To: Burlington City Council

From: Darren Springer, General Manager, Burlington Electric Department
David White, Director of Planning, Office of City Planning
Bill Ward, Director of Permitting and Inspections, Department of Permitting and Inspections
Jen Green, Director of Sustainability/Workforce Development, Burlington Electric Department
Chris Burns, Director of Energy Services, Burlington Electric Department

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Subject: Resolution on Decarbonization and Electrification of Buildings

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Burlington Electric Department, the Office of City Planning, and the Department of Permitting & Inspections recommend the following proposal to support strategic electrification of new buildings in Burlington. This work is part of the City's broader effort to achieve Net Zero Energy. The Departments' work on this topic has been ongoing since 2019, and is informed by a May 2020 City Council resolution, a well-attended public meeting held on July 7, 2020, consultation with building developers, and technical assistance provided by the Building Electrification Initiative (BEI) that included reviewing building energy policies in other communities.

The Departments propose a policy that creates two pathways: one for a new building that is not connecting to fossil fuel infrastructure, and one for a new building that is connecting to fossil fuel infrastructure.

Building Electrification and Carbon Price Ordinance Policy

The Departments propose a new Building Electrification and Carbon Price Ordinance policy. The policy would establish a presumption that new buildings would use energy efficiency, electrification and renewable technologies to eliminate the need to connect to fossil fuel infrastructure for thermal or other energy needs. Based on research from BEI, there are a number of initiatives to reduce fossil fuel use in buildings in communities with similar climates to Burlington, but there are few if any examples of cold-climate communities with a track record of experience implementing a complete ban on new buildings connecting to fossil fuel infrastructure. Burlington would be a very early-mover in this space, and as such the policy proposal is crafted to have flexibility to ensure the maximum impact while accounting for economic and technical considerations.

Default Policy Requirement – Not Connecting to Fossil Fuel Infrastructure

The Departments propose, at the time of submitting the initial planning and zoning permit application, a building owner would be required to certify that the building is not going to connect to fossil fuel infrastructure or use fossil fuel for thermal or other building energy needs. If the building owner certifies that the building is not connecting to fossil fuel infrastructure and not using fossil fuel for thermal or energy needs, the policy requirement would be satisfied. These buildings would still be required to meet the applicable commercial or residential energy efficiency codes for new construction. These buildings would also be

eligible to participate in BED's energy efficiency programs designed to encourage building owners to surpass the minimum energy efficiency codes.

Alternative Compliance – Building Carbon Fee and Electric-Ready Code Requirement

If the building is going to connect to fossil fuel infrastructure, the Departments will use a building carbon price tool to calculate the net present value of the greenhouse gas emissions associated with the space heating and domestic hot water heating and other energy needs of the building over a ten year period. The emissions value will be priced using a $100 per ton carbon price (rising with inflation annually). This will be known as the "building carbon price." If the building owner is connecting to infrastructure but presents a contract or binding commitment of at least ten years to purchase renewable fuel for the building, the portion of fuel use that is renewable will not count toward the greenhouse gas emissions for purposes of calculating the building carbon price.

The $100 per ton figure has been utilized by the Vermont Public Utility Commission as a price to account for environmental externality in energy efficiency proceedings. This figure is also currently utilized by the City of Burlington to evaluate fleet purchase decisions. The Departments note that some larger cities have adopted building energy policies that use a higher figure for carbon pricing, including $268 per ton in New York City under its Building Emissions Law. There may be value in reassessing the pricing after several years of implementation to ensure it is effective and is reflective of the most current science and economic data related to the social cost of carbon.

The Departments will develop and share publicly a building carbon price worksheet that provides a user the ability to calculate the building carbon price easily with energy modeling data from the building. The building owner will be required to pay the building carbon price fee as a condition of the permitting process, and the Departments recommend the revenues from this fee be placed in the City's Green Revolving Fund to support energy efficiency and renewable energy projects in municipal buildings, to benefit all taxpayers while reducing greenhouse gas emissions.

The policy would require reopening the permit after ten years, at which point the building owner would again be asked to certify whether the building is still using fossil fuels, or whether it has pursued energy efficiency and electrification and renewable fuels to eliminate fossil fuel use. If the building is still using fossil fuels, the building carbon price would again be assessed for an additional ten years at the price then in use under the policy (including inflation and any subsequent changes). This process would continue every ten years until the building is no longer utilizing fossil fuels. It should be noted that the Departments are still engaging with the City Attorney to ensure that a ten-year reopening of the permit is feasible. If it is not, the Departments will propose an alternative methodology for assessing the building carbon price.

To help illustrate the financial aspects of the building carbon price proposal BEI worked with Burlington Electric Department to review thermal space heating and domestic hot water data for buildings that use natural gas for space heating. For these Burlington buildings, as examples, if just meeting the minimum Commercial Building Energy Standard (CBES) energy code requirement, the ten-year building carbon price compliance range is estimated to be $20,000 for a new office space and $200,000 for a new hotel.

In addition to assessing a building carbon price on new construction projects that plan to utilize fossil fuel infrastructure, the Departments further recommend that this Ordinance

policy require new construction buildings to be “electric ready.” This would include sizing the electric service and electric panel adequately to accommodate future electric needs for thermal energy and other energy needs at the building, as well as pre-wiring adequately to support future electrification efforts at the building that would be necessary to support eventual full decarbonization of the building’s thermal energy and other energy needs. Consideration would be given to ensure upfront costs of this requirement are reasonable and commensurate with intended future benefits. The Departments will work with the Council and Ordinance Committee on potential language to make this requirement effective, with support from BEI.

Conclusion

The Departments believe this new policy will help ensure that new construction buildings in Burlington will either meet Net Zero Energy goals today by not using any fossil fuels for thermal or other energy needs, or be incentivized economically through the “building carbon price” requirements to reduce fossil fuel use in the building as much as possible initially. Further, the “electric ready” requirement ensures the building will be constructed in a way that prepares for a transition to Net Zero Energy, and that retrofitting it will be less challenging and expensive in the future. Finally, the continued ten-year reviews and carbon price assessments will help ensure the building is incentivized to retrofit as needed to meet Net Zero Energy goals.

The Departments propose reviewing the implementation of this policy after two years of implementation practice, to propose any modifications needed to improve the effectiveness of the policy and ensure it continues to conform with efforts needed to advance Net Zero Energy, including reviewing the building carbon price. In addition, if at any time there is enacted a state, regional or national carbon fee that covers building energy use, the Departments would recommend a reexamination of whether the building carbon price as discussed in this memo remains necessary or is superseded by the state, regional or national policy.

Further, the Departments plan to evaluate policies to support moving toward Net Zero Energy in existing buildings once the new buildings policy work is completed. In the interim, Burlington Electric continues to offer strong incentive programs to support strategic electrification and energy efficiency in existing residential and commercial buildings.