



**CITY OF BURLINGTON, VERMONT
CITY COUNCIL TRANSPORTATION, ENERGY &
UTILITIES COMMITTEE**

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Councilor Gene Bergman, *Ward 2*
Councilor Hannah King, *Ward 8*

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Transportation, Energy and Utilities Committee of the City Council
Tuesday August 15th, 2023 – 5PM

Spark Space BED Conference Room
585 Pine St #4864, Burlington, VT 05401
Masks Optional

Join via Zoom, <https://zoom.us/j/92670661614>

To call into the meeting, including to speak during public comment:

Phone number: 312-626-6799, Webinar ID: 926 7066 1614

If you prefer to attend in person, you may join us in the Spark Space.

–DRAFT AGENDA–

- 1. Agenda**
- 2. Minutes of 7.25.23 and 8.1.23**
- 3. Public Forum**
- 4. Ordinance on Carbon Fee**
 - Councilors, Darren Springer
- 5. Councilors' Update**
- 6. Next Meeting 8/22/23**
- 7. Adjourn**

August 10, 2023

Dear Members of the Transportation and Energy Utilities Committee,

This letter describes the University of Vermont's (UVM) perspective on the current discussions underway regarding the Carbon Pollution Impact Fee. UVM has been following the development of this ordinance closely and as BED's largest customer, appreciates the opportunity to comment on a policy that will significantly affect our institution. It's our understanding that several points in the draft ordinance are targeted for possible removal, specifically the inclusion of green hydrogen, advanced wood systems, renewable gas and sustainably source biodiesel as allowable renewable thermal systems. UVM aims to make a case for the inclusion of these options in the ordinance.

As BED has stated, we are also concerned about the removal of lines 52-65 in the draft ordinance. All the renewable fuel sources outlined here are consistent with language in the state Affordable Heat Act. As a key stakeholder involved in discussions on the ordinance ahead of the Town Meeting Day vote, our constituents voted on, and we supported, a policy that would include all renewable fuels and named these fuels explicitly. We encourage the TEUC to keep lines 52-65 and not delete them. We understand that if the State subsequently takes action to indicate these fuels are not going to be part of state policy in the Affordable Heat Act due to carbon intensity evaluations, that the City will review this legislation and consider modifying the Carbon Pollution Impact Fee language. This is stated in lines 72-80. It is critical that with the implementation of this consequential policy, UVM have as many options available as possible to meet the technical and financial challenges of moving our buildings to renewable thermal systems. UVM closely monitors the development of new technologies, actively testing and evaluating opportunities for integration on campus. Our engineers need the flexibility to integrate new renewable heating and cooling options when they're cost effective and available. Market pressures also add complications to UVM's efforts to acquire new technology. For instance, UVM has experienced supply chain delays of over a year for some parts required for our electrical systems. To make progress on the important and challenging goal of decarbonization, it's crucial that organizations are given the tools they need to achieve reductions of greenhouse gas emissions.

We are strongly in favor of retaining lines 156-160 and the concept highlighted therein. It's our understanding that there was a suggestion to delete these lines. The option to apply for credit in cases where a renewable thermal system is already in place offers an important incentive for building owners. This encourages institutions to transition away from fossil fuels immediately and before the ordinance takes effect. This could achieve greater emissions reductions than the underlying policy would require.

In April 2023, the University of Vermont announced decarbonization goals with the release of our Comprehensive Sustainability Plan. In many ways, our goals are in alignment with the City's decarbonization goals. We are working to transition our campus operations away from fossil fuels. To make progress on this large and complex effort, it's imperative that we have the flexibility to implement these changes in ways that are strategic and cost-effective for our institution.

Sincerely,
Elizabeth Palchak, PhD
Director of Sustainability
University of Vermont

cc: Richard Cate, VP of Finance and Administration
cc: Luce Hillman, Executive Director for Facilities Management

Utility Energy Inputs

Medical Center Energy Systems and Uses

End Uses

Wind



Hydro



Biomass



Nat Gas



Renewable Natural Gas



Meter

Electricity

Meter

Steam

Meter

Gas

Central Plant

Electric Boiler

Fuel Boilers

Electric Chiller
Steam Absorption Chiller

Sterilization

Kitchen

Hot Water

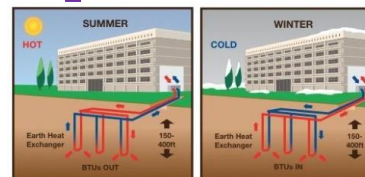
Space Heating and Cooling



Fuel Cell



On-Site Solar



Geo-Thermal



Memo

To: Members of the Transportation, Energy and Utilities Committee, Burlington City Council

From: Gary Scott, Interim Network SVP Facilities Planning and Design, UVM Health Network Corporate Leadership

Re: Questions about the draft Ordinance of Article V, Thermal Energy Systems

Date: August 14th, 2023

As the state's largest healthcare institution, we fully appreciate and support the City of Burlington's resolute pursuit of a Net Zero future. We view ourselves as stewards of this community, committed to fostering sustainable practices and minimizing our ecological footprint. Our energy requirements are intricate and multifaceted, as highlighted in the attached diagram. It's essential to note that, due to our critical role, we're mandated to maintain 100% utility backup capability of our critical infrastructure systems. This is a cornerstone of our operational resilience, ensuring uninterrupted patient care during utility disruptions or emergencies. We are deeply invested in understanding how the proposed ordinance aligns with our commitments and impacts our operations, which raises critical questions deserving thorough assessment.

While we must keep in mind that increases in taxes and other costs will be passed along to our patients and insurers, we are maintaining an open mind to the proposed ordinance. We will be in a position to take a formal position on the ordinance once we fully understand how the tax will be computed.

We would like to raise the following questions in hopes that the committee will either be able to provide clarity or be willing to modify language such that these will be more easily understood for those reviewing the ordinance. Our hope is to develop a clear understanding of the economic implications from a long-term perspective including updating or upgrading existing boiler equipment and possible building updates.

1. What happens when buildings and systems that were subject to the carbon tax are removed from service prematurely? For example, when short term building improvements that involve systems that use thermal energy are installed but the building is demolished 5 years later.

2. How will temporary heating systems supporting maintenance, construction or repairs be assessed? Will maintenance and/or upgrades to existing thermal generation equipment be subject to the fee?
3. Is the proposed tax based on consumption or use of thermal energy? How is double taxation of the same thermal energy prevented? EG. Generated thermal energy vs. end use consumption? How will thermal energy be accounted for? For example, installation of generation systems to support building HVAC systems. Like the hypothetical example of a replacement steam boiler coupled with a steam absorption chiller which will service a new building or system.
4. Will the procurement of Renewable Natural Gas qualify as a renewable fuel and offset the carbon fees assessed against buildings and systems that have a thermal load?
5. Will fuel cells using Renewable Gas be exempted?
6. Where will assessment and fees for this permitting be applied? For example: zoning vs building vs trade permits?
7. We depend on the reliability of a well working grid for our patients' safety and comfort. Is large scale electrification feasible given that 1 kW equals 3412 btus/hr? For example, 100 Boiler Horsepower is equal to 3,450 pounds of steam per hour which converts to approximately 1 megawatt of electrical demand. It would seem large scale electrification would overtax the current electrical distribution system.
8. Do commercial electric boilers that utilize resistance heating elements qualify as a renewable electric appliance?
9. Will a fee be assessed on boilers that utilize RNG, but are provisioned to run on oil back-up in case of an interruption to RNG service?

Email to Councilor Barlow from VGS on 8/15/23

Councilor Barlow,

Hello. I am writing to follow up on the ongoing Burlington carbon fee ordinance proposal. As I stated at the 8/1 TEUC meeting, it is VGS's position that the original draft ordinance proposal struck the right balance and should not be amended such that it limits flexibility for compliance. After that meeting, BED GM Darren Springer forwarded me his thoughts on the proposed amendments that Councilor Bergman offered. Below are my notes based on the areas of edits Springer tracked (my comments are in red). I plan to share similar feedback this evening.

- **Line 35** – Amending the renewable fuel definition to be “from exclusively renewable, non-fossil fuel sources”
Adding “from exclusively renewable, non-fossil sources such as” would move the proposal away from the statewide construct enacted under The Affordable Heat Act (Act 18). Act 18's performance standard construct provides an apples-to-apples framework to review thermal measures and grants credits based on a measure's ability to reduce GHG emissions. Burlington's ordinance should apply the same logic to a user who chooses an alternative option to decarbonize. Take a hybrid electric/gas example in which a large building owner wants to add an electric boiler alongside an efficient gas appliance. If the electric boiler was scaled to displace 60% of the load, the building should have the option to displace their remaining 40% of fossil load with RNG or advanced wood heat. Such a framework provides flexibility for thermal users to choose the most cost-effective option(s) as the transition to cleaner alternatives unfolds over time. Eliminating flexibility will limit compliance pathways and could drive-up costs.
- **Lines 52-65** – Deleting fuels and narrowing compliance pathways
Deleting the renewable fuel definitions for Green Hydrogen, Advance Wood Heating Systems, Sustainably-sourced Biodiesel, and Renewable Gas marks a significant departure from State thermal policy. Levying a carbon fee on measures that are likely to generate Clean Heat credits under the statewide thermal energy law in recognition of their GHG-reducing potential is inconsistent and arguably counter to the GWSA's and Climate Council's analysis framework to ensure emissions reductions keep pace with State requirements (See <https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/MAC%20Curve%20Deliverable%20Memo%20Clean%20Version.pdf> amongst other examples). These definitions should remain in the ordinance to provide multiple pathways to achieve compliance. One other note – this language should not be amended such that it weakens its directive “shall” requirement in preference for a discretionary “may.” During the Act 18 deliberation, lawmakers considered the merit of directing review of Clean Heat measures under an advisory “may” or directive “shall.” They ultimately chose to subject Clean Heat measures to a required review to eliminate confusion and the potential for parties to contest the development/implementation of a Clean Heat Standard. “Shall” is a clearer directive for implementation and will serve to clarify intent.
- **Line 68** – Typo
N/A

- **Line 73** – Minor edits to describe how the Public Utility Commission’s review process of eligible Clean Heat measures would impact their eligibility under the ordinance
N/A, noting our comments above.
- **Lines 145-154** – Amending fuel eligibility language to require physical delivery

Adding a physical delivery requirement is not aligned with Act 18 and emerging State thermal policy, nor does it align with Act 18. The GWSA utilizes a broad framework to assess GHG reductions. The Climate Council has confirmed this intent in its subsequent review of best practices in climate science and GHG accounting. This is why Act 18 utilizes a lifecycle analysis that will consider all impacts resulting from the sourcing, production, transmission, and delivery of Clean Heat measures and fuels/gas. A physical delivery requirement tailored to Burlington’s borders is parochial compared to statewide policy, which was specifically designed to guide Vermont’s transition to lower emitting thermal options. Additionally, it is not consistent with how renewable energy is tracked under other performance standards, in part because it is impossible to track individual electrons and molecules for their renewability at a grid level. Municipal-level policies that conflict with the statewide thermal policy framework could slow or increase the cost of complying with the GWSA.

- **Lines 156-160** – Early action

As originally drafted, providing credits that can be used against future carbon impact fee obligations is consistent with Act 18’s concept of early action credits. Large thermal users who choose to adopt technologies that reduce GHG emissions should be encouraged, not penalized. Providing them with a modest incentive will support Burlington’s climate goals.

- **Line 163** – Administrative costs
N/A
- **Line 175** – Focusing dollars on Burlington-based buildings
N/A
- **Line 191** – EV subsidies
N/A

Please let me know if you have any questions.

Thanks,
Dylan

Dylan Giambatista (he/him)

Director of Public Affairs, VGS

Nick Persampieri's Proposed Changes to Draft Thermal Energy Systems Ordinance

1. Replace Lines 32-35 with the following:

(b) "low-carbon thermal energy system" means any space conditioning, domestic hot water, cooking, appliance, process heat, or other building system that relies on thermal energy from:

Rationale: We need to stop using the term "renewable" in City policies and ordinances directed at reducing greenhouse gas emissions. Renewable means "capable of being renewed" or "not depleted when used." It does not mean low in greenhouse gas emissions. Some renewables, like wind and solar, have low greenhouse gas emissions. Others like "advanced wood heating" and "renewable gas" have emissions that are higher than or comparable to the emissions from fossil fuels. Further, the language proposed by Jack Hanson, which Councilor Bergman has included in his proposed amendment, is circular, ambiguous, and perpetuates the fiction that any system that relies on renewable sources is low greenhouse gas emitting. With Jack's proposed changes to Paragraph 35, which are underlined below, Lines 32-35 would read:

(b) A "renewable fuel which reduces greenhouse gas emissions" is based on the vote at the annual City meeting on March 7, 2023, not subject to the alternative compliance carbon fee, and shall mean any space conditioning, domestic hot water, cooking, appliance, process heat, or other building system that relies on thermal energy from exclusively renewable, non-fossil fuel sources, such as"

So this definition defines "renewable fuel which reduces greenhouse gas emissions" as any system that "relies on thermal energy from exclusively renewable, non-fossil fuel sources." This is a circular definition that could be read to encompass any system that relies on a renewable fuel, including a fuel with higher greenhouse gas emissions than fossil fuels. At a minimum, if Jack's language is to be included the words "such as" should be stricken.

2. In line 39 after "geothermal systems" add "and systems that use waste heat from non-combustion sources such as wastewater, grocery stores and data centers"

Rationale: It seems good to allow waste heat recovery from non-combustion sources as an option.

3. Change lines 49-50 to read:

"Solar thermal based district heating"

Rationale- as written these lines would allow "Renewable energy-based district heating." However, as stated above not all renewable based heating is low carbon. For example, district heating based on wood burning, such as the proposed McNeil steam pipe project would emit more greenhouse gas per unit of energy generated than fossil fuel-based heating. It would be good to add in "Solar thermal based district hearing" as this is a low greenhouse gas emitting option not provided for elsewhere in the ordinance.

2. I strongly support the elimination of Lines 52-65.

Rationale: Green hydrogen, advanced wood heating, biodiesel and renewable gas are not acceptable, low greenhouse gas emitting options for building heating, and have other problematic impacts. Please see the position papers that I submitted on advanced wood heating, green hydrogen and renewable gas, and the papers submitted by 350VT on biofuels and hydrogen, which are posted among the supporting documents for TEUC's July 25, 2023 meeting.

3. Eliminate lines 67-70.

Rationale: The ordinance should prescribe the permissible types of "low carbon thermal energy systems." I do not believe that the Department of Permitting and Inspections has the expertise to determine whether a fuel reduces greenhouse gases relative to the fuel it is replacing." Further, as written, the paragraph would allow the Department to permit use of a fuel based on a showing of an extremely small reduction in greenhouse gas emissions. If, for example, a fuel were found to reduce greenhouse gas emissions by 1% relative to the fossil fuel it replaces, it would be permissible to use the fuel without paying the impact fee. This makes no sense and will not help us reduce greenhouse gas emissions.

4. Eliminate lines 72-80.

Rationale: With the elimination of a number of false climate solutions from the ordinance as suggested above, there is no need for this provision.

5. In Line 93, change "thermal energy system that relies on a renewable fuel" to "low-carbon thermal energy system."

Rationale: See rationale for 1, above.

6. Change lines 107 through the first word in line 112 to read:

"(a) Applicants seeking permits pursuant to this chapter for a new building shall demonstrate that the new building will utilize low-carbon thermal energy systems. Applicants seeking permits to replace space conditioning systems or domestic water heating systems that are in large existing buildings shall demonstrate that the new systems are low-carbon thermal energy systems."

Rationale: See rationale for 1, above.

7. Change lines 115-118 to read:

"If an applicant for a new building is seeking to use a fossil fuel thermal energy system, or an applicant for a large existing building is seeking to use a space conditioning or domestic water system that is a fossil fuel thermal energy system, the applicant shall prior to receiving a permit pursuant to"

Rationale: This language is simpler, more closely tracks the language of the ballot measure, and eliminates the misleading reference to renewables- see rationale for 1, above.

8. In line 119 change “renewable system” to “low-carbon thermal energy system”; In lines 120-121 change “renewable primary heating system” to “low carbon thermal energy system”; In lines 122-123 change “nonrenewable primary heating system” to “fossil fuel thermal energy system”; In line 124 change “nonrenewable primary heating system” to “fossil fuel thermal energy system.”

Rationale: Eliminates misleading references to renewable. See rationale for 1 above. I had trouble following this. Why references to primary renewable heating systems, which will not be a defined term under the amended ordinance?

9. Delete lines 145-154.

Rationale: Since we are not permitting use of renewable gas or biodiesel, this language is unnecessary.

10. I agree with Jack Hanson’s and Councilor Bergman’s proposal to delete lines 156-160.

11. I agree with Jack Hanson’s and Councilor Bergman’s proposal to amend line 163.

12. In Lines 169-170 change “new thermal energy systems that rely on renewable fuel” to “new low-carbon thermal energy systems.” In Line 171 change “purchasing renewable fuel rather than fossil fuel” to “operating a low-carbon thermal energy system rather than a fossil fuel thermal energy system.”

Rationale: Eliminates misleading references to renewable. See rationale for 1, above.

13. In Line 175 after “payor” add “located in the City of Burlington”.

Rationale: The ballot question states that “in the case pf existing building payors,” fee proceeds could be used for “greenhouse gas emissions reductions projects at their building or facilities *in Burlington.*” (Emphasis Added). I assume that you want the reductions to take place in Burlington.

Thank you for considering my proposed changes.

Nick Persampieri

Ward 2

nickpersamp@yahoo.com

Email to Councilor Barlow from Darren Springer 8/2/23

Good Morning Mark,

I can confirm BED can host the next TEUC meeting on August 15th, 5pm, at 585 Pine Street in our Spark Space.

I also wanted to, per the discussion yesterday, try to offer some thoughts in writing on the amendments proposed:

- **Line 35** – the proposal was to expand on thermal energy by adding “from exclusively renewable, non-fossil fuel sources such as:”. I think conceptually this is aligned with the policy intent. One public commenter noted that it could unintentionally adversely affect the use of electrification technologies. I am not clear the change is needed, and would need to better understand the impact it would have, if any, on the policy implementation. My understanding is the concern is whether a building might use a mix of fossil and renewable fuel in a particular appliance or system. So perhaps a better approach is to state separately in addition to lines 145-152 of the ordinance that for renewable liquid or gaseous fuels used in a thermal appliance or system capable of also using fossil fuels to count towards compliance, the building needs to purchase enough renewable fuel to fully offset its annual usage for the appliance or thermal system in question.
- **Deleting lines 52-65** – We are concerned about this change. All the renewable fuel sources outlined in these lines are consistent with language in the state Affordable Heat Act. In addition, for whatever it is worth, BED’s presentations to the NPAs and the voters and stakeholders ahead of the Town Meeting Day vote proposed that the policy could include all renewable fuels and named these fuels explicitly. See, for example, slide 5 from the attached slide deck we used for those presentations. We would encourage TEUC to keep lines 52-65 and not delete them, with the understanding that if the state subsequently takes action to indicate these fuels are not going to be part of state policy due to carbon intensity evaluations, that the City policy already contemplates aligning with those decisions in lines 72-80. Ideally we need all the tools in the toolbox in order for buildings to meet this ambitious new City proposed policy, and we have concerns from a cost and technical implementation perspective about removing options. It also creates a lack of clarity for regulated buildings by taking out these options but leaving a more vague compliance option via lines 67-70.

If the concern is that renewable liquid or gaseous fuels that could be used in conventional systems that also are capable of using fossil fuels might qualify for Burlington’s policy in advance of the Clean Heat Standard work being completed, why not just change “may” to “shall” on line 76 for all such fuels used prior to 2026, at which point the Clean Heat Standard would potentially be finally adopted (and the “shall” could revert to “may” after that time)? Then all applicants using these fuels will be required to submit some analysis demonstrating their fuel used is lower in GHG emissions than the fossil fuel it is replacing, on a lifecycle basis.

- **Correct typo line 68** – agreed
- **Update line 73** – no concerns, might be useful to ensure City Attorney concurs prior to finalizing
- **Lines 145-154** – It was proposed that renewable fuel compliance be changed, and that fuel have a requirement to be physically delivered to a building. The physical delivery requirement at a building level is not consistent with how we track renewable energy in the Affordable Heat Act, in the

Renewable Energy Standard, or in any similar renewable policy I am aware of. Instead, we use renewable energy credits to account for electrons, or clean heat credits to track molecules, when the physical tracking and differentiation is impossible in an interconnected system such as the electric grid or a pipeline system. So we would be concerned about adding a physical delivery requirement to an individual building from a policy standpoint. The building owner purchasing the renewable fuel via a renewable fuel tariff where they own the renewable credits/attributes is a more consistent method of tracking compliance. If TEUC wants to simplify reporting, we would support using annual compliance certifications exclusively as opposed to lifetime contracts for renewable fuels, which as I noted yesterday evening are not to my knowledge currently available.

- **Lines 156-160** – There was a suggestion to delete these lines. We encourage TEUC to retain these lines and this concept, which provides an important incentive for affected building owners to take early action to transition away from fossil fuels and will very likely achieve an emissions reduction impact greater than the underlying policy would require. This was also an idea that came as a result of discussions with stakeholders, and we believe it is important to retain as part of the broader policy proposal.
- **Line 163** – providing for admin costs to administer the fee. No concerns on our end, and I defer to DPI and the CAO ultimately on this provision.
- **Line 175** – A suggestion was made by a public commenter to clarify that sites should be located in Burlington. No concern about this addition.
- **Line 191** – The TEUC discussed prioritizing other purposes ahead of fleet EV conversion. I defer to the CAO on this provision.

I hope these written comments are helpful as you think through the ordinance work ahead of the meeting on August 15th, and of course I am glad to discuss at any time. Thanks for all your work on this important policy proposal.

Thanks,
Darren



NET ZERO ENERGY

BURLINGTON VERMONT



Timeline and Context for Thermal Energy Policy Development in Burlington:

- 2019 Net Zero Energy Roadmap presented by Mayor Weinberger and Burlington Electric
- October 2020 Mayor's Building Emissions Reduction Proposal
- Town Meeting Day Ballot Questions Charter Change March 2021
- Rental Weatherization Standards Adopted May 2021
- Renewable Heating Ordinance Adopted Summer/Fall 2021
- Charter Change Enacted by Legislature/Governor Spring 2022
- Council Resolution May 2022 for Decarbonization
- BED/DPI Interim Report July 2022
- BED/DPI Final Report December 2022





Process Since July 2022 Interim Report:

- The BED and DPI teams held two group stakeholder meetings with building owners on August 30, and October 25, as well as some individual meetings with stakeholders.
- BED participated in a 2030 District webinar with building owners and building design professionals.
- BED has worked intensively with the Building Electrification Institute (BEI) to analyze policy proposals and draw on their expertise working with cities around the nation.
- BED attended NPA meetings to share possible approaches and seek feedback from the community (Wards 1/8 Nov. 9; Wards 2/3 Nov. 10; Ward 5 Nov. 17; Wards 4/7 Nov. 30; Ward 6 Dec. 1).



Buildings Covered Under Proposed Policy:

- New Construction
- Large Existing Commercial/Industrial Buildings over 50,000 Square Feet
- Municipal/City Buildings

Buildings Not Covered Under Proposed Policy:

- ALL Existing Residential Buildings (including single-family, multi-family, rental, condo, and affordable housing buildings)
- ALL Existing Small Business Buildings
- ALL Existing Commercial/Industrial Buildings under 50,000 square feet



Policy Recommendations for New Construction:

- **100% Renewable** - Require, starting in 2024 and subject to voter approval, new construction to be 100 percent renewable for thermal energy, including heating, water heating, cooking, appliances, and other systems.
- **Broad definition of renewable** - including geothermal heat pumps, air source and water source heat pumps, heat pump VRF, advanced wood heating, and conventional systems with renewable fuel supply (such as renewable gas, biodiesel, renewable hydrogen, or renewable district energy).
- **Alternative Compliance Carbon Pollution Impact Fee** – If a building does not use a renewable fuel or technology, assess at time of permit a carbon pollution impact fee accounting for the lifetime emissions of the fossil fuel system.





Policy Recommendations for Large Existing Buildings and City Buildings:

- **Requirement** - Require, starting in 2024, 100 percent renewable technology or fuels for replacement heating or water heating systems at time of permit. If using fossil fuel system, carbon pollution impact fee applies for large existing buildings (with cap of 75% of installed cost of conventional system).
- **Definition of large existing building**- Over 50,000 square feet of space conditioned area. Approximately 80 buildings in the City. Exempts all residential/multi-family/affordable housing, as well as small businesses. Exemption process for historic buildings.
- **Credit for Emissions Reduction** – A building owner taking action to reduce emissions outside the scope of the policy, including purchasing renewable fuel or replacing other systems (cooking, appliances, etc.) with renewable, gets credit against future compliance.





Policy Recommendations for Use of Carbon Pollution Impact Fee Proceeds:

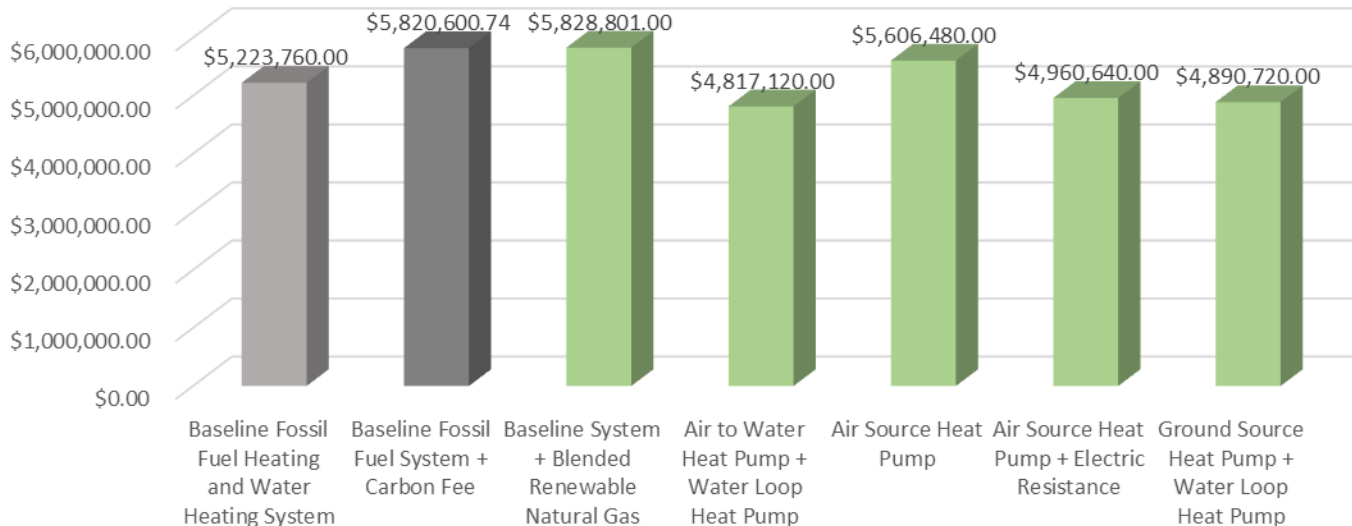
- **City Fleet** – Support capital needs to electrify City vehicles and fleet.
- **Clean Heating Technologies for Low-Income Burlingtonians** – Create new city fund to support installation of clean heating technologies for low-income households and renters, consistent with Advisory Question 7 from Town Meeting Day 2021.
- **For Existing Building Payors** – For fee payors in existing buildings, provide a substantial portion available back to the payor if submit a plan to reduce emissions at their building or facility, including electrification (building systems, vehicles, lawn care) or energy efficiency work.





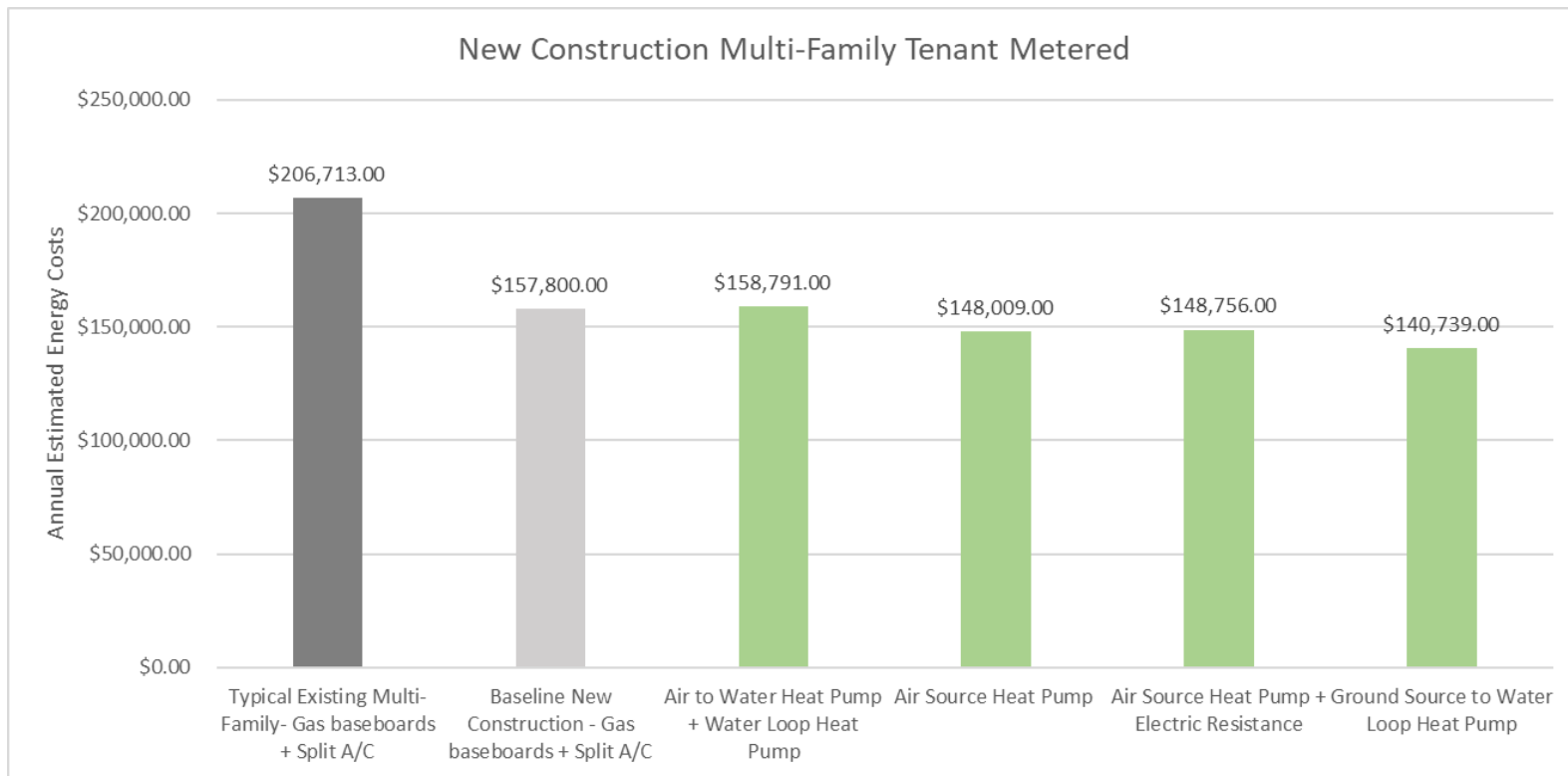
Analysis, New Multi-Family Building Example ~ 150,000 sq ft Upfront Capital Cost

Upfront Capital Cost Comparison - New Building Example



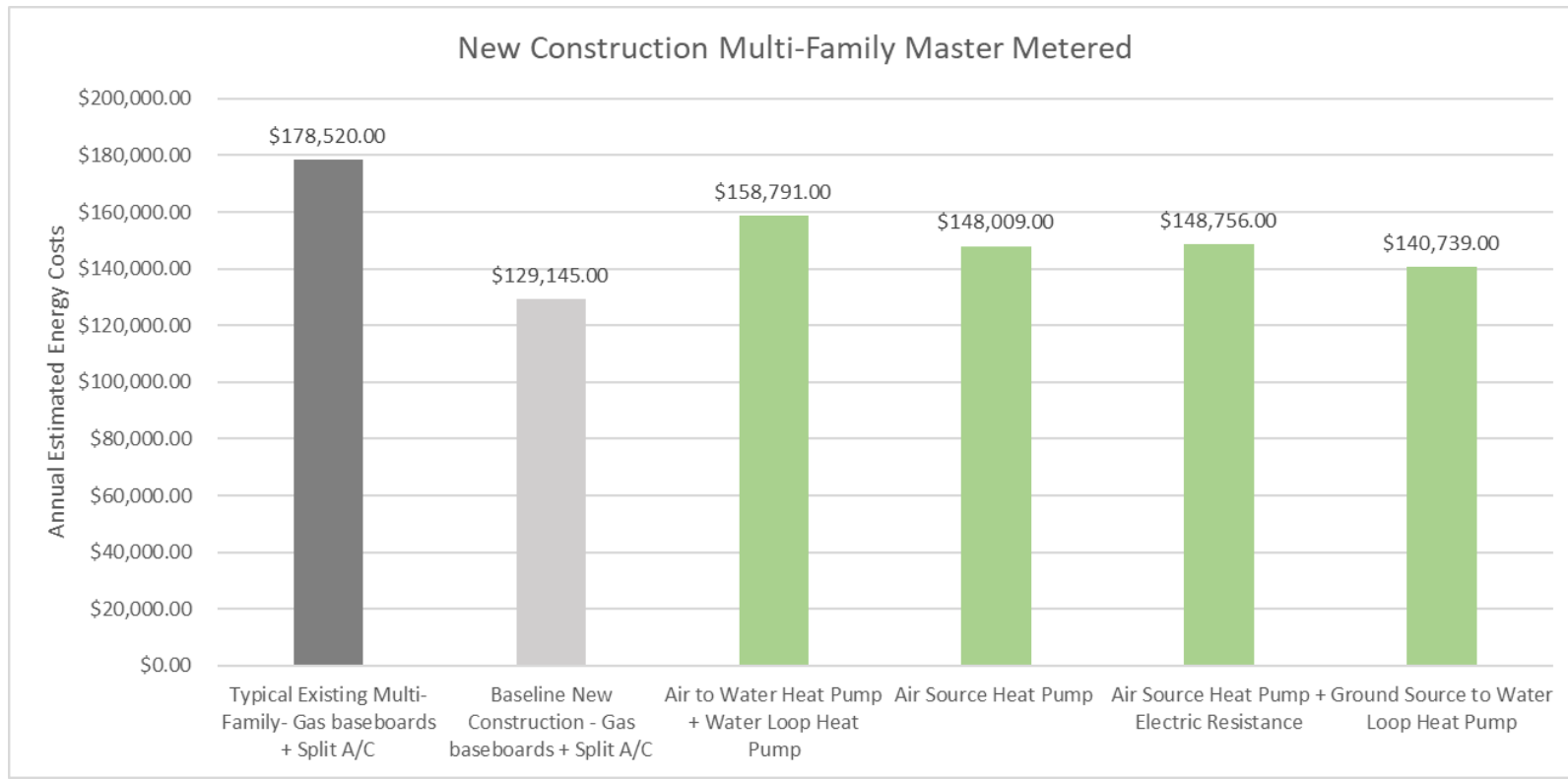


Analysis, New Multi-Family Building Example: Energy Operating Cost Estimates Tenant Metered



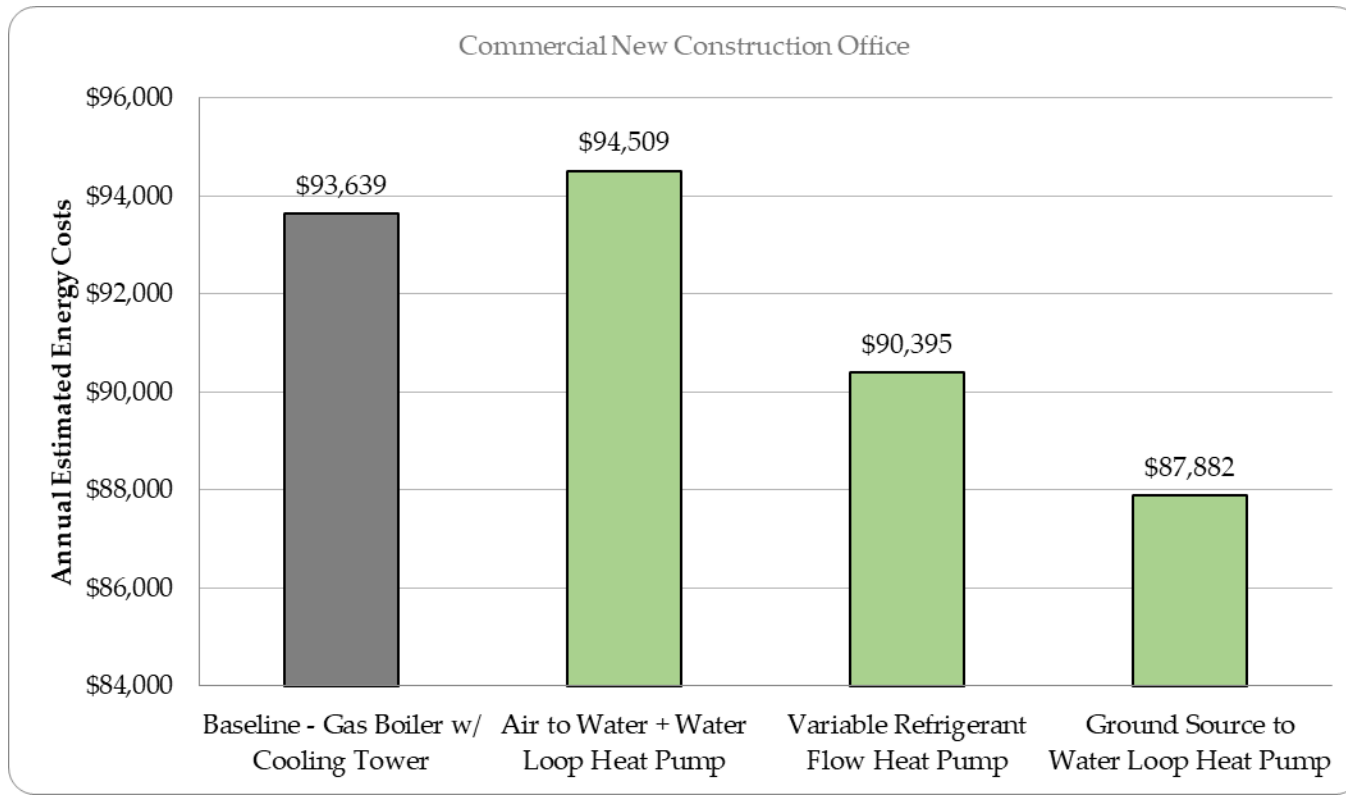


Analysis, New Multi-Family Building Example: Energy Operating Cost Estimates Master Metered





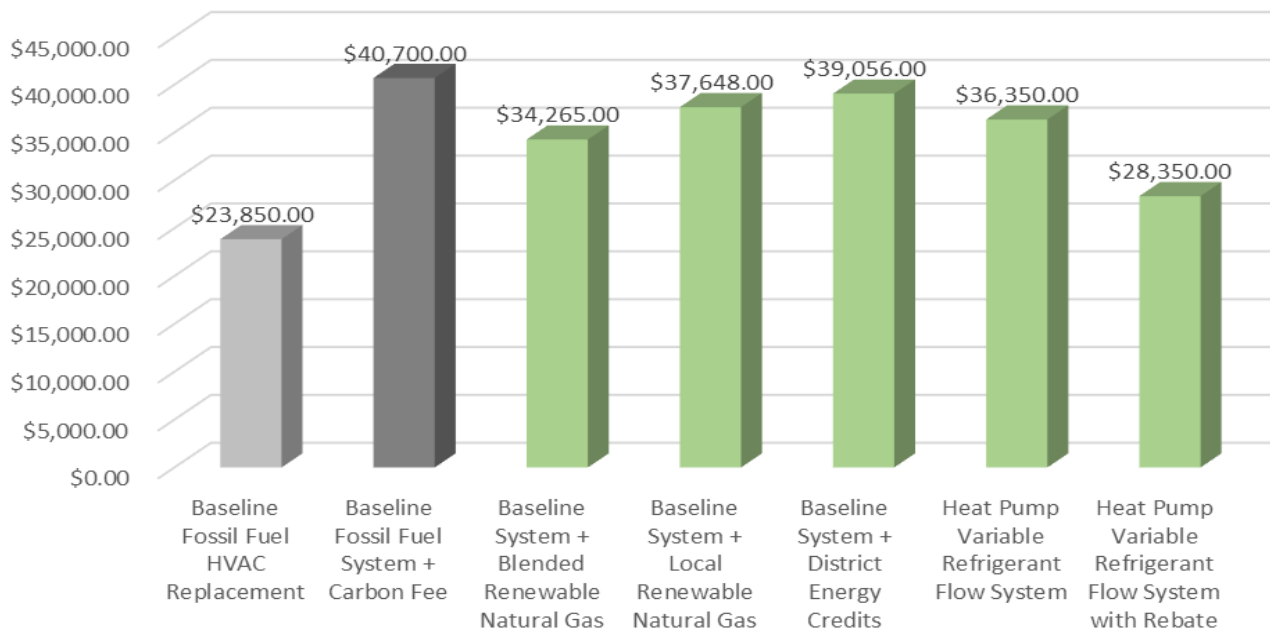
Analysis, New Building ~ 60,000 sq ft Office Example: Energy Operating Cost Estimates





Analysis, Existing Building Example ~ 50,000 sq ft:

Upfront Capital Cost Comparison - Existing Building Example



Delete line 35, replace with:

"thermal energy from exclusively renewable, non-fossil fuel sources **that reduce greenhouse gas emissions**, such as:"

Delete lines 52-65.

Correct typo of the word "receives" in line 68.

Amend line 72 as follows:

Delete "may" and replace with "shall" after the word "Inspections" and before the word "disqualify".

Amend line 73 as follows:

"greenhouse gas emission ~~listed above~~ from being eligible to satisfy the requirements of ~~this~~ section 8-78 for fuels that reduce greenhouse emissions if such"

~~Delete lines 146-154 and replace with:~~

~~"fuel or a renewable fuel that reduces greenhouse gas emissions, an applicant shall demonstrate compliance by providing a contract that shows (a) that the renewable fuel that reduces greenhouse gas emissions is being delivered directly to that building's thermal energy system for the life of that thermal energy system and (b) the estimated quantity of renewable fuel that reduces greenhouse gas expected to be delivered to that building's thermal energy system."~~

~~I am also intrigued with the annual certification system but am interested in not building up the administrative burdens and costs associated with such a system so have not proposed it yet.~~

Language to incorporate an annual cert into the proposed amendment and takes into account some of the concern expressed about lifetime contracts and multi-fuel appliances or systems, replace lines 145-154 with:

" (d) For compliance purposes for all thermal energy systems that are capable of utilizing either a fossil fuel or a renewable fuel that reduces greenhouse gas emissions, an applicant shall demonstrate compliance by providing a certificate and supporting documentary proof, including but not limited to a contract and invoices, on an annual basis stating that the applicant is purchasing renewable fuel that is being delivered directly to that building's thermal energy system, that it reduces greenhouse gas emissions, and that the purchases cover the annual need of the thermal energy system. If the applicant fails to provide an annual compliance certification, the applicant will be assessed an alternative compliance carbon pollution impact fee equal to a pro rata share of the remaining expected life of the thermal energy system. For renewable liquid or gaseous fuels used in a thermal appliance or system capable of also using fossil fuels, to count towards compliance, the purchase of enough renewable fuel to fully offset the annual usage for the appliance or thermal system in question is required.

Delete lines 156-160.

Amend line 163 by adding:

“except those funds needed to administer this ordinance,” after the word “proceeds” and before the word “shall”.

Amend lines 174 & 175 as follows:

Add the words “city of Burlington” after the word “site” and before the word “owned”

Delete line 191. “2. Subsidize the cost of converting the City’s vehicle fleet from fossil fuel to electric.”

Ashley Adams

Comments to TEUC 8/15/23

We know that we need to phase out all forms of combustion from our heat and power sources if we are to stand a chance of meeting our climate goals. It is not about fossil fuels- it's about greenhouse gas emissions from every source. No additional research is needed. We already know that Renewable Natural Gas, Green Hydrogen, Biodiesel, Advanced Wood Heat, and McNeil District Heat are heating sources which will increase greenhouse gas emissions and also have ecological and health implications. Calling something "renewable," "natural," "green," or "advanced" matters not from a climate, ecological or health standpoint. These are words used by those in power to hoodwink everyone else while they go on polluting and making the earth uninhabitable.

Please consider your fellow Vermonters who have suffered, and are still suffering, from catastrophic flooding and wildfire smoke. We are living the climate emergency daily, especially the poor and marginalized. Residents of Burlington who voted on the extremely misleading Ballot Item 2 that lead to this ordinance that was drafted by Burlington Electric, voted on lower Carbon emissions because they are desperate for real solutions. You must enact an ordinance that achieves the spirit of what residents voted for. If you leave these false solutions in the ordinance, you will have failed in this critical task.

I applaud the idea of a Thermal Energy System Ordinance, but it needs to be one that takes us forward. Please do not include Renewable Natural Gas, Green Hydrogen, Biodiesel, Advanced Wood Heat, and McNeil District Heat as permissible heat sources in the ordinance.

Comment emailed by Marcy Kass 8/15/23:

TEUC comment for 8/15/23 meeting, which I observed remotely.

I am Marcy Kass, a member of 350Vermont, Burlington chapter.

Honestly, I was a little relieved that time ran out! I had a case of nerves speaking in front of this impressive group.

Thank you to the committee for doing the hard work of hashing out this ordinance. Especially with all the passionate viewpoints being aired.

Thank you to Nick Persampieri for working on changes to this ordinance.

I support these changes, as I believe our highest priority should be not making our overheated atmosphere worse. (What's the first thing firefighters do when they arrive on the scene of a burning building? They turn off the gas!)

As I zoomed into this meeting tonight, and looked at the complicated graphic of heating and cooling at UVMMC, and listened to comments from UVMMC speakers, I did appreciate their tough job. That's a lot to factor in and make it all work. I appreciate that taking biofuels, natural gas, etc. out of the mix reduces the "tools in their toolbox," making their work even harder.

Was it Phil ? when speaking in favor of Nick P.'s changes, who said, "It's hard work!" But we have to do it.

Otherwise we're just swapping out one kind of polluting energy for another.

I don't think that we in 350VT are unrealistic dreamers.... as I'm imagining that's how we might have come across to some tonight. I think we're holding fast to the reality of our biggest challenge ever.

Where the rubber meets the road is where we have to make good climate decisions. That's where it counts.

I hope you TEUC members manage to do that with this ordinance.

Thank you.



CITY OF BURLINGTON, VERMONT
CITY COUNCIL TRANSPORTATION, ENERGY & UTILITIES COMMITTEE

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Councilor Gene Bergman, Ward 2
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Transportation, Energy and Utilities Committee of the City Council
Tuesday August 15th, 2023 – 5PM

Spark Space BED Conference Room
585 Pine St #4864, Burlington, VT 05401
Masks Optional

Chair Barlow opens meeting at 5:06PM

–DRAFT AGENDA–

1. Agenda

Councilor Bergman moves the approve the agenda as written. Seconded by Councilor King. All in favor, passes unanimously.

2. Minutes of 7.25.23 and 8.1.23

Councilor Bergman moves the approve the minutes as drafted. Seconded by Councilor King. All in favor, passes unanimously.

3. Public Forum

Dave Keilty, UVM Health Network here on behalf of UVMMC – UVMMC is committed to renewable energy. Goes over [diagram](#). See [Memo](#).

Carole Tansey – Not in support of biofuels, specifically wood, as a solution to climate change.

Elizabeth Pulchak, Director of Sustainability at UVM – technical considerations when moving to clean energy systems. See [letter](#). In alignment with the City with goals to decarbonize. We were one of the stakeholders involved with BED in development of the carbon impact fee. We are in support of ordinance as written and voted on.

Dylan Giambatista– Director of Public Affairs with VGS – Supportive of ordinance now as it aligns with Act 18 and State standards. See [comments](#).

Nick Persampieri – See [comments](#). See materials from July 25th TEUC meeting that supports this.

Phillip Merrik – Support for Nick Perampieries views. It will be hard for all to achieve net zero. We all need to cut carbon. We need meaningful action to fight the climate crisis, can't wait for state/federal regulations.

Steve Goodkind – Support Nick's comments. Need language to remove dependence on McNeil.

Kim Hornung-Marcy, 350VT – Renewable does not mean no greenhouse gas emissions. Biomass and Natural Gas are not acceptable. Need to stop burning fuel.

Rebecca Schwarz – Urging committee to be a leader in bringing us to net zero greenhouse gas emissions. Renewable is not enough. Less burning of carbon.

Ashley Adams – We should not be emulating state level. Need to phase out all forms of combustion from heating. Greenhouse gas emissions are the concern. See [comments](#).

Jack Hanson, Run On Climate – We are in Climate Emergency. State is not solving problem which is why we are working at local level here. Large and New Building investing in VGS and BED is not achieving goal of getting off of fossil fuels and achieving Net Zero. Need geothermal and electrification. Need to pay the City to decarbonize here in Burlington when goals can't be met.

Peter Duval – Carbon Impact Fee is not necessary. Need to adopt Passive House Zero Building Code with alternatives such as LEED Zero or Living Building Challenge which would cover all buildings and new construction. Need a built environment that operates with zero energy. McNeil should be phased out.

Cheryl Joy Lipton – Ecologist in Chester – agree with Nick's changes and Peter Duval that we don't need the ordinance. Increased Biofuel use reduces healthy forests and biodiversity. Burning wood is not acceptable. Biodiversity is as important as climate crisis.

Wanessa Rule, 350VT – Biomass is not good for climate. Need to stop burning things. Need to invest in low carbon future quickly. Need to adjust ordinance consistent with Nicks comments.

Chair Barlow asks to move to close public comment. Councilor Bergman moves to close public comment, seconded by Councilor King.

Can submit public comment in writing to meeting materials for the record.

All in favor. Public comment closes 6:07PM

Public [comment](#) submit by Marcy Kass.

4. Ordinance on Carbon Fee

- Councilors, Darren Springer

Chair Mark Barlow – Opens up to discuss process for how this best proceeds through Ordinance Committee and then to full Council.

Councilor Gene Bergman – Submit amendments and would like to consider and vote on them tonight. Would prefer we could reflect this in a draft that goes to ordinance committee. Provide Redline mark up of original ordinance and reflect votes on those amendments and share with Ordinance Committee.

MB - We are joining small subset of cities that place a fee on carbon. Recognize that the draft that came from City was a result of stakeholder engagement. City draft aligns with state efforts. Open to some technical and administrative changes. Prioritizing use of fee collected for use by city fleet.

GB – Added new things since last meeting in bold. Goes through changes laid out [here](#).

Darren Springer – Concern with implementation for first comment on line 35. See [comments](#).

MB – Not supportive of change to remove lines 52-65.

GB – State law is still in development. We should see what result of state process is and then we integrate state level findings to our ordinance rather than including this list in lines 52-65. Have issues with continued support of burning of wood and renewable natural gas (RNG).

HK – Not in favor of deleting lines 52-65. Later on it says we will complement our policy with what the state decides.

MB – Also, not in our current authority from voters.

GB – We have authority to regulate but don't have authority to put a fee on them.

Vote on delete and replace line 35 and deletion of 52-65 – GB in favor, HK and MB appose.

Correct Typo on line 68 – All in favor

Amend line 72 – All in favor

Darren Springer – if you are keeping other sections as you have decided then this change is not concerning but will need to be monitored.

Amend line 73 – All in favor.

Delete lines 146-154 and replace with -

MB – RNG will have some component that is fossil gas and some that is renewable

Dylan Giambatista – Voluntary program for a customer to opt for a percentage of in-state and out of state percentage of RNG in their supply. Dependent of supply mix at that point what is RNG to exact house.

MB – this is part of UVMCC's policy to use RNG. Not in support of directly delivered part. Not sure if this is the right language for compliance certification but I know this area needs work.

MB – votes to remove the word directly – HK seconds, GB votes no. Passes 2-1

DS – agree with removing the word directly. Language should not be limited to a contract and invoices, want to include tariffs. BED does not sell RNG, but want to insure there are options for impacted stakeholders. Support keeping this as part of the mix. Voluntary purchase of RNG should remain and option. Support annual compliance option. Add "Participation in a tariff program".

" (d) For compliance purposes for all thermal energy systems that are capable of utilizing either a fossil fuel or a renewable fuel that reduces greenhouse gas emissions, an applicant shall demonstrate compliance by providing a certificate and supporting documentary proof, including but not limited to a **contract, invoices and subscription or participation in a tariff program**, on an annual basis stating that the applicant is purchasing renewable fuel that is being delivered directly to that building's thermal energy system, that it reduces greenhouse gas emissions, and that the purchases cover the annual need of the thermal energy system. If the applicant fails to provide an annual compliance certification, the applicant will be assessed an alternative compliance carbon pollution impact fee equal to a pro rata share of the remaining expected life of the thermal energy system. For renewable liquid or gaseous fuels used in a thermal appliance or system capable of also using fossil fuels, to count towards compliance, the purchase of enough renewable fuel to fully offset the annual usage for the appliance or thermal system in question is required.

HK, MB, GB all in favor.

Delete lines 156-160 – HK and MB apposed, GB in favor.

MB – Concern that it would take away an incentive for building owners to take early action.

DS – Supportive of retaining this provision. A result of stakeholder input. This allows early action vs waiting for someone to have to pull a permit. If you want to change the date, we are supportive of that.

HK – Would like to keep this. Support Darren's points.

All in favor of moving date on line 160 to January 1, 2024. But keeping language as originally proposed.

Amend line 163 – All in favor.

Amend lines 174-175 – All in favor.

Delete line 191 – All in favor.

DS – Will work up written responses to address UVMC's questions and send to TEUC, Ordinance Committee and UVMC. We can address any concerns at full council if needed.

GB – Want to provide a markup with the work of the amendments by this committee, minutes to reflect the votes and discussion and a memo to come to Ordinance Committee and us related to UVMC's questions.

DS – Will produce redline document with CAO to address changes to provide to Ordinance Committee.

GB moves the referral to the Ordinance Committee of the ordinance as amended by the TEUC along with all of the documents that are pertinent to that – minutes and a communication that lets them know that we have on our website.

Seconded by Hannah King. All in favor. Passes unanimously.

5. Councilors' Update

None.

6. Next Meeting 8/22/23

7. Adjourn

Meeting ends 7:16PM.

Mark Barlow