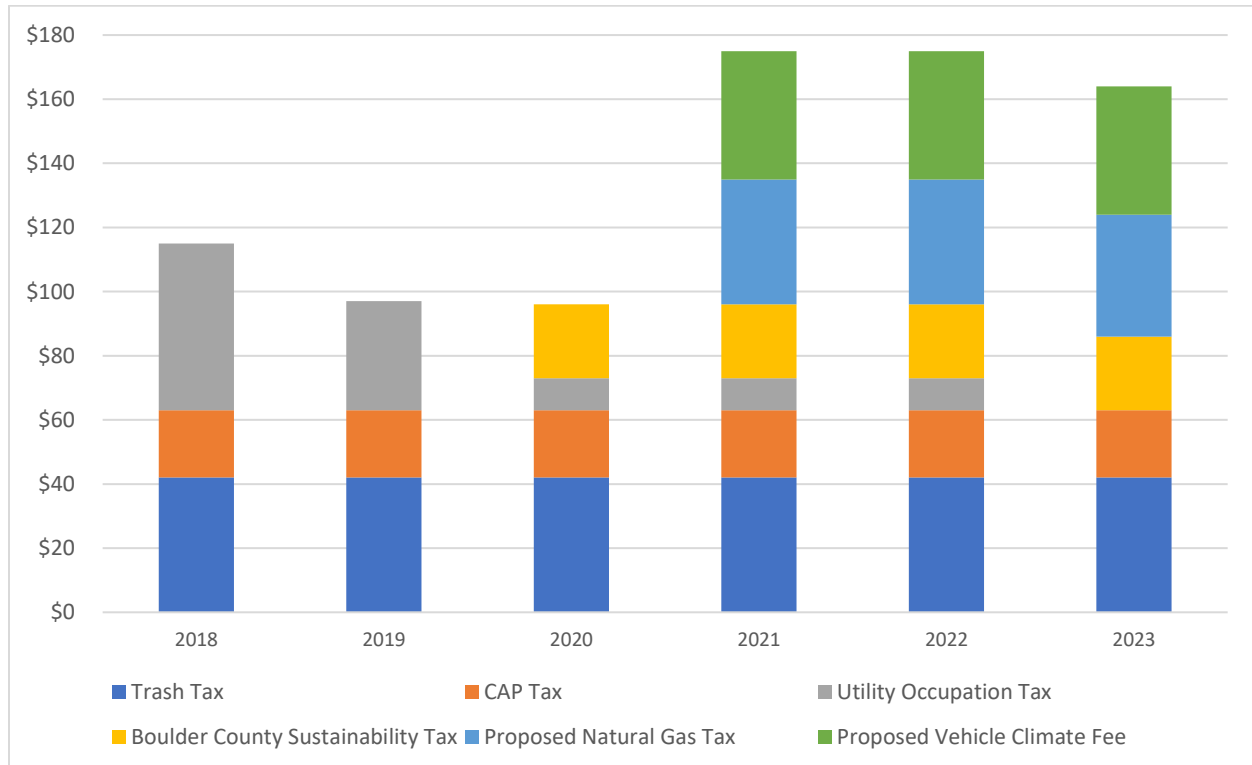


Figure 2 below shows the annual tax impacts for an average affordable housing unit – here the proposed Vehicle Climate Fee and Natural Gas Tax are shown in hashed lines to represent that this amount would be eligible for exemptions and/or a rebate based on income level or financial hardship. If this rebate program is successful, staff will evaluate the feasibility of expanding this to other city climate taxes as well.

<sup>1</sup> Utility Occupation Tax (UOT) & CAP Tax rates based off a single-family home with annual natural gas use of 400 therms and electricity use of 4,285 kWh.

<sup>2</sup> The UOT only represents the portion of the tax allocated to the electric utility development effort.

<sup>3</sup> If the effort to operate a local electric utility is successful and approved by a future community vote, the UOT may be extended and increased through 2024 to finance the separation of electrical infrastructure.

<sup>4</sup> BCST is an estimate, but since it's a sales tax, it is highly dependent on retail activity in Boulder County.

**Figure 2. Total Sustainability Taxes Paid Annually by Example Affordable Housing Unit<sup>5</sup>,  
6, 7, 8, 9**

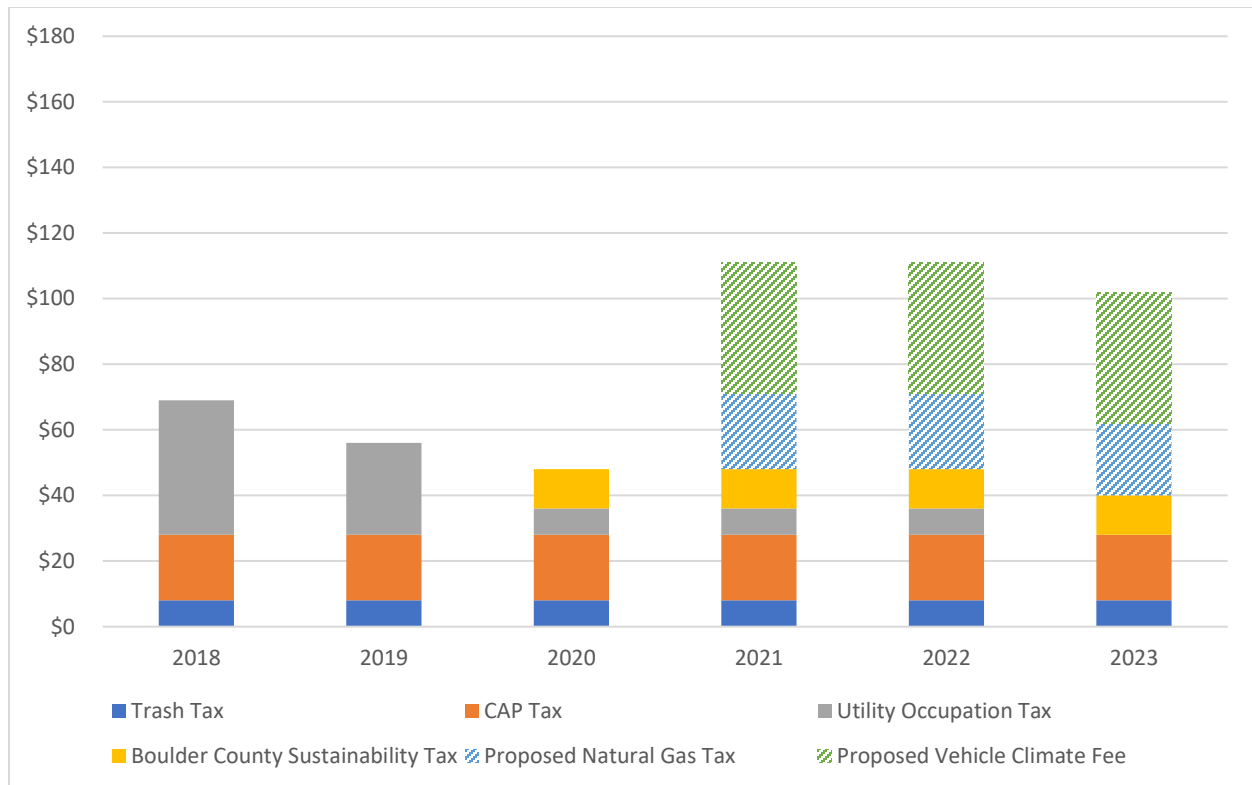


Figure 3 shows the annual financial impact to an average office building, as offices are the primary commercial space within Boulder. While most commercial office buildings in Boulder would pay an annual average cost of \$380 for the proposed natural gas tax under the medium tax rate scenario, there is significant variation in the tax amount based on space type and usage. For example, the highest natural gas users within the city consume from 250,000 therms to 1 million therms annually, which would result in a natural gas tax amount ranging from \$4,750 to \$19,000 per year under the medium tax rate scenario. One potential mitigation strategy for this would be to only charge the tax on the therms consumed below a certain threshold. An example would be only charging the tax on the therms consumed up to 250,000 therms in a given year. Staff estimates setting the threshold here would only reduce the annual revenue by approximately \$50,000 under the medium tax rate scenario. Staff estimates there are approximately 5-10 users that consume over 250,000 therms based on available data, one of which is a non-profit.

<sup>5</sup> UOT & CAP Tax rates are based off a 34-unit affordable housing complex in Boulder with square footages ranging from 614 sf to 1280 sf.

<sup>6</sup> The UOT only represents the portion of the tax allocated to the electric utility development effort.

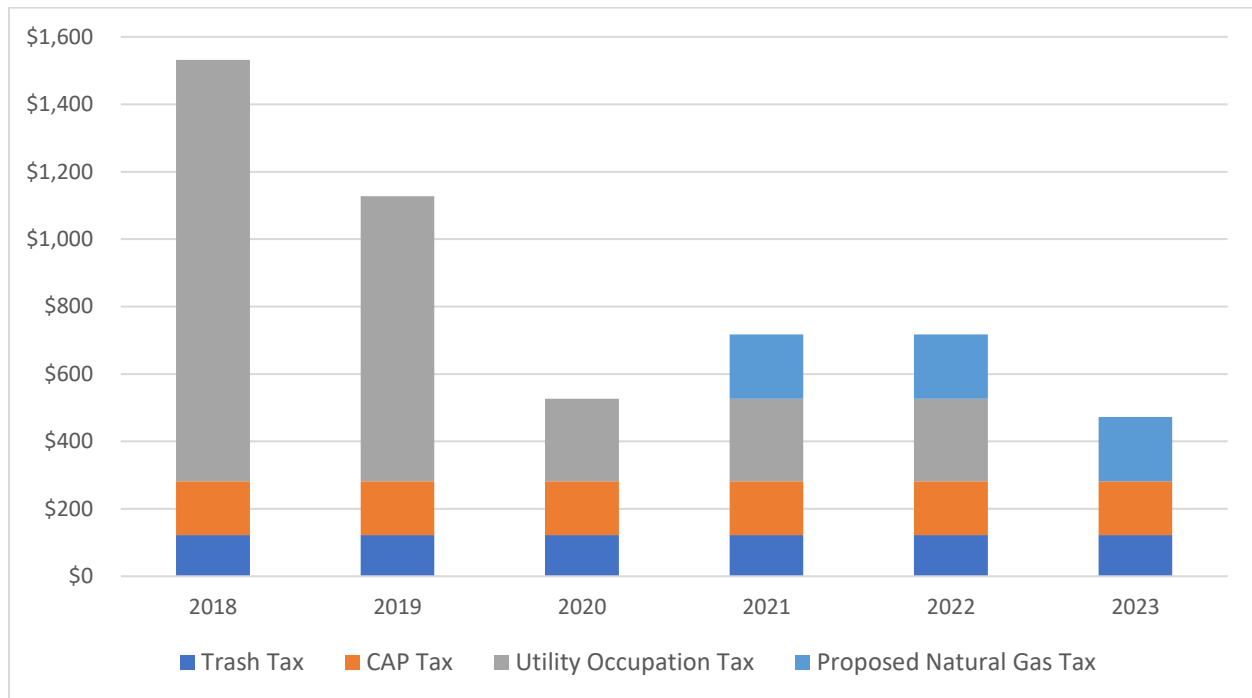
<sup>7</sup> Trash Tax rates assume a 4 cubic yard trash dumpster is serviced weekly and costs are shared equally between 22 units.

<sup>8</sup> A 50% reduction of the average BCST per resident/household was assumed for low income households.

<sup>9</sup> If the effort to operate a local electric utility is successful and approved by a future community vote, the UOT may be extended and increased through 2024 to finance the separation of electrical infrastructure.

Therefore, staff is recommending a maximum threshold of 250,00 therms or higher over which the tax is not charged, and staff is recommending that the threshold be set lower for non-profit large consumers.

**Figure 3. Total Sustainability Taxes Paid Annually by Example Office Building<sup>10,11</sup>**



In addition to these taxes and fees, the city's dedicated sales tax for Transportation funds a wide variety of TMP implementation strategies, including Vision Zero and climate-related transportation efforts: encouraging alternative mobility modes (bus, biking, walking, transit, carpooling, etc.) and striving for zero traffic fatalities and serious injuries (Vision Zero). This was not included as its impossible to break out what portion of staff time and resources are dedicated to climate efforts specifically.

<sup>10</sup> Tax rates based on averaging results from two City-owned office buildings between 15,000 and 20,000 sf with average annual electricity costs of \$22,300 and average annual natural gas costs of \$6,270.

<sup>11</sup> The UOT is a flat amount charged to Xcel Energy as an annual lump sum. The utility then applies a formula to convert that flat amount into a percentage of Xcel Energy's revenue. The percentage is applied to all customers' bills, regardless of customer class (residential, commercial, etc.). Because the UOT is set at an amount intended to replace the franchise fee, the result is that customers pay Xcel Energy, and Xcel Energy remits to the city an amount that is roughly equivalent to the original 3% franchise fee. The UOT amount graphed only represents the portion of the tax allocated to the electric utility development effort.

## Climate Commitment Funding Options Engagement and Communications Plan

### Introduction/Background:

The City of Boulder is currently exploring the possibility of a vehicle climate fee as a first step to addressing a gap in funding necessary to achieve current climate goals. There is also longer-term interest in exploring a natural gas tax, which would have to be approved by voters.

City voters have been generous supporters of climate action in Boulder for many years, and existing climate-related taxes (CAP and Trash) have accomplished many of the goals they were designed to address. These funds, however, are insufficient to fully fund recently expanded climate goals. These more aggressive goals were adopted by council as part of the Climate Commitment in 2016, in recognition of recent climate science that tells us communities need to do more – and do it more quickly – to address the threats of climate change.

The city needs approximately \$12.7 million per year in transportation needs and \$3.2 million per year in natural gas needs, at a total of \$15.9 million annually, to invest in programs that will allow the community to stay on track to meet the Climate Commitment targets. (This funding is needed regardless of whether the city is successful in another key energy strategy and begins to operate its own electric utility.)

GOAL AREA	STATUS		TARGET
EMISSIONS REDUCTION	13%	67%	80% by 2050
CITY ORG. EMISSIONS REDUCTION	34%	46%	80% by 2030
RENEWABLE ELECTRICITY	29%	71%	100% by 2030
LOCAL RENEWABLE GENERATION	~40 MW	~60MW	100 MW by 2030

Staff has explored several different options and received council direction to pursue the development of a vehicle fee, for potential action in 2019, and begin evaluating the community's interest in a natural gas tax ballot item.

### Problem Statement/Issue to be Explored:

- How can the city structure a Vehicle Climate Fee that aligns with community values?
- What is current community sentiment around the possibility of a future Natural Gas tax? Is 2019 the right time for a natural gas tax ballot measure?

### How Does This Decision Align with City Sustainability and Resilience Framework?

- Directly supports Environmentally Sustainable, Safe, and Accessible & Connected
- Potentially at odds with Economically Vital, except when you consider the cost of doing nothing



**City Departments/Work Groups Involved in Process:**

Climate Initiatives, Transportation, city fleet managers, CAO, Finance, CMO/Engagement, Communication

**City Boards/Commissions Involved in Process:**

Transportation Advisory Board (TAB) and Environmental Advisory Board (EAB)

**Amount of Funding Available to Support Good Engagement:**

Approximately \$20,000

**Who Will Make the Decision?**

- Vehicle Fee – City Council
- Possible Natural Gas Tax – City Council will decide whether to place it on the ballot, and if so, when; voters will decide whether to pass the tax

**Timeline for Making the Decision:**

- Complete the Nexus study and Survey by March 14, 2019
  - Conduct 2x2s with council members on natural gas option if the survey results indicate 2019 is not the right time for a ballot measure
- Complete community engagement by April 1, 2019 (for Vehicle Fee)
- Study Session with council on May 14, 2019 to receive direction on vehicle fee and chart next steps, if any, on natural gas tax
- Bring forward proposed fee right after the November 2019 election

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**Stakeholder Analysis:**

Vehicle Fee

<b>Who is likely to be impacted?</b>	<b>Why do they care/what might motivate them?</b>	<b>How do they prefer to receive information or be engaged?</b>
Residents who own vehicles	Some concerned about climate; some concerned about costs; some concerned about both	Varies
Businesses w/fleets of vehicles that they register within the city (CU Boulder, BVSD, Via, the city, etc.)	Cost implications, given cumulative effects of fee; some of these partners have also been active partners in addressing climate change	Individualized contact and communication
Implementation Partners: Boulder County, Department of Revenue, Xcel Energy	Concerns about what will be asked of them in implementing fee	Individualized contact and communication, largely from those with technical understanding and expertise
Muni supporters	Concerned about climate and concerned about the timing of a fee/tax given upcoming 2020 Go/No Go vote on local power	Tech team or smaller group consultation
Climate proponents who do not have cars, including young people	Often care a lot about climate	Social media and other forms of quick-hit and creative engagement
City Council and other decision-makers	Concerned about climate, equity and economics; and will want to demonstrate that they heard the community's feedback	Through formal council and board/commission processes and platforms

Possible Natural Gas Tax

<b>Who is likely to be impacted?</b>	<b>Why do they care/what might motivate them?</b>	<b>How do they prefer to receive information or be engaged?</b>
Residents who use natural gas	Some concerned about climate; some concerned about costs; some concerned about both; this tax	Varies

	could also galvanize residents who oppose fracking	
Businesses that use natural gas	Cost implications, given cumulative effects of fee; could also be concerned about how the tax will be applied (in other words, are businesses bearing a higher burden than residents); some may be partners who have also been active partners in addressing climate change	Individualized contact and communication
Implementation Partner: Xcel Energy	Concerns about what will be asked of them in implementing fee; concerns about PUC regulation related to policies and costs applied to special customers	Individualized contact and communication, largely from those with technical understanding and expertise
People who are concerned with climate change, but can't vote (i.e. youth)	Concerned about climate and may have an opinion on a tax but can't express that opinion through a ballot vote	Varies – but usually want online and more creative opportunities
Most disconnected populations (lower income, communities of color, Spanish-speaking residents, immigrants, etc.)	Less likely to be aware of possible policy changes; concerned about climate; concerned about costs; some concerned about both; may also be concerned about more government involvement in their lives	Through trusted ambassadors; at locations and on times/days that are convenient; with environments that feel safe/welcoming/inclusive
City Council and other decision-makers	Concerned about climate, equity and economics; they will want to demonstrate that they heard the community's feedback and determine if a ballot item has a reasonable chance of passing	Through formal council and board/commission processes and platforms

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**Engagement and Communications Objectives:**

- Communicate clearly about the project so the community is informed about the goals and options and understands how to participate in engagement opportunities and decision-making
  - Develop a proposed Vehicle Climate Fee that accounts for community input
  - Invite feedback from often disconnected groups and use this input to address equity issues/concerns
  - Understand potential impact of the fee on businesses with large fleets
  - Give implementation partners a chance to provide input and help shape tax and administration of the program
  - Determine public sentiment around possible future natural gas tax
  - Determine if the city should propose a 2019 ballot item for a natural gas tax
- 

### **Anticipated Levels of Engagement:**

This engagement plan will touch on all four of the city's levels of engagement in the following ways:

#### **Inform**

Ensure the community as a whole is aware of the project and how they can participate

#### **Consult**

Gather resident and businesses/commercial fleet feedback about whether the fee and tax should be considered and how they should be structured

#### **Involve**

Work with implementation partners to address concerns, assign clear roles and create manageable workflows that achieve desired results

#### **Collaborate**

Invite a representative group of individuals to help make funding decisions for some portion of the revenue collected, through a participatory budget process

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### **Key Messages/Talking Points:**

- The community has Climate Commitment goals and we're working towards a future where Boulder is a sustainable and resilient community that benefits from and supports clean energy; preserves and responsibly uses the Earth's resources; and cares for thriving ecosystems.
- Climate action is something local governments have a responsibility to take on—and we are. Our job is to protect the safety and well-being of our community. Climate change is a threat to this and the planet is on track to tip over the critical 1.5°C increase by 2030 –far sooner than thought. Urgent, large-scale unprecedented change is required to keep below this threshold.
- Our community cares about climate, which is why it was the first place in the nation where residents taxed themselves to take on climate action, with the Climate Action Plan (CAP) tax in 2007. However, the CAP Tax is not applied to natural gas or petroleum consumption, and does not generate sufficient revenue to accomplish the community's climate goals.
- Since the adoption of the CAP tax, the city has adopted ambitious Climate Commitment goals that far exceed the initial Kyoto Protocol target. A detailed projection tool that models potential pathways to the 80% reduction target by 2050 has revealed the following: Achieving a 100% renewable electricity supply will only result in about half of the necessary GHG reductions – the rest must come from other efforts aimed at more distributed solar and energy efficiency, carbon sequestration, reducing food waste, significantly reducing transportation emissions, and electrifying vehicles and most of the space and water heating loads in buildings.
- Staff has evaluated several revenue options, and based on that evaluation, council has directed staff to pursue the development of a propose Vehicle Climate Fee, and to gather initial community feedback on a potential Natural Gas consumption tax. Additional funding raised through the vehicle fee or a natural gas tax will help the city support necessary additional climate action.
- The goals of these fees are to:
  - Encourage sustainable behavior and purchasing choices and discourage use of natural gas and petroleum
  - Tax all major sources of carbon emissions (electricity, natural gas, vehicles) equitably
  - Apply climate taxes or fees equitably across sectors, and ensure low-income residents are not unfairly burdened
  - Provide a sufficient, long-term revenue stream to fund climate mitigation and adaption programs
- The specific fee paid through the Vehicle Climate Fee would be based on a percentage rate applied to the value of the car, so it's not a regressive tax (similar to the ownership tax). The percentage rate would be determined by the MPG of the vehicle – the lower the MPG, the higher the rate.

- Staff is also investigating rebates for people with low-income (using the same income threshold as the food tax rebate), service workers and low-mileage rebates.
  - Staff is partnering with three community groups that represent populations with low-income and underrepresented people to help ensure equity concerns are addressed. These groups will help determine an equitable fee and rebate structure and gather feedback from a diverse group of community members. Staff will also be piloting a Participatory Budgeting process to allow community members to determine how a portion of the revenue from the fee will be used. This process will be bi-lingual and jointly run with Just Transition Collaborative.
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**Strategies:**

1. Conduct citywide assessment of resident sentiments related to the proposed fee and possible natural gas and other potential carbon taxes at the local, state and national levels (CITYWIDE SURVEY)
2. Uses best practice communications and engagement techniques, as well as proven platforms and partnerships, to seek resident feedback on how to structure the fee (RESIDENT INFO AND INPUT)
3. Offer individualized outreach and consultation sessions for representatives of commercial fleets and larger businesses (BIZ OUTREACH)
4. Include appropriate city boards and commissions in discussion and provide their feedback to council (BOARDS)
5. Partner with implementation agencies to develop a workable plan designed to make any fee or tax successful (IMPLEMENTATION PLANNING)
6. Leverage existing relationships with low-income and communities of color advocates to understand needs of less connected residents and ensure that recommendations to council address these needs (DISCONNECTED COMMUNITIES OUTREACH)
7. Share information gleaned from engagement with participants and general community members in a clear and easily accessible way (FEEDBACK LOOP)

8. Encourage diverse participation through a participatory budgeting process that allows community members to allocate some portion of the revenue to projects that meet city criteria (PARTICIPATORY BUDGETING)

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**Tactics and Assignments (these are likely to evolve):**

Strategy Area	Tactic/Deliverable	Who is taking the lead?	Target date(s)	Funding needed
Citywide Survey	Develop proposal for informal bid	Alexis		\$15,000 consultant
	Conduct informal bid process	Alexis		
	Select survey consultant	Alexis, Sarah and Project Team		
	Design survey and formulate questions with consultant	Alexis, Sarah, Project Team and Consultant		
	Promote the survey through variety of platforms, including one citywide NextDoor post	Alexis		
	Conduct survey	Consultant		
	Analyze results	Consultant		
	Vet consultants' report of results for clarity and adherence to communications practices	Alexis		
	Create corresponding Be Heard Boulder survey	Alexis	Late January 2019	
	Conduct survey through Be Heard Boulder	Alexis	January-February 2019	
	Analyze Be Heard Boulder results	Alexis		
	Develop key findings document from both result reports	Alexis, Sarah and Project Team		
	Post results to project website and Be Heard Boulder site	Alexis		
	Incorporate results in any memos to boards and commissions and City Council	Kendra, Kimberlee		



<b>Resident Info and Input</b>	Create story and narrative around what and why; incorporate feedback from Kendra, Steve and others	Alexis	December 2018	\$0 because we will leverage existing city platforms
	Refine and add to talking points, as needed	Alexis	Ongoing	
	Develop and build out project website	Alexis	December 2018	
	Develop and build out Be Heard Boulder site	Alexis	January 2019	
	Draft and submit community newsletter story for Feb.2019	Alexis	Mid-January	
	Social media posts about the project, the survey and opportunities to participate	Alexis	Ongoing	
	Periodic blurbs in Climate and Energy e-newsletter	Alexis	Ongoing	
	Launch guestbook, ideas, questions tools on Be Heard Boulder	Alexis	January 2019	
	If NG ballot item appears likely, educate community on the question they will be asked, prior to go-dark date	Alexis	May through August 2019	Could be additional materials and distribution costs not yet budgeted
<b>Biz Outreach</b>	Meeting with city fleet managers	Kendra	December 2018	
	Meeting with waste haulers	Kendra	January 2019	
	Meeting with broader commercial fleet	Kendra	January 2019	
	Additional items to be created if council wants to place NG tax on 2019 ballot	Alexis, Sarah and Kendra		TBD
<b>Boards</b>	Organize and conduct board mtg with EAB and TAB	Kendra	TAB: 4-8-19, Asking EAB if they would like to be engaged again	
<b>Imp. Planning</b>	Meetings and correspondence as determined by Kimberlee	Kimberlee	Ongoing	\$0

<b>Disconnected Communities</b>	Meet with JTC on Dec. 11 to discuss equity component to proposed fee and chart out way to gather feedback	Kendra and Sarah	December 2018 to March 2019	\$200 materials
	Reach out to BHP to schedule similar meeting as above	Sarah	By Dec. 14, 2018	
	Meet with BHP	Kendra and Sarah	January 2019	
	Identify third group and schedule mtg with third group	Sarah	By Dec. 21, 2018	
	Meet with third group	Kendra and Sarah	January 2019	
<b>Feedback Loop</b>	Create a What We Heard Document	Alexis and Sarah	Early March 2019	\$0
	Post/share What We Heard Document to project website, Be Heard site and as an attachment to council memo	Alexis	Early March 2019	
	Update What We Heard Document based on Participatory Budget Process	Alexis/Sarah	June 2019	
	Post/share updated What We Heard Document to project website, Be Heard site and as an attachment to council memo	Alexis	June 2019	
	Create post-process evaluation	Sarah	August 2019	
	Put post-process eval on Be Heard Site and share results	Alexis	September 2019	
<b>Participatory Budget</b>	Gather materials from Participatory Budget Project	Sarah	November 2019 to January 2020 (after Council vote)	\$4,300 venue, refreshments, materials, language and childcare
	Determine how much money can be put toward process and what broad-level parameters should be	Kendra	January 2020	
	Decide how many and what mix of people we want to involve in this process	Sarah and Kendra	January 2020	

	Plan process	Sarah	February 2020	
	Publicize process	Alexis	March 2020	
	Conduct process		April 2020	

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### Success Measures:

These engagement efforts will be successful if the city:

- Achieves desired participation rate on communitywide survey and shares findings with public and decision-makers; collects responses from 100 additional community members through Be Heard Boulder survey
- Establishes community awareness of the issue through a minimum of 500-page views on the project website and a participation rate of at least 75 users on the Be Heard Boulder site; develops and implements a minimum of 10 social media posts; with a total reach of 10,000.
- Engage with top five fleet managers that register commercial vehicles in Boulder; conducts interviews with a representative from each of the top five fleet managers; and shares this feedback with decision-makers
- Identifies what each of the three key implementation partners (Department of Revenue, Boulder County, Xcel Energy) need to help city be successful in a vehicle tax and/or natural gas fee and incorporates these into staff recommendation
- Seeks and collects input from a minimum of three disconnected community partner organizations and incorporates this feedback into staff recommendation
- Conducts a pilot participatory budgeting process that follows industry best practices; involves 50 community members in the process
- Posts feedback reports to the project website, adhering to reasonable and timely deadlines
- Conducts timely post-process surveys and receives an average of at least 80 percent Very Satisfied or Satisfied ratings

## FEEDBACK FROM STAKEHOLDER ENGAGEMENT SINCE OCTOBER

In line with the Community Engagement Plan (**Attachment B**), staff has completed engagement and communications to meet the following objectives:

- Communicate clearly about the project so the community is informed about the goals and options and understands how to participate in engagement opportunities and decision-making
- Develop a proposed Vehicle Climate Fee that accounts for community input
- Invite feedback from often disconnected groups and use this input to address equity issues/concerns
- Understand potential impact of the fee on businesses with large fleets
- Give implementation partners a chance to provide input and help shape tax and administration of the program
- Determine public sentiment around possible future natural gas tax
- Determine if the city should propose a 2019 ballot item for a natural gas tax

Engagement has been completed with a variety of stakeholders and through a range of methods, as summarized below.

### Commercial Fleet Owners

On Jan. 13, 2018 Staff hosted a discussion to gather feedback from commercial fleet owners in the community, including the University of Colorado Boulder, Boulder Valley School District, Western Disposal, Eco-cycle, the City of Boulder and Via. The purpose was to gather feedback on the proposed Vehicle Climate Fee. The feedback included:

- Concern with the limited alternatives available for commercial vehicles and whether vehicles with compressed natural gas, as the best available technology, should be subject to the full fee;
- Risk to competition;
- Concern that the fee does not impact in-commuters; and,
- How the revenues and funding can benefit commercial fleets who pay the fee.

### Equity Focus Group

Staff hosted a three-hour equity focus group with representatives from three organizations that support less connected communities: Boulder Housing Partners, the Just Transition Collaborative at the University of Colorado Boulder, and the Coalition of Manufactured Homeowners in Boulder. The purpose of this group was to discuss the proposed Vehicle Climate Fee, specifically to gather feedback on ways to incorporate social equity and reduce the burden on those with lower incomes. See **Attachment D** for the detailed focus group summary.

### Carbon Pricing Survey

The city conducted a statistically valid survey to gauge community sentiment regarding various forms of carbon pricing (More information can be found in the [March 14, 2019 Information Packet](#)). Carbon pricing is adding an additional cost (typically in the form of a tax or fee) to an

activity that generates carbon emissions (e.g. natural gas production or consumption or driving a gasoline-powered vehicle).

The city promoted the Carbon Tax survey through a number of city channels including a Facebook post, boosted for \$25, a city-wide Nextdoor post, a Twitter post, the Climate & Energy e-newsletter, the transportation e-newsletter and on the Be Heard Boulder Vehicle Climate Fee engagement page.

*Key Takeaways from the Survey Results:*

- Most Boulder voters, at all income levels, have a deep and strong commitment to protecting and preserving the environment, combating the impacts of climate change and reducing greenhouse gas emissions. Those strong feelings and emotions are the primary reason why large majorities of voters support the carbon pricing, natural gas usage and vehicle climate fee proposals in this survey.
- 81 percent of Boulder voters support and 13 percent oppose the city's efforts and programs to offset the impacts of climate change and reduce greenhouse gas emissions.
- 72 percent of respondents would support and 23 percent would oppose some form of carbon pricing, knowing that it would increase the cost of fossil fuels like gasoline, natural gas and coal generated electricity.
- A strong majority of Boulder voters, 63 percent, would support some form of local carbon pricing that would increase the cost of fossil fuels by less than 5 percent. However, voter support for local carbon pricing dips below 50 percent when the cost of fossil fuels increases by 10 percent or less.
- 70 percent of Boulder voters would support and 24 percent would oppose a local climate tax on natural gas use that would exempt residents with lower incomes.
- 64 percent of respondents would support and 31 percent would oppose a vehicle climate fee that would cost between \$10 and \$40 annually per vehicle. The fee would be based upon a miles per gallon rating, would be less for energy efficient vehicles and there would be no fee for electric vehicles.

*Common Themes from Verbatim Survey Responses:*

Why do people support a proposed tax or fee?	Why do people oppose a proposed tax or fee?
<ul style="list-style-type: none"> <li>▪ Climate change is an urgent issue, “the global emergency of our times”</li> <li>▪ A desire to “do my part”</li> <li>▪ There is need to incentivize a clean energy economy</li> <li>▪ This is core to Boulder’s values</li> <li>▪ The scale of change required won’t happen without massive investment</li> <li>▪ This would raise awareness and encourage sustainable choices</li> </ul>	<ul style="list-style-type: none"> <li>▪ This would place a disproportionate burden on the poorest people</li> <li>▪ The cost of living in Boulder is already too high</li> <li>▪ Climate change is a global problem and Boulder’s efforts won’t have a big enough impact</li> <li>▪ Carbon pricing is needed at the federal level, not the local level</li> <li>▪ This is not the role of local government</li> </ul>

	<p>Specific to vehicle fee:</p> <ul style="list-style-type: none"> <li>▪ This doesn't address usage</li> <li>▪ Wealthy residents with electric cars should have to pay also</li> </ul>
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Some of the common themes for opposition would be addressed through the design of tax or fee, by ensuring that the city has adequate rebates and exemptions for residents with lower incomes and those who are experiencing financial hardship.

### **Transportation Advisory Board (TAB)**

On April 8, 2019 Staff presented to TAB on the proposed Vehicle Climate Fee and received feedback on the structure and funding of the fee. Feedback varied by member, particularly around exemptions. One board member suggested staff remove exemptions for vehicles with no alternatives because dirty vehicles are still emitting and our community is still paying the cost of those emissions, even if an alternative option is not available. Another board member was cautious of the optics of exempting electric vehicles but no other vehicles and the perspective that the wealthy are receiving the reward while those who cannot afford electric vehicles at this time are being “punished.”

The board also provided comment on the funding options and the fee rates. The board suggested a larger portion of funding be geared toward low income households and services that can benefit the whole community rather than individual subsidies. One board member cautioned that a low fee may threaten the approval of other transportation funding mechanisms for other transportation needs, and therefore either staff should move forward with the highest fee amount to ensure full funding and impact or rely on alternative funding methods for transportation-related efforts as part of the TMP work. A board member also recommended prioritizing all funding toward ensuring the community drives less overall, as even electric vehicles, while having less emissions, still contribute to safety concerns and congestion. The board unanimously supported the 2,000 VMT threshold recommendation for low mileage drivers.

### **Clean Energy Tech Team**

On April 13, 2019 staff met with the Clean Energy Tech Team to provide an update on the research and analysis on the proposed Vehicle Climate Fee and Natural Gas Tax. While the group questioned the public's support for either, they did provide feedback on messaging, including develop a visual message or infographic demonstrating current funding and results focusing on greenhouse gas reductions achieved per dollar spent. The group also supported incorporating the natural gas approach into the existing CAP Tax, rather than implementing a separate tax.

## Ongoing Online Engagement

Starting at the end of January 2019, the City of Boulder has been engaging with community members online around potential climate-related taxes and fees and a potential Vehicle Climate Fee in particular.

The city utilized its online engagement platform, <http://www.beheardboulder.org>,



to invite feedback from community members on two key topics related to the Vehicle Climate Fee, “What do you think the average fee should be?” and “Submit your ideas for how the funding from the proposed Vehicle Climate should

be used.” Additionally, while the carbon tax survey was open, site visitors were able to take the survey from the Be Heard site.

As of April 17, 2019, the Vehicle Climate Fee Be Heard Boulder page had 612 page visits, 45 engaged visitors, 197 informed visitors and 442 aware visitors.

### Be Heard Boulder Comment Themes:

“What do you think the average fee should be?”

- 1) Climate action is important and measures like a vehicle climate fee to help address this issue are positive
- 2) Concerns over equity
- 3) Concerns over impact on vulnerable populations or people who don’t drive much but need cars
- 4) Concerns that this fee will be expensive/raise the cost of living
- 5) Concerns that in-commuter component of transportation emissions is not addressed by this fee
- 6) Questioning if this is an appropriate role for local government
- 7) The sentiment that electric vehicles, especially Teslas, should still pay a fee

“What should the city use the funds collected from the proposed vehicle climate fee for?”

- 1) Community events and education
- 2) Bike infrastructure
- 3) Transit
- 4) Creating parklets
- 5) Installing electric vehicle infrastructure

The city also used the Nextdoor online platform. The Nextdoor platform in particular garnered a lot of engagement and commentary especially related to the carbon pricing survey. Additional themes from that thread are below.

### Nextdoor Comment Themes:

- 1) Climate action is important and measures to address this topic are positive
- 2) Concerns that this fee will be expensive/raise the cost of living
- 3) People want to understand how this fits with other budget priorities and taxes

## Vehicle Climate Fee – Equity Focus Group Summary 2/20/2019

At the October 23, 2018 Study Session, City Council directed staff to pursue the development of a vehicle climate fee that would be applied to vehicles registered within the City of Boulder. This fee would be applied annually at the time of vehicle registration and would be based upon the efficiency of the vehicle as based on its Environmental Protection Agency (EPA)-rated fuel economy, or miles-per-gallon (MPG). The purpose of this fee would be to defray the costs of the comprehensive regulatory scheme aimed at improving environmental health and safety and reducing transportation-related emissions through city programs and efforts including:

Widespread adoption of electric vehicles (EVs)	Multi-modal transportation	Reducing emissions from commercial vehicles
<ul style="list-style-type: none"> <li>• Accessible and affordable charging stations;</li> <li>• Electrification of buses and ride share fleets; and</li> <li>• Rebates and bulk purchase programs for EVs.</li> </ul>	<ul style="list-style-type: none"> <li>• Bike and pedestrian safety programs;</li> <li>• Rebates and bulk purchasing programs for electric bikes;</li> <li>• Encouraging employer commute programs;</li> <li>• Restoring transit service levels; and</li> <li>• Rebates for transit passes.</li> </ul>	<ul style="list-style-type: none"> <li>• Subsidizing shared facilities for alternative fueling and maintenance;</li> <li>• Rebates for emission reduction technologies (e.g. anti-idling devices).</li> </ul>

The city recognizes that any potential fee or tax, no matter how good the reason is to support it, could have a disproportionate impact on residents who are already struggling to make ends meet in Boulder. As such, the city is proposing to apply an equity lens to both how the tax is collected and how any money raised is spent.

On Feb. 20, 2019 the city hosted a three-hour equity focus group with community members and representatives from three organizations that support less connected communities: Boulder Housing Partners, the Just Transition Collaborative at the University of Colorado Boulder, and the Coalition of Manufactured Homeowners in Boulder. The focus group provided feedback on both the design and implementation of the proposed fee, as well as recommendations on how the revenues would be spent. This feedback is further reviewed below.

### Fee Design and Implementation

#### What we heard

City staff collected staff and participants notes and feedback from the three-hour Vehicle Fee Equity Focus Group. From these notes and feedback, while there was not strong consensus on several topics, a few common themes emerged:



1. The group agreed a fee to mitigate the environmental and emissions impact from vehicles should be tied to vehicle ownership – those who own a vehicle should pay the fee unless otherwise exempt.
2. The fee should be on a sliding scale based on the following potential indicators (there wasn't necessarily consensus around which indicators should be included):
  - a. Income level
  - b. Number of vehicles per household
  - c. Vehicle trip purpose (Was it needs-based or luxury?)
  - d. Mileage driven
  - e. Miles-per-gallon (MPG)/efficiency of vehicle
  - f. Embodied energy/age of vehicle (So as not to encourage the purchase of new vehicles)
  - g. Vehicle value
3. The city should allow low-income exemptions or discounts. The discount option would be reflected in a small flat fee, ex: \$1-5, so low-income households can still contribute but at an affordable rate.
4. Exemptions should include financial hardship as well, because income isn't the only indicator of financial limitations.
5. Exemptions or discounts should be included up-front before payment if possible. After payment rebate programs are supported only if an up-front reduction/exemption is not possible.

#### What we know we can do

Based on the common themes that emerged from the discussion, staff reviewed the recommendations for what could be implemented under this fee. It is important to understand that the city will rely upon other entities, including the county and the state, to administer this program. Because of that, the city would have difficulty implementing all of the suggestions that came out of the focus group. The following recommendations were considered to be feasible and will be incorporated into the design of any future fee structure:

1. Set the fee on a sliding scale based on the efficiency of the vehicle using MPG.
2. Develop and implement a rebate program.
  - a. Rebate programs for exempt/discounted vehicles could incorporate the following factors:
    - i. Low income-based exemptions with a sliding scale based on income
    - ii. Low mileage exemptions
    - iii. Exemptions for service providers using vehicles specific to their business
    - iv. Extenuating circumstance exemptions including those experiencing financial hardship or those who are mobility-impaired

#### What we need to investigate further

Some recommendations that resulted from the focus group will require further investigation and collaboration with external government partners. The Vehicle Climate Fee would be implemented within the state-owed vehicle registration system DRIVE and processed by Boulder County staff as part of

registration and renewal. Therefore, city staff must discuss with the state and county to determine the system's limitations and ability to fulfill certain recommendations.

1. Staff may be able to exempt low-income residents from the fee upfront by employing a voucher system that would enable Boulder County to exempt the fee prior to payment of registration. Staff will continue to work with Boulder County and the state to determine the feasibility of this option.
2. Staff needs to further investigate if a voucher system would allow only a complete exemption, or if it could allow an up-front discount prior to payment. This relates to the recommendation of a flat low fee, ex: \$1-5, for low income residents rather than complete exemption. Staff will continue to work with Boulder County and the state to determine the feasibility of this option.

#### What might be feasible but won't implemented (and why)

There were a few recommendations that resulted from the focus group that were pertinent recommendations and could feasibly be implemented, but staff has decided not to implement them due to additional concerns or challenges beyond technical feasibility. These recommendations were:

1. Scale the fee based on number of vehicles per household.
  - a. There was some preference in the focus group to scale the fee for having multiple vehicles per household. However, staff decided it would be unnecessary to add an additional scaling to the fee because households with multiple vehicles will already pay more than a single vehicle household since the fee would apply to each vehicle owned.
2. Scale the fee based on vehicle age to account for embodied energy.
  - a. This recommendation addresses the perception that the fee encourages residents to purchase new vehicles, which encompasses embodied energy and emissions associated with manufacturing and delivering a new vehicle. The concern raised is that purchasing new vehicles, rather than making continued use of one already on the streets, is counter to the goals of reducing emissions. Staff understands this perspective, however, believes that incorporating a sliding fee scale to credit older vehicles for avoiding additional embodied energy and emissions is not advisable. This is mainly due to the complexity of the coding required to incorporate the fee into the existing software system and concerns that adding one more criterion into this system greatly increases the chance of error and inaccuracies in final billing. Instead, staff proposes some of the funds be dedicated to improving the efficiency of existing vehicles to encourage longer use versus buying new.
3. Scale the fee based on value.
  - a. There was no consensus from the focus group on whether to incorporate vehicle value into the fee calculation, and several participants felt strongly that this was not the best indicator of income level for a variety of social reasons. Though it could technically be added into the coding of the software system, given the legal parameters of a fee, this is not recommended as all emissions should be treated equally.

#### What cannot be implemented (and why)

Two recommendations emerged from the focus group that city staff has determined are infeasible:

1. Scale the fee based on annual mileage.
  - a. While basing a fee on the mileage of a vehicle is the preferred criteria for a fee or tax on emissions from on-road transportation, this data is not currently available. Collecting this data would require individual tracking of annual mileage on every vehicle registered in the city. There are currently no systems in place to complete that data tracking and reporting. Due to the lack of infrastructure and the significant resources required to complete such a data collection effort, this is not an indicator that can be incorporated into the proposed fee design.
2. Scale the fee based on trip purpose.
  - a. This recommendation aims to scale the fee based on whether a trip in a vehicle was needs-based (i.e. taking children to school) or luxury (i.e. driving to the mountains for skiing). Currently there are no systems in place to track or report individual vehicle trips, nor is there a data collection method in place to determine the purpose of a trip. Due to the lack of infrastructure and the significant resources required to complete such a data collection effort, as well as individuals' privacy concerns, this is not an indicator that can be incorporated into the proposed fee design.

## Use of Funds Collected from Vehicle Climate Fee

### What we heard

In general, participants thought the funds should benefit the community overall, but also low-income and vulnerable populations. As shown in the summary below, there was a strong preference for the funds to be directed towards improving public transit and community education.

High Level Recommended Use of Fee	Number of Mentions
<b>Improve public transit</b> – subsidized passes (free for children), better access, electrified buses, and extended service hours	11
<b>Education</b> – programs to educate community members about how to reduce carbon footprint; have materials available in Spanish and target children and populations most impacted by climate change and poor air quality	8
<b>Energy efficiency</b> – focus on residential sector and residents with lower incomes	6
<b>Electric vehicle (EV) adoption</b> - local electric car shares, subsidized and accessible charging stations that are solar powered, tax rebates for EV purchases <sup>1</sup>	5
<b>Other</b> – irrigation, solar, anti-fracking, greater collaboration with housing and transport	4
<b>Making existing vehicles more efficient</b> – convert gas vehicles to hybrids or electric, recycling program for older vehicles, track down large polluters from emissions testing	4
<b>Better bike access</b> – subsidized e-bikes and improved bike lane safety	2

<sup>1</sup> There was more support for providing accessible and affordable charging stations, than providing more rebates for the purchase of new EVs, especially if federal and state rebates are still available.

### How will the city act on these recommendations?

Many of these recommendations (public transit, education, EV adoption, and better bike access) were already in the city's core plan for how to allocate possible funds collected from this fee. Nonetheless, it was helpful to hear that community feedback was consistent with the direction staff has been heading. The prioritization indicated above will also help inform how staff allocates these funds across the various categories.

Staff had not previously planned to use funds to make existing vehicles more efficient, but this is a great recommendation and one that staff is actively investigating further. The conversion costs to hybrids or EVs may be cost prohibitive, but we are exploring other technologies and possible programs.

There are some suggestions that are outside the scope of this particular fee because they are not related to reducing emissions from transportation – these include energy efficiency, irrigation, solar, and anti-fracking. While this particular fee could not be used to fund these efforts, if the fee is approved, it would free up funds from the Climate Action Plan (CAP) Tax, which currently funds all of these efforts (except irrigation). Irrigation programs are funded from water utility rates and will continue to be funded that way.

### Next Steps

This will be discussed further at a city council meeting on May 14, 2019. At this session, staff will present the analysis and findings gathered to date regarding the design, implementation and use of funds for a proposed vehicle climate fee. This summary of the Equity Focus Group meeting will be included in the council memo. Council will provide direction at this time whether staff should continue the development of this fee.

## ANTICIPATED USE OF FUNDS

Staff developed specific funding models to identify what programs and efforts would be funded by the Vehicle Climate Fee and Natural Gas Tax as shown in the tables below. Table 1 and Table 2 below summarize the full funding needs and indicates which programs would be funded based on the fee and tax rate proposed.

**Table 1: Anticipated Use of Vehicle Climate Fee Funds**

Programs to Reduce On-Road Transportation Emissions and Associated Ten-Tear Outcomes	Annualized Full Cost (\$/year)	With \$42 Average Fee	
		% of Full Cost Funded	Emissions Savings (MT CO <sub>2</sub> e)
<b>Passenger Vehicle Electrification:</b> Deploy sufficient EV charging infrastructure; discounts for EV charging for drivers without access to home charging; incentives for Transportation Network Companies (TNC) or taxi fleet electrification; community education and outreach	\$2,000,000	87%	28,500
<b>Transit Electrification:</b> Fully electrify HOP fleet through retrofit and purchase of new electric buses.	\$700,000 <sup>1</sup>	77%	4,400
<b>Restore Transit Service Levels:</b> Restore buy-up for JUMP and BOUND service, so each runs at 10 min frequency	\$650,000	0%	2,700**
<b>Pedestrian and Bicycle Programs:</b> safety campaigns, events, education, outreach, etc.	\$80,000	20%	
<b>Electric Assist Bicycle/Bikeshare Charging Infrastructure:</b> 50 bike charging stations added and all bikeshare stations retrofit to charge	\$25,000	11%	
<b>Transit Pass Program:</b> Supplement cost and encourage employers to adopt eco pass programs for employees	\$9,000,000	4%	
<b>Incentives to Reduce SOV Trips:</b> Help support employer parking cash-out programs to incent multi-modal transportation options	\$30,000	18%	
<b>Subsidies for Micro Transit Service/TNC:</b> First and final mile micro transit service from transit centers and on-demand service in areas lacking service. TNC trip subsidies for commuters, residents and visitors.	\$75,000	18%	
<b>Electric Assist Bicycle Subsidy Program:</b> \$500 discounts for 50 bikes per year (available based on income level)	\$25,000	22%	

<sup>1</sup> Assumes the city will be able to leverage these funds and that 50 percent of required funds for this will come from grants.

Programs to Reduce On-Road Transportation Emissions and Associated Ten-Year Outcomes	Annualized Full Cost (\$/year)	With \$42 Average Fee	
		% of Full Cost Funded	Emissions Savings (MT CO <sub>2</sub> e)
<b>Reduce Emissions from Fossil Fuel Vehicles:</b> Support adoption of best in class technologies to improve fleet efficiency; Help fund shared maintenance and fueling centers for alternative fuels; Explore options to make gasoline vehicles less polluting; Lobby for increasingly stringent emissions standards	\$75,000	31%	37,000***
<b>TOTALS</b>	\$12.66 million	21% (\$2.6 million)	72,600 MTCO <sub>2</sub> e
<i>* Over 10 years</i> <i>** All programs aimed at reducing VMT were modeled together</i> <i>*** Significant potential savings with low cost from lobbying on statewide emissions standards.</i>			

The full costs to implement the necessary programs for the Natural Gas Tax are \$32 million over 10-years. The table below shows how that full amount would be allocated. The medium rate scenario would collect very close to this amount: between \$23.5 - \$30 million over ten years (depending on whether or not the rate is escalated over time to reflect reductions in CAP Tax as the grid gets cleaner). If the higher tax rate was chosen, an additional \$1.5 - 1.9 million would be collected annually. This total amount would be enough to fully fund the natural gas reduction programs and to partially fund some of the unfunded transportation needs in Table 1.

**Table 2: Anticipated Use of Natural Gas Tax Funds**

Programs to Reduce Emissions	Sector and Ten-Year Outcomes	Annualized Cost (\$/year)	Ten-Year Cumulative Cost (\$)	Anticipated Emissions Reductions (MT CO <sub>2</sub> e)
<b>Energy Efficiency:</b> Rebates, advising services and policy development to encourage households and businesses to reduce natural gas use	<b>Residential:</b> Reduce NG use by 40%	\$176,000	\$1.76 Million	17,890
	<b>Commercial &amp; Industrial:</b> Reduce NG use by 15%; Reduce EUI by 25% for buildings covered by the Building Performance Ordinance	\$314,500	\$3.14 Million	36,450
<b>Electrification:</b> Efforts to transition building	<b>Residential:</b> Electrify 20% of homes	\$620,000	\$6.20 Million	26,000

<b>Programs to Reduce Emissions</b>	<b>Sector and Ten-Year Outcomes</b>	<b>Annualized Cost (\$/year)</b>	<b>Ten-Year Cumulative Cost (\$)</b>	<b>Anticipated Emissions Reductions (MT CO<sub>2</sub>e)</b>
heating loads from natural gas to clean electricity - includes rebates, advising services, policy development, education/marketing campaigns, supply chain training and mid-stream incentives for electric heat pumps	<b>Commercial:</b> Electrify 8.5% of businesses	\$620,000	\$6.20 Million	7,400
<b>Local Solar + Storage:</b> Rebates, Performance Based Incentives, advising services, and policy development to encourage local, renewable, and resilient energy systems	100 MW of local renewables installed (currently at 53 MW)  5-10 MW of energy storage	\$1,120,000	\$11.2 Million	30,670
<b>Pilot New Technologies:</b> Pilot innovative sustainability and resilience strategies on city facilities; support regional innovation, protect and restore the Urban Tree Canopy (UTC); pilot and scale carbon sequestration strategies	Scale the former Boulder Energy Challenge program regionally  Develop, test and scale a carbon neutral pool and water heating design  Increase Urban Tree Canopy by adding 10,000 trees  Sequester 130,000 MTs of CO <sub>2</sub>	\$377,000	\$3.77 Million	150,400
<b>TOTAL</b>		<b>\$3.2 Million</b>	<b>\$32 Million</b>	<b>268,810 MTCO<sub>2</sub>e</b>

## EQUITY ANALYSIS

To address social equity concerns, staff developed exemptions and discounts for both the Vehicle Climate Fee and Natural Gas Tax.

### Vehicle Climate Fee

Most vehicles registered within the city are passenger vehicles and trucks and would be subject to the fee, including fleet vehicles. Heavy tractor-trailers will not be subject the fee, as they are registered with the state and not maintained at the county level. Further, staff determined trailers and special equipment would be exempt from the fee as these classes of vehicles are not direct emitters and do not contribute directly to transportation emissions. Finally, buses would also be exempt from the fee, because buses are a mobility option that reduces emissions compared to passenger vehicles.

In addition to the exemptions identified via vehicle class designation and vehicle type, staff proposes that the following vehicles be exempt or subject to partial rebates.

1. **Best-in-Class/No Alternative Options:** If a vehicle owner has already elected to purchase a vehicle that meets the best available technology for low emissions, they would be exempt from the fee or subject to a lower fee due to a lessened impact. This includes electric passenger vehicles and compressed natural gas large vehicles. Electric passenger vehicles are not emitting on-road within the city. However, the vehicles not charged by solar systems are dependent upon an electricity grid this is not 100% renewable. In this case, these owners pay the Climate Action Plan Tax to charge their vehicles on the grid, so applying this fee would be duplicative.

For compressed natural gas large vehicles, such as trash trucks, electric technology is not available, so this is the best available technology to limit emissions and meet the service needs. Therefore, staff has proposed a 50 percent fee discount to acknowledge the effort to reduce emissions on-road as much as technology will allow. These exemptions and discounts will be applied upfront because fuel type is available within the DRIVES system.

Further, many small business and service workers in the community rely on specific vehicle types to meet their business needs. For example, locally owned landscaping companies may require trucks with the ability to tow trailers with substantial machinery loads. In these cases, those vehicles still have an emissions impact, but the vehicle owner cannot replace the vehicle with a more efficient option because one does not currently exist. The city is proposing a 50 percent fee discount for those that can demonstrate small business and service needs for their vehicle type, however this discount will be applied through a partial rebate after vehicle registration payment.

2. **Low-Mileage Drivers:** While setting the fee based on both fuel economy and annual mileage of a vehicle would be ideal to determine the emissions impact of an individual vehicle, mileage data is not available to the city, nor is it collected via annual vehicle



registration. Therefore, staff is proposing a 50 percent discount for those owners who can demonstrate the vehicle they own is rarely driven. Low-mileage is currently being defined as 2,000 miles per year or less. Demonstrating low mileage should come from a third-party that can verify annual mileage. For example, annual odometer readings as recorded by car insurance companies, as recorded for annual vehicle maintenance. Alternatively, the city could accept self-reporting of annual mileage. Because mileage is not tracked within the registration system, this exemption cannot be implemented prior to annual vehicle registration/renewal payment and will instead have to be issued after payment through a rebate process.

3. **Low-Income and Financial Hardship:** Since this fee is based directly on the efficiency of a vehicle, there may be disproportionate impacts to low-income residents or those undergoing financial hardship.<sup>1</sup> Up-front exemptions would be the preferred way to address social equity concerns; however, because the fee must be implemented through the state registration system, and income level/financial hardship status is not indicated within the registration system, the city cannot implement an automatic exemption and would therefore require a rebate process.

Similar to the [Food Tax Rebate Program](#) currently offered by the city, the fee will be paid upfront and then rebated back via a rebate application. Those that meet the low-income or financial hardship requirements could then apply to receive a full rebate with the option of a \$5 contribution to the Vehicle Climate Fee funds.<sup>2</sup> The challenges with this approach include:

- Residents would need to come up with the funds initially and wait for reimbursement through the rebate process.
- Applying for a rebate is a burdensome process for residents and has high overheads costs for the city. In conversations with Seattle, WA, which offers a low-income rebate for its annual vehicle registration fee, the administrative costs to issue a \$20 rebate is \$80.

### Natural Gas Tax

Staff is applying a social equity lens to the development of this tax and proposes the following approaches for exempting those with lower incomes or facing financial duress.

When possible, those with low incomes will be exempt from the tax prior to receiving their utility bill. Xcel Energy offers Energy Assistance to customers through federal and state programs that pay utility bills for eligible customers. In the Xcel Energy system customers who have qualified for those programs and received payments are flagged. This flag may serve as an indicator to exempt those accounts from the tax for all following bills. While this approach is

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<sup>1</sup> Income level is not always representative of financial hardship. Events such as loss of job, health issues, etc. may also impact someone's ability to pay in a certain year.

<sup>2</sup> A \$5 contribution option was recommended as a result of the Equity Focus Group, which encouraged an option to pay a fee that would be considered more reasonable for a low-income resident.

ideal because it provides the exemption upfront, it will require collaboration with Xcel Energy to ensure system capability and implementation.

However, because not all customers with low income and financial hardship may be participating in the Energy Assistance program offerings, the city will also issue rebates to those that qualify similar to the Food Tax Rebate Program currently offered by the city. Those that meet the low-income or financial hardship requirements could then apply to receive a full rebate. The challenges with this approach include:

- Residents would need to come up with the funds initially and wait for reimbursement through the rebate process.
- Applying for a rebate is a burdensome process for residents and has high overheads costs for the city. In conversations with Seattle, WA, which offers a low-income rebate for its annual vehicle registration fee, the administrative costs to issue a \$20 rebate is \$80.

Since a rebate program is necessary for both the fee and the tax, staff are working with other city departments and Boulder County to explore the development of an Affordability Portal. This portal would act as a one-stop-shop for those with low incomes or experiencing financial hardship to identify and apply for programs for which they are eligible and could allow a resident to apply for several rebate programs at once, reducing the annual burden from the various taxes and fees to which they are subject (see **Attachment A: Annual Impacts from Taxes and Fees** for a graphical example of the annual financial impact to an affordable housing unit from sustainability-related taxes and fees).

## NEXUS STUDY ANALYSIS

### Background

A third-party consultant, TischlerBise, was hired to complete a study to determine the nexus of the proposed fee to the costs necessary to mitigate the impact of on-road vehicles within Boulder city limits. The nexus study identified the total cumulative 10-year costs of mitigating the emissions impact from on-road vehicle within the city at \$178 million or \$17.67 million annually.

These 10-year cumulative costs include:

1. \$126.6 million in program costs to mitigate transportation-related emissions from vehicles registered in the city;
2. \$1.66 million in overhead costs to implement the fee, including internal administrative costs for one full-time-equivalent employee and costs for Boulder County and the DOR to update their existing systems and processes; and
3. \$48.5 million in costs to offset the remaining (unmitigated) emissions from those who continue to register and drive gasoline-powered vehicles. The unmitigated emissions cost reflects the local offset cost<sup>1</sup> of \$20 per metric ton of carbon dioxide equivalent (MTCO<sub>2e</sub>).

The total cost was determined by the following methodology:

$$[Program Costs_{(to\ mitigate\ emissions)}] + [Overhead Costs_{(to\ implement\ fee)}] + [Remaining Emissions_{(MTCO_2e)} * Offset Cost_{(Local\ Market\ Cost\ \$/MTCO_2e)}] = Total\ Cost\ to\ Address\ Impact$$

### Nexus Study Report

(Enclosed)

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<sup>1</sup> The Colorado Carbon Fund offset cost pulled March 2019 from: <https://www.coloradocarbonfund.org/carbon-offset-provider/>

## MEMORANDUM

TO: Kendra Tupper, City of Boulder  
Kimberlee Rankin, City of Boulder

FROM: Julie Herlands, TischlerBise  
Colin McAweeney, TischlerBise

DATE: March 29, 2019

RE: **Vehicle Climate Fee Nexus Findings**

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The following memo establishes a nexus for a proposed Vehicle Climate Fee for the City of Boulder, Colorado. The Vehicle Climate Fee is calculated by determining the link between the emission mitigating program funded by the fee, the vehicles registered in Boulder, and the cost to mitigate any remaining emissions from Boulder vehicles after the program has taken effect.

In the following sections the nexus between these elements is demonstrated and then the maximum defensible Vehicle Climate Fee is calculated. The maximum defensible fee is the highest amount the City of Boulder can fairly charge a resident per vehicle to fund the emission mitigating program. To ensure an equitable fee, only the emissions from vehicles registered in the City of Boulder are included in this analysis.

The memo also provides two examples of fee calculations if the city were to set the fee lower to balance financial impact to residents and therefore would only implement a portion of the emission mitigation program.

## Base Year and Growth Projections

The analysis includes only vehicles registered in the City of Boulder (see Figure 1). From historical data, it is estimated that there will be an annual one percent growth rate for trucks and passenger vehicles and a half percent growth rate for motorcycles, motorhomes, and buses. In 2020, it is estimated that there will be 66,169 vehicles registered in Boulder, the majority being fossil fuel vehicles. By 2030, it is projected that there will be 72,528 fossil fuel vehicles emitting tailpipe emissions and 462 electric vehicles in the city.

**Figure 1. City of Boulder Vehicle Growth<sup>1</sup>**

5-Year Increment								
Vehicle Type	Base Year 2020	1 2021	2 2022	3 2023	4 2024	5 2025	10 2030	Projected Change
Fossil Fuel Vehicles - Class C								
Passenger	57,607	58,183	58,765	59,352	59,946	60,545	63,634	6,027
Motorcycle	1,496	1,503	1,511	1,518	1,526	1,534	1,572	76
Motorhome	238	240	241	242	243	244	251	12
Bus	172	173	173	174	175	176	180	9
Fossil Fuel Vehicles - Class B								
Truck	6,238	6,300	6,363	6,427	6,491	6,556	6,891	653
Fossil Fuel Vehicles Subtotal	65,751	66,399	67,053	67,714	68,381	69,056	72,528	6,777
Electric Vehicles Subtotal	418	422	427	431	435	440	462	44
Total Vehicles	66,169	66,821	67,480	68,145	68,817	69,495	72,990	6,821

Source: Boulder County Vehicle Registration Database

The emissions from the registered vehicles in Boulder are provided in Figure 2. This figure accounts for existing/ongoing local and other emission-reducing efforts. In the base year, **without implementation of the Vehicle Climate Fee (VCF) program**, Boulder-registered vehicles are projected to emit a total of 305,478 metric tons of carbon (MTCO<sub>2</sub>). Over ten years, emissions are projected to increase by 31,486 MTCO<sub>2</sub> for a total of 336,964 MTCO<sub>2</sub>. However, the VCF program is projected to gradually mitigate an increasing amount of carbon year over year. By 2030, the VCF program is estimated to mitigate 146,001 MTCO<sub>2</sub> annually. As a result, **if the VCF program is fully implemented**, emissions in 2030 from Boulder vehicles would decline by 114,515 MTCO<sub>2</sub>, with 190,963 MTCO<sub>2</sub> remaining.

<sup>1</sup> The data provided in this table represents a conservative estimate based on historic trends of a 1% annual growth rate. These figures are conservative as they do not take into account market innovations, impact of incentives or future potential regulations and instead are more representative of a business as usual vehicle growth scenario.

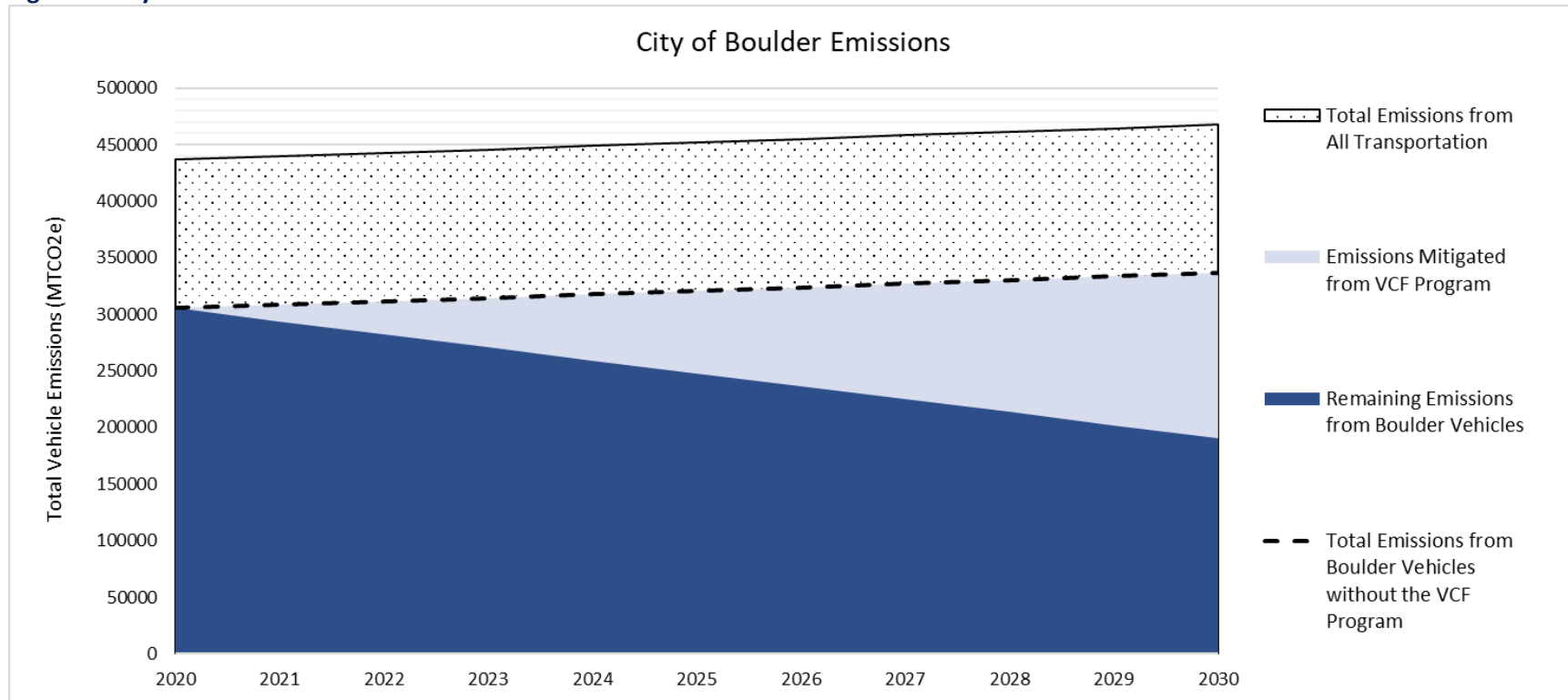
**Figure 2. City of Boulder Emissions and VCF Program Mitigation**

Vehicles Registered in the City of Boulder	Base Year 2020	5-Year Increment						Projected Change
		1 2021	2 2022	3 2023	4 2024	5 2025	10 2030	
Business as Usual Emissions (without VCF) (MTCO <sub>2</sub> )	305,478	308,488	311,529	314,599	317,700	320,832	336,964	31,486
Mitigated Emissions from VCF (MTCO <sub>2</sub> )	0	(14,600)	(29,200)	(43,800)	(58,400)	(73,000)	(146,001)	(146,001)
<b>Annual Emissions with VCF (MTCO<sub>2</sub>)</b>	<b>305,478</b>	<b>293,888</b>	<b>282,328</b>	<b>270,799</b>	<b>259,300</b>	<b>247,832</b>	<b>190,963</b>	<b>(114,515)</b>

Source: City of Boulder Climate and Sustainability Division

To further illustrate the mitigation effects of the VCF program, Figure 3 depicts the total emissions from Boulder vehicles without the program, the emission reduction from the program, and the remaining emissions in the city. As noted, the analysis only includes vehicles registered in the City of Boulder. **The dotted area in the chart represents the emissions from non-Boulder vehicles (i.e., inflow commuters, shipping services).**

**Figure 3. City of Boulder Emissions**



## Boulder Vehicle Impact and Cost

Figure 4 shows the cumulative program costs for the VCF program along with initiatives proposed. There are four efforts included in the fee program: Passenger Vehicle Electrification, Transit Electrification, Reduce Emissions, and Reduction in VMT. Along with the first-year set up costs and annual administrative costs, the program totals \$128,260,000 over 10 years.

**Figure 4. Cumulative VCF Program Costs**

Efforts	Elements	10-Year Fully Funded Cost
Passenger Vehicle Electrification	EV Infrastructure, Car Sharing, Communication, etc.	\$20,000,000
Transit Electrification	HOP Electrification & Fleet Expansion	\$7,000,000
Reduce Emissions from Fossil Fuel Vehicles	Café standards, VMT reduction efforts, commercial fleet efforts to support best in class options	\$750,000
Reduction in VMT	Pedestrian and Bicycle Programs	\$800,000
	Restore Transit Service Levels	\$6,500,000
	Electric Assist Bicycle/Bikeshare Charging Infrastructure	\$250,000
	VMT Reduction Incentive Program	\$300,000
	Transit Pass Programs	\$90,000,000
	Subsidies for Micro Transit Service/TNC	\$750,000
	Electric Assist Bicycle Subsidy Program	\$250,000
First Year Set Up and Annual Upkeep		\$1,660,000
<b>Cumulative VCF Program and Overhead Costs</b>		<b>\$128,260,000</b>

Source: City of Boulder Climate and Sustainability Division

These efforts will not fully offset vehicle emissions from vehicles registered in the City of Boulder. To calculate the full impact and cost of Boulder vehicles, the cost to offset the remaining emissions from Boulder vehicles and the program cost are summed. It has been determined that to quantify the impact of the remaining emissions from Boulder vehicles (the dark blue area in the chart above), the cost to sequester carbon would be applied<sup>2</sup>. According to the Colorado Carbon Fund, a local carbon offset provider, carbon sequestration costs \$20 per MTCO<sub>2</sub>.<sup>3</sup> That factor is applied to the annual carbon emissions remaining in the city from Boulder vehicles after the mitigation effects of the program.

For example, in Year 1 there is 308,488 MTCO<sub>2</sub> from Boulder vehicles. The program will mitigate an estimated 14,600 MTCO<sub>2</sub>. As a result, 293,888 MTCO<sub>2</sub> remains. Applying the cost of carbon sequestration to the remaining emissions results in an impact of \$5,878,000 (293,888 MTCO<sub>2</sub> x \$20 per MTCO<sub>2</sub> = \$5,878,000, rounded).

<sup>2</sup> Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide (U.S. Geological Survey)

<sup>3</sup> As of March 2019, per <https://www.coloradocarbonfund.org/carbon-offset-provider/>



Shown in Figure 5, since the city's VCF program is projected to have an increasing mitigation effect, the annual impact to offset the remaining emissions decreases each year. Cumulative costs for the VCF program are annualized over 10 years at \$12,660,000 per year. Additionally, there is an annual overhead cost which is slightly higher in the first year because of startup costs. This overhead cost includes: internal administrative costs to implement the fee, including support from one full-time-equivalent employee; costs to the Colorado Department of Revenue, which maintains the vehicle registration system, to incorporate the fee into the system; and costs to Boulder County to provide testing and process support to collect the fee at the time of vehicle registration and renewal. In total, the annual average impact and cost of Boulder vehicles is \$17,670,800.

**Figure 5. Total Cumulative (and Average Annual) Cost to Mitigate and Offset 100 Percent of City of Boulder Vehicle Emissions**

		5-Year Increment							
City of Boulder	Base Year 2020	1 2021	2 2022	3 2023	4 2024	5 2025	10 2030	Total Cost	Annual Average
Impact to Offset Remaining Emissions	\$0	\$5,878,000	\$5,647,000	\$5,416,000	\$5,186,000	\$4,957,000	\$3,819,000	\$48,448,000	\$4,844,800
Annual Cost of VCF Program	\$0	\$12,660,000	\$12,660,000	\$12,660,000	\$12,660,000	\$12,660,000	\$12,660,000	\$126,600,000	\$12,660,000
Annual Overhead Cost	\$0	\$220,000	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$1,660,000	\$166,000
<b>Total Impact and Cost</b>	<b>\$0</b>	<b>\$18,758,000</b>	<b>\$18,467,000</b>	<b>\$18,236,000</b>	<b>\$18,006,000</b>	<b>\$17,777,000</b>	<b>\$16,639,000</b>	<b>\$176,708,000</b>	<b>\$17,670,800</b>

Source: City of Boulder Climate and Sustainability Division; Colorado Carbon Fund

## Impact and Cost Analysis

The **maximum annual defensible impact and cost** is the sum of the average impact to offset the remaining emissions, the average annual cost to fully fund the city's VCF program, and the average annual administrative cost. The maximum impact and cost is divided by the average number of fossil fuel vehicles registered to find the fee amount for an average vehicle in Boulder ( $\$17,670,764 / 69,089 \text{ vehicles} = \$256$  per vehicle, rounded).

Based on this nexus study, the city cannot fairly charge the average registered vehicle more than \$256. However, the city may elect to charge a smaller fee amount. In that case, the city's program would not be fully funded resulting in less carbon mitigation.

**Figure 6. Average Vehicle Fee**

Average Impact to Offset Remaining Emissions	\$4,844,800
Average Annual Cost to Fully Fund VCF Program	\$12,660,000
Average Overhead Cost	\$166,000
Maximum Annual Defensible Impact and Cost	\$17,670,800

Average Fossil Fuel Vehicles Registered 2020-2030	69,089
<b>Average Vehicle Fee</b>	<b>\$256</b>

Source: City of Boulder Climate and Sustainability Division; Colorado Carbon Fund

The following figure lists the premium and discount rates that would be applied to vehicles based on their combined mpg. The average vehicle achieves 22 mpg (FHWA & EPA), so for vehicles that get better gas mileage, a discount is applied; for vehicles that get worse mileage, a premium is applied. Ranges are shown in Figure 7, but when the fee is assessed a specific premium or discount will be included corresponding to the vehicle's mpg. Examples are shown for further application of the Vehicle Climate Fee.

**Figure 7. MPG Based Discount**

Miles per Gallon	Premium/Discount	
	Upper	Lower
1-4	160%	154%
5-9	151%	148%
10-14	147%	143%
15-19	140%	115%
20-21	110%	105%
22	100%	
23-24	95%	90%
25-29	85%	60%
30-34	57%	53%
35-39	52%	49%
40-55+	46%	20%

Vehicle Example	MPG	Rate Applied	Fee
2019 Honda Accord	31	54%	\$139
2014 Toyota Corolla	28	64%	\$164
2009 Subaru Forrester	22	100%	\$256
2019 Ford F-150 4WD	19	115%	\$295
2014 Ram 1500 4WD	15	140%	\$358

Source: US EPA Fuel Economy Database

Note: According to Federal Highway Administration, EPA, and City of Boulder Climate and Sustainability Division the average vehicle receives 22 mpg. The premium/discounts originate from the City of Boulder, but have been adjusted to account for average vehicle mpg and including a premium on vehicles with lower than average mpg.

## Revenue from Vehicle Climate Fee

The revenue collected from the Vehicle Climate Fee is estimated in Figure 8. The average vehicle fee (\$256) is applied to the annual total of fossil fuel vehicles in Boulder to calculate the annual revenue. Over the next ten years, it is projected that the fee will collect \$177,724,000 in revenue for emissions mitigation programs. As listed at the bottom of the figure, the fee collects enough revenue to cover the total impact and cost (\$176,708,000). The resulting negative remaining impact and cost is a result of rounding during the calculations.

**Figure 8. Estimated Revenue Collection from Fee**

	City of Boulder
Average Maximum Defensible Impact and Cost	\$17,670,800
Average Vehicles Registered 2020-2030	69,089
Average Vehicle Fee	\$256.00

### Projected Vehicle Climate Fee Revenue

Year	Fossil Fuel Vehicle	Annual Revenue
Year 1 2021	66,399	\$16,998,000
Year 2 2022	67,053	\$17,166,000
Year 3 2023	67,714	\$17,335,000
Year 4 2024	68,381	\$17,506,000
Year 5 2025	69,056	\$17,678,000
Year 6 2026	69,736	\$17,853,000
Year 7 2027	70,424	\$18,029,000
Year 8 2028	71,118	\$18,206,000
Year 9 2029	71,820	\$18,386,000
Year 10 2030	72,528	\$18,567,000

**Projected Cumulative Revenue** \$177,724,000

**Total Impact and Cost** \$176,708,000

**Remaining Impact and Cost** -\$1,016,000

Note: the less than one percent difference between the revenue and total impact and cost is a result of rounding during the calculations.

## EXAMPLES OF ADJUSTED FEE AMOUNT

Because the maximum allowable fee amount would result in a significant economic burden on many Boulder residents, two options are provided where the city elects to set the fee at a lower, more reasonable amount and only implement a portion of the emissions mitigating program. In both cases, only the program and administrative costs are included. Purchasing offsets to mitigate the impact of the remaining emissions from Boulder vehicles is not included.

### Moderate Fee Option

In this option, the City of Boulder elects to set the fee lower than the maximum allowable amount, selecting a moderate fee to balance affordability concerns. This moderate fee results in being able to implement programs that capture approximately 21 percent of the overall emissions' savings potential. Based on city staff models of program implementation and overhead cost estimates, over ten years, this option would result in \$27,023,319 in program costs and \$1,660,000 in overhead costs. Additionally, this option would mitigate 72,610 MTCO<sub>2</sub>.

**Figure 9. Summary of Moderate Focus Example**

Moderate Focus Example	
Portion of VCF Program Cost	\$27,032,319
Total Overhead Cost	\$1,660,000
Total Carbon Mitigation (MTCO <sub>2</sub> )	72,610

Source: City of Boulder Climate and Sustainability Division

In Figure 10, the average vehicle fee is calculated. The total average annual cost is \$2,869,200. The average vehicle fee is found by dividing the annual cost amount by the average number of registered fossil fuel vehicles in Boulder during the ten years (\$2,869,200 / 69,089 vehicles = \$42, rounded).

The same discount based on MPG is given in this example and several vehicle examples are included below for reference.

**Figure 10. Moderate Focus Example Cost Analysis**

Average Annual Cost of Moderate Focus	\$2,703,200
Average Overhead Cost	\$166,000
Total Annual Average Cost	\$2,869,200
Average Vehicles Registered 2020-2030	69,089
<b>Average Vehicle Fee</b>	<b>\$42</b>

Source: City of Boulder Climate and Sustainability Division

Vehicle Example	MPG	Rate Applied	Fee
2019 Honda Accord	31	54%	\$23
2014 Toyota Corolla	28	64%	\$27
2009 Subaru Forrester	22	100%	\$42
2019 Ford F-150 4WD	19	115%	\$48
2014 Ram 1500 4WD	15	140%	\$59

Source: US EPA Fuel Economy Database

## Minimal Fee Option

In this option, the City of Boulder elects to set the fee lower than the maximum allowable amount, selecting a minimal fee to balance affordability concerns. This minimal fee results in being able to implement programs that capture approximately 7 percent of the overall emissions' savings potential. Based on city staff models of program implementation and overhead costs, over ten years, this option would result in \$9,259,803 in program costs and \$1,660,000 in overhead costs. Additionally, this option would mitigate 47,560 MTCO<sub>2</sub>.

**Figure 11. Summary of Minimal Focus Example**

Minimal Focus Example	
Portion of VCF Program Cost	\$9,259,803
Total Overhead Cost	\$1,660,000
Total Carbon Mitigation (MTCO <sub>2</sub> )	47,560

Source: City of Boulder Climate and Sustainability Division

In Figure 12, the average vehicle fee is calculated. The total average annual cost is \$1,092,000. The average vehicle fee is found by dividing the annual cost by the average number of registered fossil fuel vehicles in Boulder during the ten years (\$1,092,000 / 69,089 vehicles = \$16, rounded).

The same discount based on MPG is given in this example and several vehicle examples are included below for reference.

**Figure 12. Minimal Focus Example Cost Analysis**

Average Annual Cost of Minimal Focus	\$926,000
Average Overhead Cost	\$166,000
Total Annual Average Cost	\$1,092,000
Average Vehicles Registered 2020-2030	69,089
<b>Average Vehicle Fee</b>	<b>\$16</b>

Source: City of Boulder Climate and Sustainability Division

Vehicle Example	MPG	Rate Applied	Fee
2019 Honda Accord	31	54%	\$9
2014 Toyota Corolla	28	64%	\$10
2009 Subaru Forrester	22	100%	\$16
2019 Ford F-150 4WD	19	115%	\$18
2014 Ram 1500 4WD	15	140%	\$22

Source: US EPA Fuel Economy Database

## TAX VERSUS FEE AND SCOPE ISSUES

Initial direction from Council was to pursue the Vehicle Climate Fee as a fee due to the direct nexus between the cost to regulate transportation emissions and the cost to mitigate the emissions impact. Therefore, the analysis was approached with the assumption of a fee. However, this fee could also be structured as a tax and Table 1 lists considerations for both a fee and a tax.

**Table 1. Tax and Fee Comparison and Considerations**

Vehicle Climate Fee	Vehicle Climate Tax
Any vehicle registered in Boulder with an emissions impact would be subject to this fee, excluding the exemptions described below.	Tax-exempt entities would not be subject to a tax, even those with large vehicle fleets.
The fee must be set at or below the rate required to regulate the impacts (determined through a Nexus Study).	The tax rate could be set independent of the relative environmental impact.
The fee only applies to on-road vehicles and excludes other modes of transportation that have a less than 1 percent contribution to Boulder's transportation emissions.	A tax could be applied to all modes of transportation, including boats and planes, even when they have different impacts (i.e. GHG emissions vs. impacting water quality).
Funds must be used to directly mitigate the impact for which the fee is applied and cannot be used for any other effort. They must also be used in a way that benefits those who pay the fee.	Funds can be used for any program or effort, not just those tied specifically to the impact; for example, efforts around carbon sequestration and buildings electrification could also be funded through a tax that was applied to vehicles.
A fee can be adopted by city council at any time and is not required to go on the ballot.	A tax must be voter approved as a ballot issue in an annual election.

### Issues with the Scope of this Fee

Ideally, a fee such as this would apply at the state or federal level, would be based on fuel consumption, and would be applied to all vehicles regardless of where they are registered or where they refuel their vehicles. However, there are limitations in terms of what can be accomplished with a local tax or fee. Most importantly, gasoline and aviation gasoline fuels are not subject to city sales/use tax, so a local gasoline tax is not possible. (*See* § 39-27-101, C.R.S.)

With that limitation, the city is left with only one-time sales tax on the purchase of a vehicle, or annual registrations fees as a mechanism for collecting a tax or fee. The one-time sales tax on a vehicle purchase would necessitate a very high lump charge to collect the same revenue as an annual registration fee and would take years to apply to all Boulder vehicles as the stock slowly turned over. The comparison of these various options in the [Oct. 23, 2018 council memo](#) led to the decision to explore a fee applied at the time of annual registration. Because Boulder County, as a statutory political subdivision of the state, does not have the power to enact such a measure on motor vehicle registration, whether in the form of a voter-approved tax or a legislative fee, this fee would have to be imposed by the city.

Since the city does not have jurisdiction to set fees outside of the City of Boulder, the scope of the fee is further restricted to be those vehicles registered within the city. If a dedicated climate/emissions gasoline tax is ever adopted at the state or federal level, the city will evaluate if this local fee is still needed or should be phased out.

This fee cannot be applied to on-road vehicles that in-commute, because the city does not have jurisdiction over vehicles registered outside of the city. The Transportation Master Plan update effort is investigating funding options that would address this sector. This fee also excludes other modes of transportation such as private airplanes and boats. However, as shown above in the Background section, on-road emissions represent 99.8 percent of the total transportation emissions and should be the primary sector of focus for reducing transportation emissions. Further, there are currently no electric or less polluting alternatives for airplanes and boats at this time, which means the fee revenues would be very limited in how they could be used to mitigate the impact and benefit the payees. Therefore, a fee would not be appropriate for these sectors.

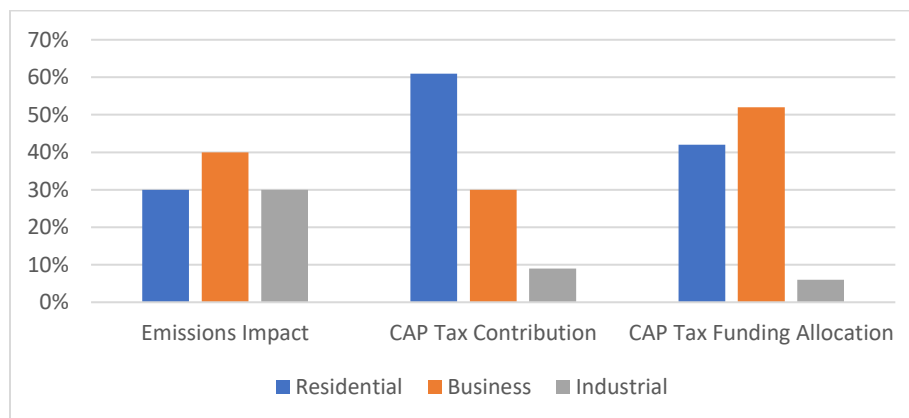
Staff also notes this fee scope does not address the embodied emissions associated with the manufacturing of a new vehicle, including electric vehicles. Therefore, staff proposes dedicating some of the collected funds to investigate ways to improve efficiency in existing vehicles.

## CAP AND PROPOSED NATURAL GAS TAX RATES BY SECTOR

Staff recognizes there are differences between the use of natural gas by the residential sector compared to the commercial and industrial sectors. While the residential sector can better control the amount of natural gas consumed and has proven electrification technology available (i.e. residential heat pumps), this is not always the case for commercial and industrial users that are dependant on natural gas for process heat or even for space heating in existing buildings with complex mechanical systems. Further, while resident voters polled in the carbon pricing survey reported 70% support for a Natural Gas Tax, businesses in the community do not have the opportunity to vote on such a tax. Given these differences, staff has developed Natural Gas Tax rates that are scaled by sector, similar to the current CAP Tax scaling.

Figure 1 below demonstrates the *current* proportion of the existing CAP Tax contribution by sector relative to the benefit received (funding allocated) and the emissions impact. Please note that the first five years of CAP Tax funding went primarily to the residential sector. In recent years, efforts have shifted to recognizes that addressing the largest sector for emissions, commercial business, must be the priority in order to achieve the community's climate goals.

**Figure 1. CAP Tax – Current Impact and Benefit by Sector**



Boulder is unique from other municipalities with carbon taxes because many industrial facilities are located within city limits. While the commercial and industrial sectors are responsible for a higher proportion of GHG emissions, the commercial sector pays a rate that is 18% of the residential rate, and the industrial sector pays a rate that is 6% of the residential rate. The rates were originally set this way for the following reasons:

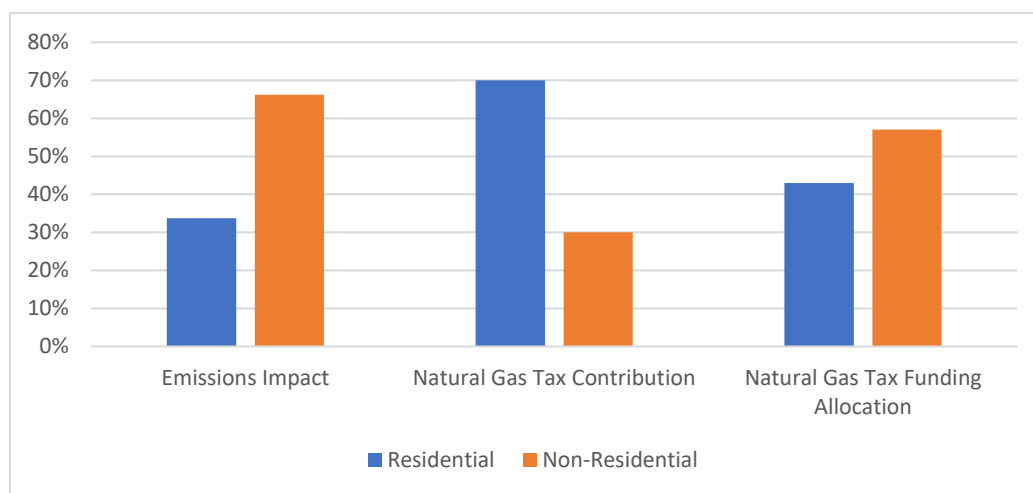
- **Power of the Vote:** Only the residential sector can vote on proposed taxes;
- **To Maintain Economic Vitality:** Boulder businesses are subject to a significant amount of taxes and fees, higher than in neighboring communities. Further, the energy use in the industrial sector is extremely high--applying a CAP Tax rate closer to the commercial or residential rates could lead to primary employers moving their businesses to neighboring towns;



- To Reflect Allocation of Funds: Industrial energy systems are much more complicated and not able to take advantage of the CAP Tax rebates and programs as much as other sectors can. For these reasons, most of the funding is allocated to the commercial and residential sector (see **Error! Reference source not found.**). While this was the rationale in 2007, modifying the CAP tax to include natural gas and giving council authority to adjust rates in the future would allow for this to change if new technologies become commercially available for this sector.

Figure 2 demonstrates how the proposed Natural Gas Tax is anticipated to be proportioned between sectors relative to the benefit received (i.e. funding allocated) and emissions impact of the sector.<sup>1</sup>

**Figure 2. Proposed Natural Gas Tax – Estimate Impact and Benefit by Sector<sup>2</sup>**



Here, the funding allocation is roughly aligned with the emissions impact per sector. The contribution from the residential sector is higher overall because the non-residential rate was set at ~25% of the residential rate to reflect that fact that businesses cannot vote on this ballot measure.

<sup>1</sup> Unlike CAP Tax, which has set three rates by sector, given the complexity of the many suppliers of commercial and industrial natural gas the proposed Natural Gas Tax is currently modeled with a Residential and Non-Residential rate and therefore commercial and industrial sectors are combined within Non-Residential.

<sup>2</sup> The CAP Tax emissions impact reflects the breakdown of all residential and commercial emissions as CAP funds address all emissions, while the Natural Gas emissions impact graphed represents only emissions associated with therm usage by sector.