MEMORANDUM

December 3, 2025

TO: Cassie Lacy, City of Bend
FROM: Danielle Walker, BrightLine Group
SUBJECT: City of Bend Electrification Fee Study – Fee Design Options

The City of Bend is exploring the adoption of a fee to promote the health, safety, and general welfare of Bend residents and visitors by accounting for and mitigating the negative impacts associated with fossil fuel emissions. The fee may also have the incidental effect of incentivizing the use of electric equipment, further offsetting the economic cost to people in Bend from fossil fuel emissions. Revenues from the fee will be used to pay for the cost of present and future climate responses and/or to fund an incentive program supporting installation of efficient electric equipment in homes.

The purpose of this memo is to outline the proposed fee design methodology and potential policy decisions related to the fee design.

1 Fee Design

A key step in establishing a fee for the installation of natural gas equipment in residential homes is to determine what the fee will be based upon. City staff and BrightLine Group evaluated different approaches for designing the fee, including an approach based on the estimated cost of climate damage caused by natural gas equipment and approaches informed by the market cost of natural gas equipment. This approach is called the Social Cost approach.

City staff determined that the most viable approach to fee design is to use a Social Cost approach because it reflects the payment necessary to offset the harm caused by the use of natural gas equipment and appliances.

1.1 Proposed Fee Structure

The recommended approach for establishing a fee is the Social Cost approach. This approach is based on the monetary value of climate damage resulting from burning natural gas within a home scaled to the type of equipment installed and size of home. This monetary value is commonly known as the Social Cost of Carbon.[1] The Social Cost value is derived using assessment models which link climate science with economics. These models estimate how additional CO_2 changes global temperature, how that temperature change leads to economic damages, and how those damages translate into monetary terms.

[1] There are two generally accepted calculations of the SCC in the US: the Interagency Working Group (IWG) and the Environmental Protection Agency established during the Obama Administration and also used during the Biden Administration.

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The Social Cost of Carbon is not a single value, but instead of range of potential values based on the future value of carbon emissions (the discount rate) and the year in which those emissions are being assessed. The table below provides the range of the SCC for the EPA methodology, which is the most recently updated model. Values are shown per metric ton of CO2. The higher the discount rate, the less future damages are worth in present day terms. The lower the discount rate, the more value is placed on future damages. A discount rate of 0% implies that the damages produced in future years are worth the same as damages in present day. The table below provides the EPA estimates of the Social Cost of Carbon per Metric Ton (MTCO2) in one year increments from 2020 to 2030[2].

Emissions Year	EPA 1.5%	EPA 2.0%	EPA 2.5%
2020	$337	$193	$117
2021	$341	$197	$119
2022	$346	$200	$122
2023	$351	$204	$125
2024	$356	$208	$128
2025	$360	$212	$130
2026	$365	$215	$133
2027	$370	$219	$136
2028	$375	$223	$139
2029	$380	$226	$141
2030	$384	$230	$144

1.1.1 Fee Calculation

A fee using a Social Cost approach is developed based on applying the estimated value of carbon damages to the estimated total amount of carbon produced over the life of the carbon-emitting equipment. The anticipated potential inputs/factors are outlined below, with a few assumptions for illustrative purposes:

1. Social Cost: A monetary value of each metric ton of CO_2 produced – incorporating both the year(s) when emissions are produced and the value of future year damages (discount rate).[3] At this stage in the process, City staff is recommending Council consider of a social cost value of $215, which is the EPA's 2026 value at a 2% discount rate. This discount rate is consistent with the 'central value" in the EPA's most recent report on the Social Cost of Greenhouses[4]. It is also consistent with the value that the City of Ashland uses for the natural Climate Impact Pollution Fee they passed in 2025. Staff will continue to evaluate whether the $215 value is the optimal amount and will make a final recommendation to Council following the upcoming committee review process.
2. Cabon Produced: The total amount of carbon produced by each appliance or equipment within an average size single family home. This is calculated through the equipment's estimated annual

[2] Individual year EPA estimates from 2020-2080 are available in Table A.5 of this report: EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances

[3] As described above, the EPA and IWG are generally accepted sources of these estimates, however the City must decide which specific value within the range should be used.

[4] EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances

energy usage[5] and multiplied by the EPA's estimate[6] for carbon produced per Therm of energy consumed.

3. Life of Equipment: The estimated total number of years the equipment remain in service[7] and produces carbon emissions.
4. Home Tier Scaling Factor: Staff proposes scaling to the size of the home to account for lower or higher anticipated energy usage and carbon emissions. The recommended tiering structure for this fee is:
    a. Tier 1: 0-1,600 square feet
    b. Tier 2: 1601-3,000 square feet
    c. Tier 3: >3,000 square feet

    The average home size in Bend is about 2,300 square feet, which would place the average home in Tier 2. The scaling factor value for each tier will be determined based on relative impact of homes within tier sizes. The scaling factor still needs to be determined.

These inputs are multiplied together to get the total fee amount:

Social Cost x Carbon Produced x Life of Equipment x Tier Factor = Fee Amount

This fee is calculated by equipment type, shown in the table below. Each piece of equipment installed would have a separate, additive fee amount applied. For example, if a Tier 2 (1,600-3,000 sq ft) household chooses to install all the natural gas equipment in the table below, the total fee to that home would be $13,857. The actual fee amounts will vary for every household based on how many and which natural gas appliances they install and what tier they fall within. For example, a home that also installs each of the natural gas appliances in the table below but falls within Tier 1 (0-1,600 sq. ft), would pay a lower fee.

Equipment	Carbon Produced (MTCO2)	Service Life	Social Cost	Tier 2 Fee Amount
Gas Furnace	2.95	15	$215	$9,522
Gas Water Heater	0.67	15		$2,093
Gas Stove	0.37	10		$785
Gas Dryer	0.22	10		$478
Gas Fireplace	0.46	10		$979

[5] For this analysis, energy usage by equipment type comes from the Regional Technical Forum
[6] Emission Factors for Greenhouse Gas Inventories
[7] For this analysis, service life comes from the Regional Technical Forum

Total Max Fee				$13,857

1.1.2 Fee Policy Decisions

The fee amount and the fee administration can be modified in order to best achieve the City's policy objectives. Two key policy decisions for the City to determine are 1) if the fee should be scaled down to reduce the overall cost of the fee and 2) if any building types should be exempt from the fee.

1.1.3 Fee Level

The fee calculation in Section 1.1.1, above, is designed to accurately estimate the financial cost to the City over the service life of a fossil fuel burning appliance and therefore represents the *maximum* fee that the City would impose based on the Social Cost approach. Charging a fee at this maximum amount will fully reimburse the City for climate damages resulting from the installation and use of natural gas appliances. Additionally, the maximum fee would have the incidental effect of incentivizing more households towards installing efficient electric equipment. However, the City may choose to charge a lower amount in order to achieve or balance additional policy goals and priorities. Determining the optimal fee level to achieve the City's climate goals in balance with other City priorities will be an important policy decision for the City to make in establishing this fee.

1.1.3.1 Revenue Generation

The total amount of revenue generated through the fee is dependent on both the fee level, and the number of people that will choose to pay fee rather than convert to electric equipment. The table below provides an example of the changes in revenue depending on the fee level that is set[8].

Fee Amount	Low Fee	Medium Fee	High Fee
Fee Amount	$5,543	$9,700	$13,857
# Homes that pay fee, keep gas equipment	431	367	249
Total Fee Revenue	$2,386,883	$3,562,499	$3,444,039

1.1.4 Exemptions

The City may choose to create exemptions from the fee for certain situations or building types in order to minimize negative impacts from the fee or to otherwise balance other City policy goals – for example, for affordable housing units. The City can work with stakeholders to determine what exemptions are most appropriate for this fee.

[8] Revenue estimates are based on a fee amount for average size home (Tier 2) with an estimated 700 new homes built per year, consistent with current average construction rates

1.2 Other Approaches Considered

In addition to the Social Cost approach recommended, City staff further explored options for developing a fee informed by the relative difference in market cost between natural gas equipment and efficient electric equipment. Based on collected regional cost data[9] of both gas and efficient electric equipment[10], the purchase and installation of efficient electric equipment is, on average, about $13,000 higher than gas equipment[11]. This amount is based on average assumptions of home size, energy usage and publicly available cost data and is likely to vary for any individual new home. It may also vary over time depending on market and economic conditions.

City staff ultimately determined a fee design based on market costs would be not be viable for several reasons. First, it would be administratively burdensome to require the City to modify the fee amount every year based on changes in equipment or related fees. Second, measuring the actual cost of installing inefficient or natural gas equipment is difficult and varied depending on the contractors, housing characteristics, and market conditions. As a result, the fee likely would not accurately capture all transaction costs related to installing inefficient electric or natural gas appliances. Third, a market rate fee that is equal to or exceeds the cost of installing natural gas equipment could be construed as a de facto ban on natural gas appliances in violation of the Ninth Circuit's *Berkeley* decision. Finally, a Market Rate fee could be construed as a tax, rather than a fee, because the amount is not based on the economic harm caused by fossil fuel emissions. This is a significant risk that points strongly to the Social Cost approach, which offers a strong rational basis for the fee, rather than being construed as a tax.

[9] Regional cost data of gas and electric equipment was collected through the Northwest Power and Conservation Council's Regional Technical Forum

[10] Gas equipment included: forced air furnace, water heater, stove and dryer. Efficient electric equipment: air-source heat pump, heat pump water heater, induction stove, heat pump dryer.

[11] This does not include any potential line extension costs, which, if applied, would reduce the incremental cost over gas equipment to around $9,000.