MEMORANDUM

TO: Environment and Climate Committee, City of Bend
FROM: Kavi Chokshi
DATE: May 14, 2026
RE: Prioritizing Consumption-Based Emissions and Materials Actions

Dear ECC, I have served on the ECC since its founding. While I've greatly enjoyed being a part of it, and find it highly rewarding, I've often felt we overlook consumption-based emissions.

There are three things I want to cover today:

1) Consumption-based emissions are being under-addressed
2) Culture shift and visibility matters
3) Prime targets to explore

1. Consumption-based emissions are being under-addressed

According to the original CCAP, emissions generated outside Bend's boundaries during the production of goods, food, and services consumed here totaled 871,543 MT CO_2e – nearly equal to all sector-based emissions produced locally. The 2025 CCAP Update showed that this only accelerated: 2021 imported emissions reached approximately 1.2 million MT CO_2e, more than double Bend's local emissions that year. Meanwhile, consumption-based emissions grew by 10% between 2016 and 2021, even as local waste emissions remained stable.

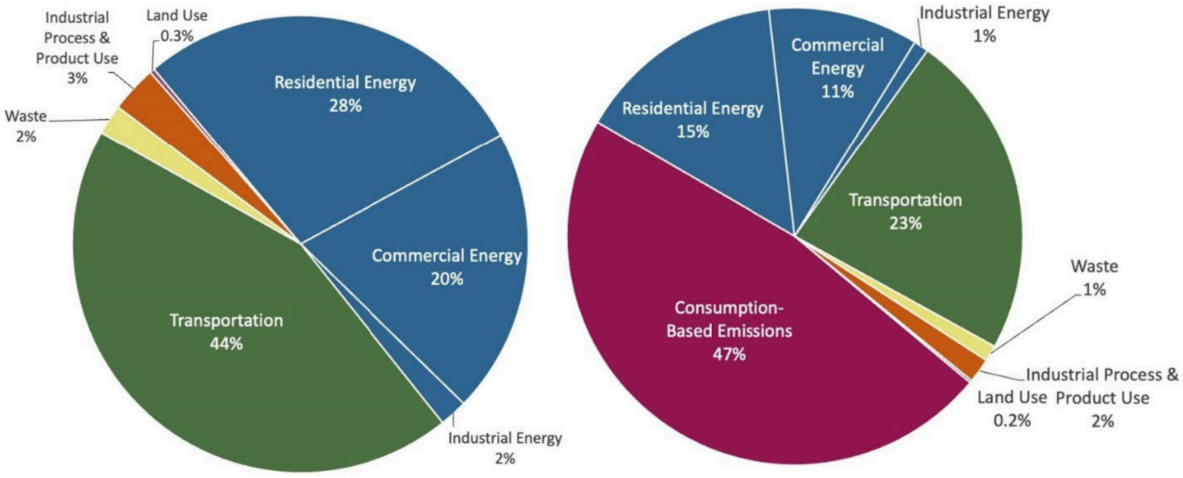


Figure 1. Bend's 2021 Local GHG Emissions (left) and Local + Imported GHG Emissions (right)

As the table and charts below show, Goods and Food account for more than Building Energy or Transportation.

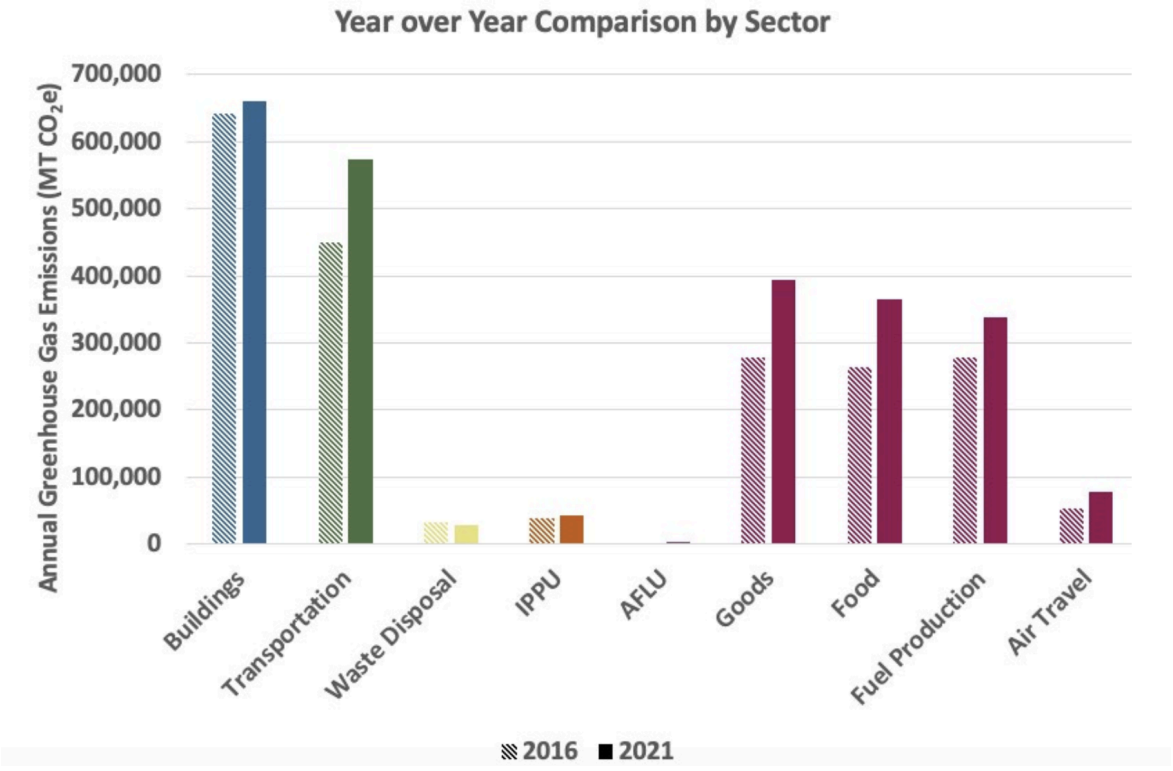
Table 1: Emissions in 2016 versus 2021

Inventory Year	Building Energy MT CO_2e	Transportation MT CO_2e	Waste Disposal MT CO_2e	Refrigerants MT CO_2e	Land Use Change MT CO_2e
2016	641,490	449,307	33,603	39,370	n/a
2021	660,446	574,586	28,016	43,440	4,329
% Difference	+3%	+28%*	-17%	+10%	n/a

Inventory Year	Goods Production MT CO_2e	Food Production MT CO_2e	Fuel Production MT CO_2e	Air Travel MT CO_2e
2016	278,523	263,569	279,364	52,570
2021	393,802	365,624	338,460	77,561
% Difference	+41%	+39%	+21%	+48%

Inventory Year	Local Emissions Total MT CO_2e	Per capita MT CO_2e	Imported Emissions Total MT CO_2e	Per capita MT CO_2e	Community Total MT CO_2e	Per capita MT CO_2e
2016	1,163,771	**13.9**	874,025	**10.5**	2,037,796	**24.4**
2021	1,310,817	**12.8**	1,175,447	**11.5**	2,486,264	**24.4**
% Difference	+13%	**-8%**	+35%	**+10%**	+22%	**-0.2%**

Figure 10: Comparison of Bend's community emissions from 2016 to 2021



The scale of the emissions from household consumption is almost equal to sector-based emissions generated locally, which supports the need to address these emissions during the community climate action planning process.

However, because the emissions from household consumption are generated outside of Bend, the community has less control over the energy sources used and the efficiency of production. What the community does have control over is our choice of what kinds of products and services to buy. For example, consumers can choose to buy goods and services from companies that work to lower their carbon emissions. They can also be mindful of their consumption and choose to buy less and reuse what they do buy, rather than constantly buying and disposing of new products.

The emissions from non-fossil fuel sources and the emission from household consumption and upstream energy emissions are not included in Bend's fossil fuel reduction goals, since they do not come from direct fossil fuel consumption within the Bend community. However, they are a significant and meaningful part of Bend's climate impact, so there are strategies in this plan that address them.

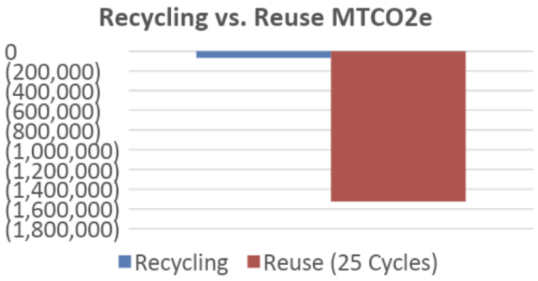

Photo: Elemental Energy

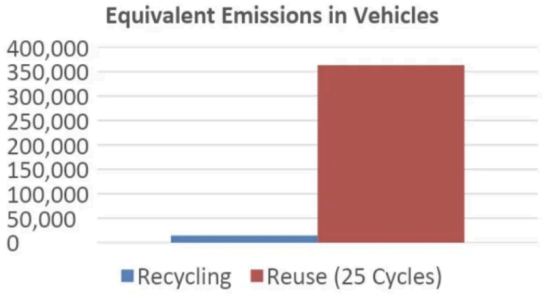
The conclusion of the original CCAP even specifically called out that any future Plans should focus more on consumption-based emissions.

Greater focus on consumption: The Bend Community Greenhouse Gas Inventory found that the impact of the goods, food, and fuel we consume that occurs outside of the community boundaries is greater than the emissions that occur within our City. The Climate Action Goals established in Resolution 3044 were centered on fossil fuel use within the City boundaries, so the goals and analysis were completed without including the impact of the consumption-based emissions. With an understanding of how significant the impact is from consumption, the next Plan should focus more on this topic and include consumption emissions in its stated goals.

This report from Maine from Upstream's blog post on Reuse & Climate shows the surprisingly large emissions reduction potential with reuse:

> The consumption-based emissions reduction potential of reuse and repair in comparison to end-of-life management strategies like recycling can be calculated using the US EPA's **Waste Reduction Model**. Using this tool, Maine was able to model the emissions savings resulting from reusing (over 25 use cycles) the actual tonnage of metal, glass, and plastic beverage containers that were recycled in Maine in 2022. The results showed significant emissions savings with reuse—equal to removing 363,349 passenger vehicles from the road for a year—over recycling, which equals removing 14,388 vehicles. (For reference, there were **779,428 registered passenger vehicles** in Maine in 2023).





2. Culture shift and visibility matters

In addition to the meaningful emissions reduction potential from reducing household goods and food and other materials, we also want to note that many of the tangible W&M actions also provide some of the greatest opportunity to help inspire a culture shift in Bend.

Excerpt from an email from a community member in December 2021:

"The strategies in the Bend Community Climate Action Plan are fantastic and more than commendable, but they are not always visible. They do not necessarily help transform how we Bendites perceive the nature in our daily lives.
[…]
Currently, waste is normalized and implicitly sanctioned at food trucks. But if, after eating my perogies at The Podski, I had to further sort my waste into trash, recycling, and compost, I would linger with it longer. I would think of the waste's future. I would think of its relationship its past—the labor and resources that made it. I would think of its relationship to the public sector—to the collective funds that help transform it back into soil. I would *experience* myself as an agent—both an actor and a participant involved in a political reorientation of ethical living. I'd be *involved*. And I would *see* objects differently." - Luke Donahue, by email to ECC on December 29, 2021

According to the Intergovernmental Panel on Climate Change (IPCC), demand-side mitigation strategies – which heavily rely on shifting cultural norms, behaviors, and consumption choices – can reduce global greenhouse gas emissions in end-use sectors by 40% to 70% by 2050.

I believe we have the opportunity to prioritize actions that not only have an impact behind the scenes, but also model climate action and sustainability in the daily lives of residents and visitors – creating behavior change and a shift in our town's culture.

3. Prime targets to explore

I want to call out two prime targets:

A. Reusable foodware
B. Construction waste

A. Reusable Foodware

The Environmental Center's Dish program (formerly Reuse Deschutes) has received three grants to help switch Central Oregon's food service sector from single-use ware to reusables:

- $125,000 from Oregon DEQ (Reduce, Reuse, Reimagine Materials Management Grant)
- $15,000 from City of Bend (Climate Action Partner Grant Program)
- $100,000 from Visit Bend (Bend Sustainability Fund)

These one-time grants will help implement a reusable foodware system for both to-go meals region-wide and for-here meals and drinks at food cart lots and events. We believe the City can play a role in further expanding the reach and success of this initiative, including by exploring policy measures that help incentivize businesses and help level the field for them.

This work aligns directly with multiple CCAP strategies and co-benefits:

- Advances W5 and W6 by reducing single-use packaging at the source, preventing both the upstream production emissions and the downstream landfill impact of disposable food service items.
- Advances W1B by establishing reusable foodware standards at events and tourism-facing venues, where ~2-3 million annual visitors generate outsized waste.
- Demonstrates municipal leadership – consistent with the CCAP's governance framework, which calls on the City to be the primary implementer of strategies and to lead through its own operations.
- Delivers co-benefits the CCAP prioritizes: economic vitality (reduced purchasing costs for reusables over time), community health and equity (reusables eliminate concerns about chemical leaching from single-use plastics), and alignment with Bend's outdoor recreation identity and protecting our natural environment (reduced litter).

This is also the action the previous M&W Working Group had prioritized for this biennium. We think there's a lot of momentum in this space that the City can leverage right now.

For further context on how reuse fits into climate planning frameworks, Upstream Solutions has published useful guidance for local governments at https://upstreamsolutions.org/climate-plan-recommendations and

https://upstreamsolutions.org/blog/reuse-climate-action-for-governments-to-take

There are also model policies available through both Upstream Solutions and Story of Stuff:

https://upstreamsolutions.org/model-policies

https://www.storyofstuff.org/passing-policy/

These include:

- Accessories only on request
- Only reusables for on-site dining
- Bringing reuse into take-out
- Reusable cups at events and city facilities

B. Construction

Bend is growing at one of the fastest rates in Oregon. Our greenhouse gas inventory acknowledges that population growth is increasing community emissions "at a faster rate than the reductions from Oregon's related policies." Approximately 325 new single-family homes are projected to be needed annually through the near term, and that figure does not account for commercial, multifamily, and infrastructure development. Every new building represents a significant embedded carbon commitment – in the materials used, the waste generated, and the opportunity either seized or missed.

The CCAP includes two strategies directly targeting this opportunity, both of which remain underimplemented:

- W4 – Construction & Demolition (C&D) Waste Recovery (Strategy W4A): The CCAP identifies C&D waste as a high-impact stream and calls for expanding programs to increase recovery and reuse of construction and demolition materials. This action has not yet been initiated. C&D debris is our largest category of solid waste, and so with our challenges siting a new landfill, there's an opportunity to explore effective solutions here.
- W2 – Low-Carbon Concrete (Strategy W2A): The CCAP estimates this strategy alone could achieve 240,000 MT CO_2e in cumulative reductions. Concrete is the most-used building material in the world and one of the most emissions-intensive. By requiring or incentivizing low-carbon concrete mixes in City projects and new development, we can curb emissions reductions directly as we grow rather than just managing the waste.

Additionally, ODEQ's research cited in the CCAP appendix highlights that the building materials category is one of the largest contributors to Bend's consumption-based emissions, alongside meat, transportation fuels, clothing, and furniture. Smaller homes, denser development, and buildings designed for longevity and adaptability all reduce embodied carbon – a principle already embedded in CCAP Strategy EB4 (promoting smaller homes and denser housing options) but worth reinforcing as a materials lens, not just an energy lens.

This is an area the previous M&W Working Group had also wanted to explore further.

4. Discussion

What does ECC think? Is there interest in a working group to explore this further and report back with recommendations to the full committee?