

2050 Vision for Materials Management

DEQ's approach to sustainable materials management

Benton County SMMP Kickoff

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Oregon Department of Environmental Quality

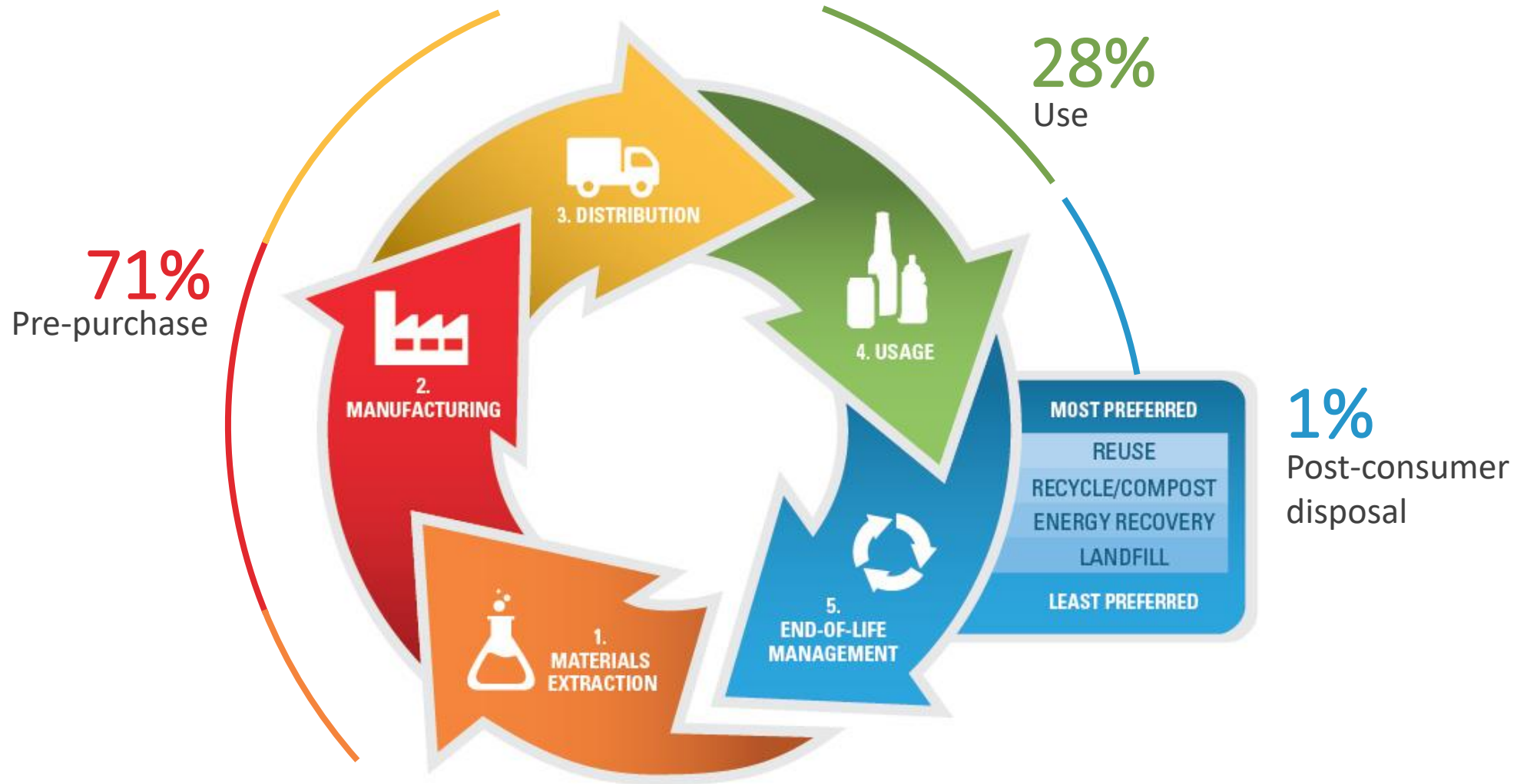


2050 Vision and Framework for Action

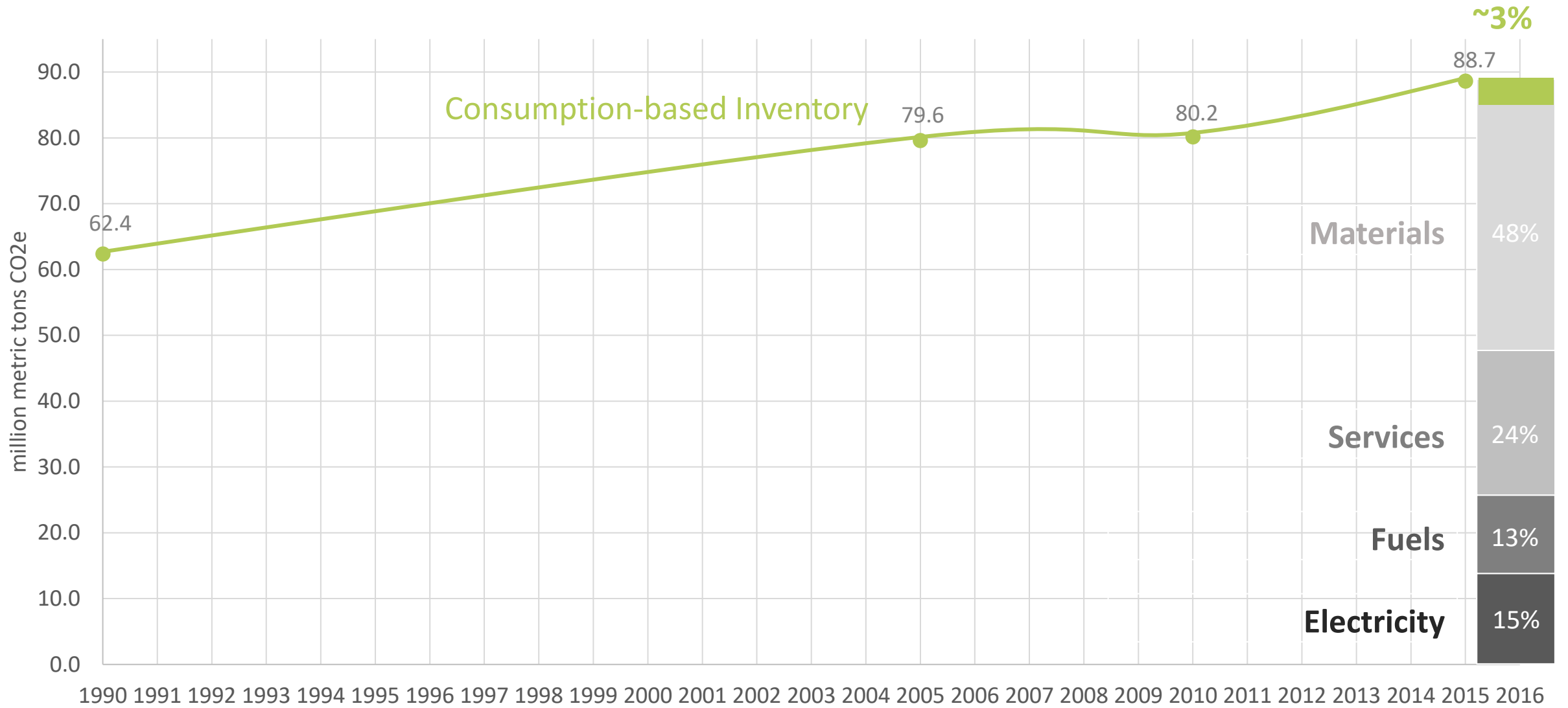
shift from **waste management** to **sustainable materials management**



Why? Most emissions occur upstream



Why? GHG emissions reduction with full recycling



Source: DEQ 2018



identifying priorities



Oregon's emissions inventories

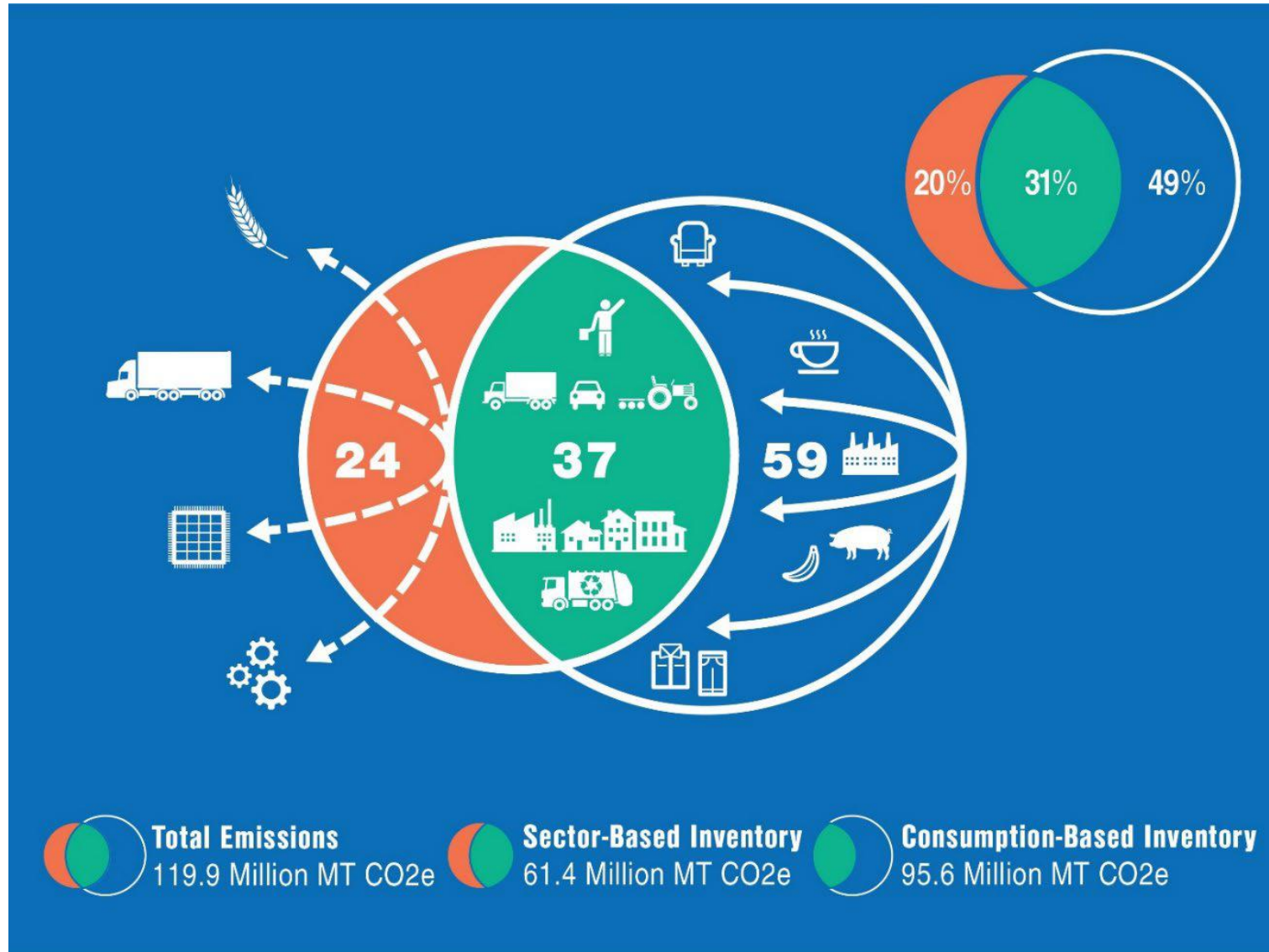


Chart Source: DEQ 2024



Oregon Sector- and Consumption- based Greenhouse Gas Emission Inventory (1990-2021)

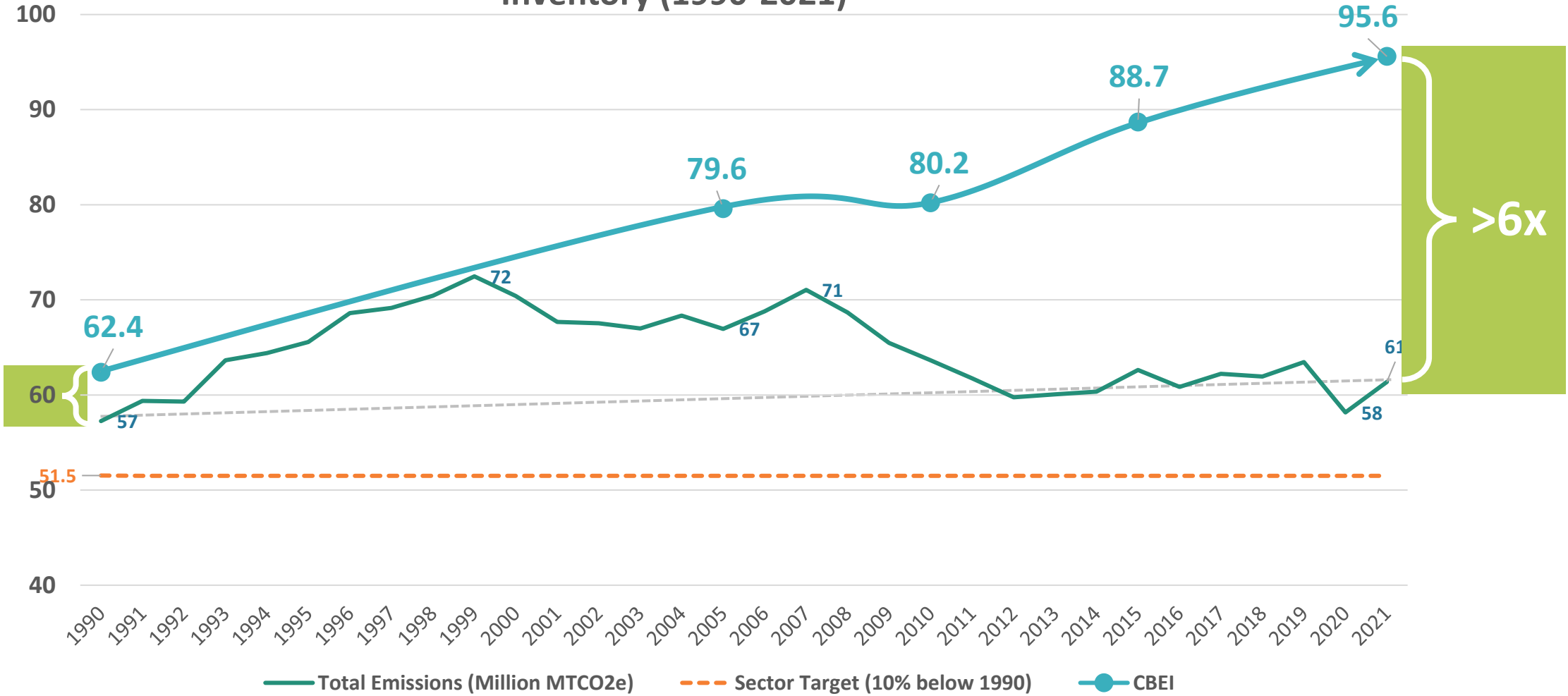


Chart Source: DEQ 2024



Major categories of consumption-based GHG emissions

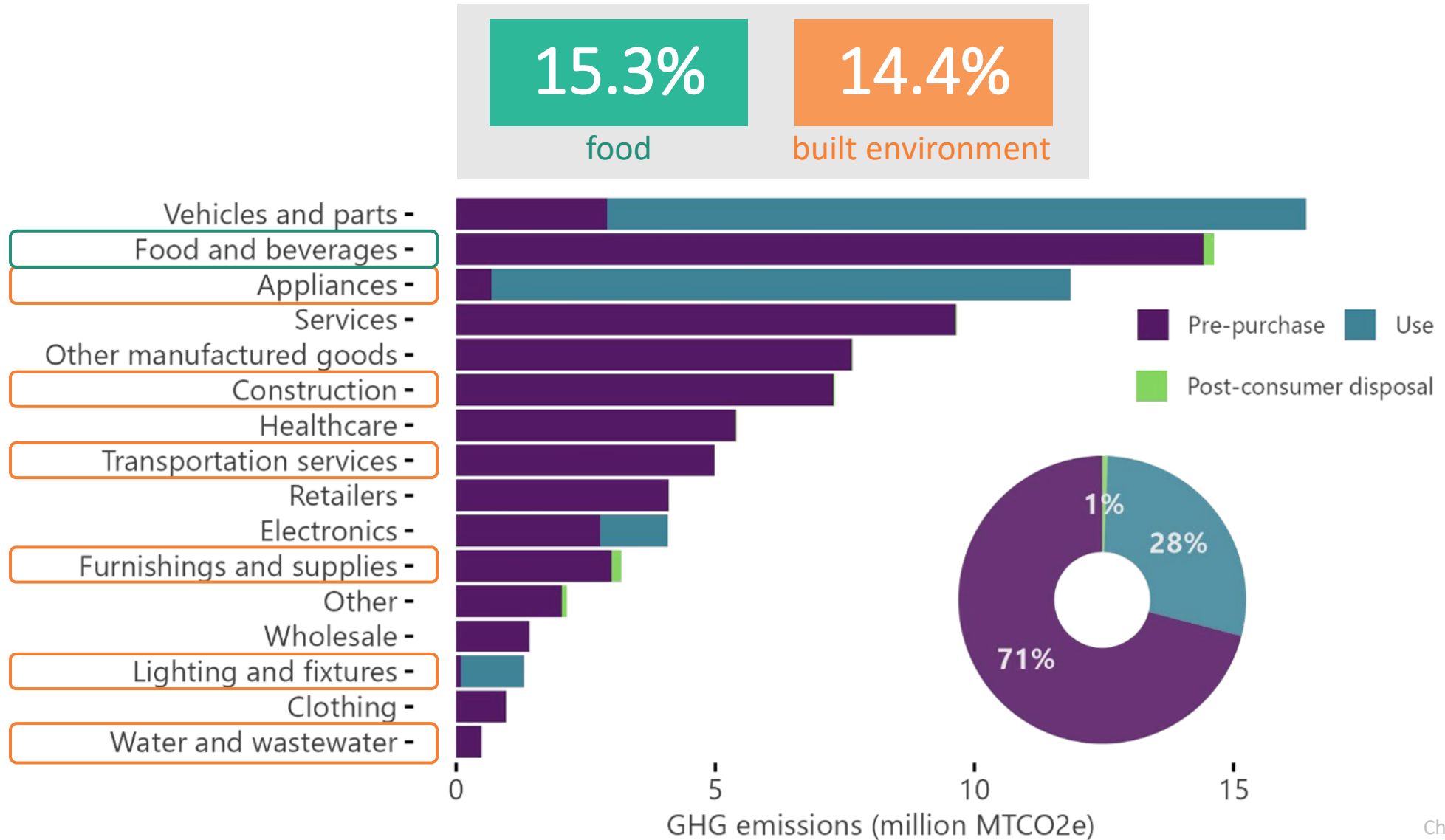


Chart Source: DEQ 2024

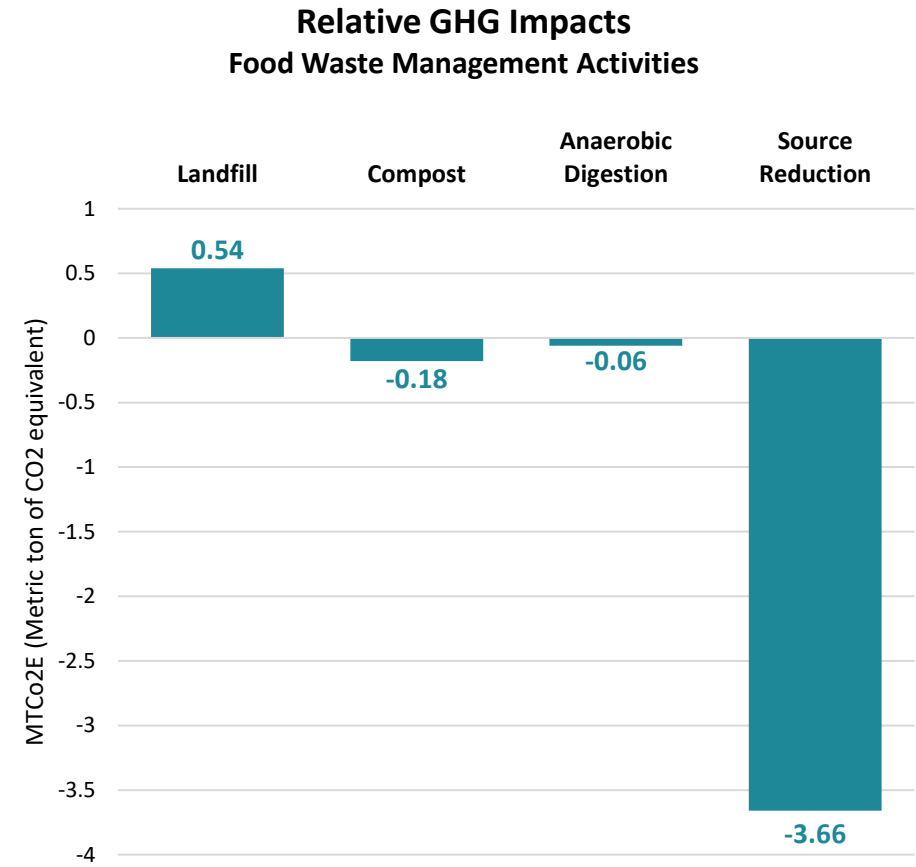




25-40%

OF ALL FOOD

grown or
imported into the
U.S. for human
consumption is
never eaten



Data are from EPA's Waste Reduction Model (WARM)





2% of all US energy use

(enough to power 54 million homes)

to grow, manufacture, transport,
refrigerate, and cook food that
is never eaten



1 year of Oregon GDP

annual total cost
of wasted food in
the US

Life cycle GHGs of building materials

91%
material production

8%
construction

< 1%
end-of-life





2x global building stock

by 2060, add 2.5 trillion sq ft
+1 New York City every 34 days
for the next 40 years

<2.3%

of chemicals are
monitored, tested, or
regulated through TSCA





28M

people held in forced
labor servitude globally

160M

children subject to
child labor globally



built environment opportunities



Previous high impact projects

Small housing



Concrete



Deconstruction

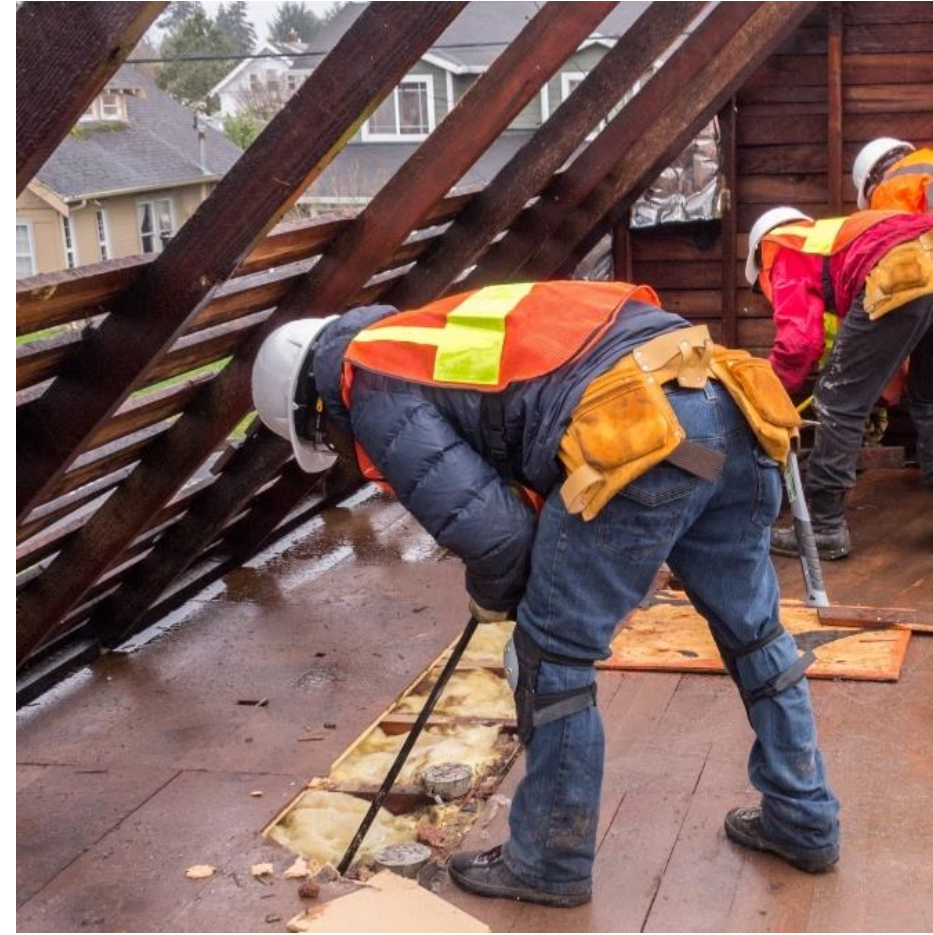


Figure 2-5. Projected consumption-based emission reductions in the built environment sector

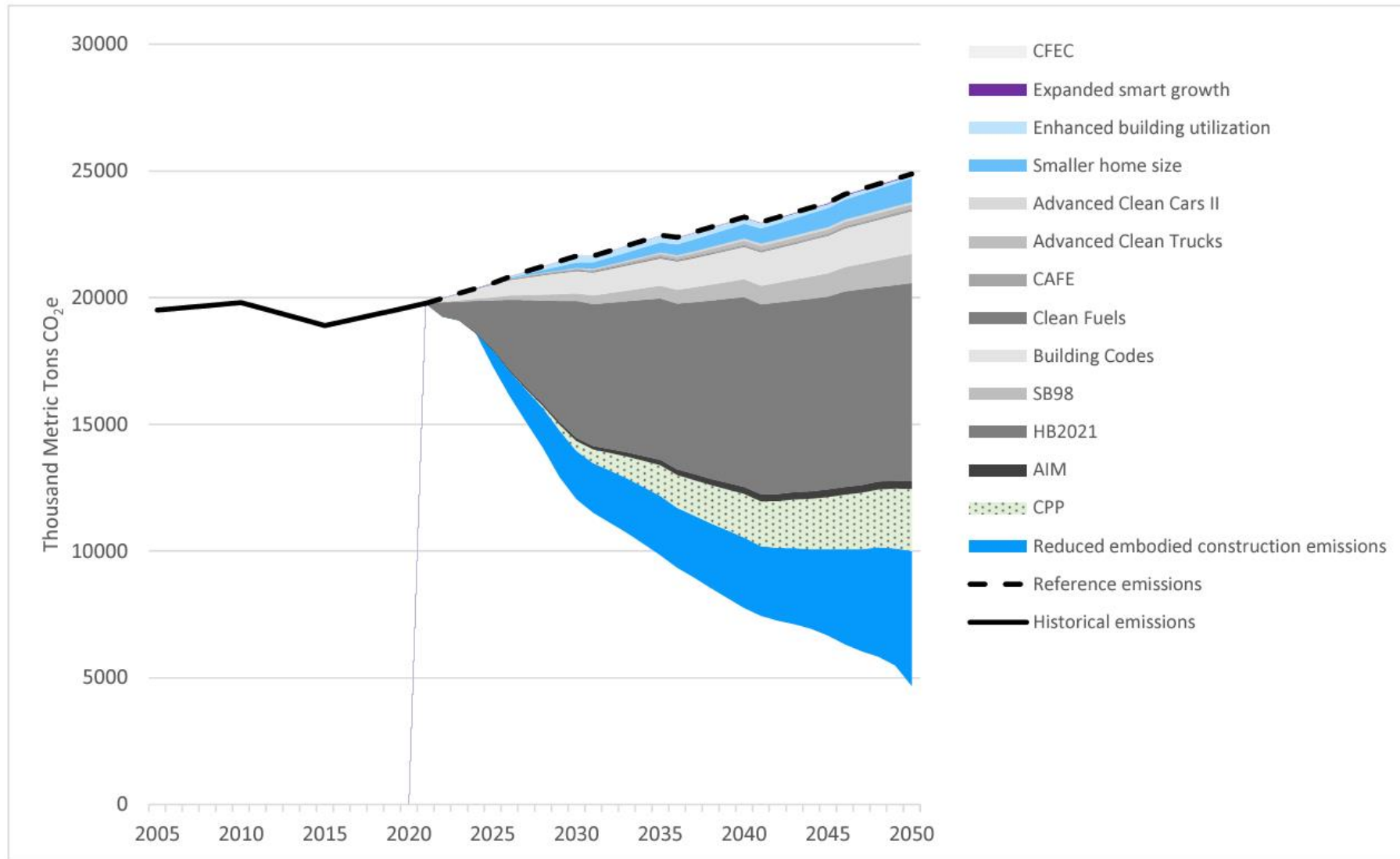


Chart Source: SEI 2024



Climate Pollution Reduction Grants



Zero Emission Vehicle Rebates

\$31 million



Electric Vehicle Chargers

\$10.9 million



Medium- and Heavy-Duty ZEV Rebates

\$14.8 million



Medium- and Heavy-Duty ZEV Grants

\$6 million



Medium- and Heavy-Duty EV Chargers

\$3 million



Energy Efficient Housing Incentives

\$21.3 million



Building Performance Standards Incentives

\$12.1 million



Heat Pump Incentives

\$25.3 million



Residential Weatherization

\$8 million



Building Reuse and Space-Efficient Housing

\$25.6 million



Food Waste Infrastructure

\$28.9 million



Landfill Gas Controls

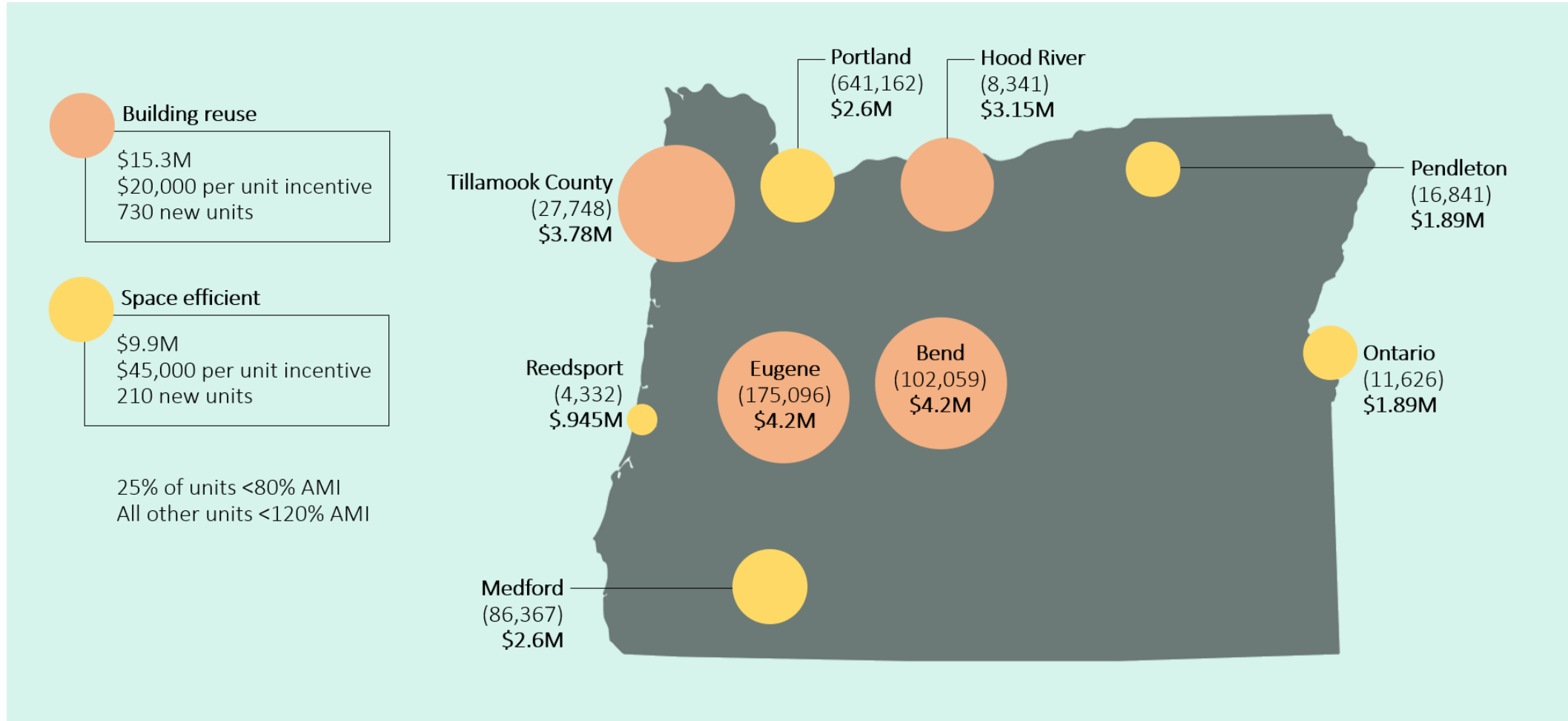
\$6.6 million



\$197 Million for Oregon



Climate Pollution Reduction Grants



PNW EPD Partnership

- \$3.5 million from U.S. EPA
- Partners:
 - International Code Council
 - Washington Department of Commerce
 - Oregon DEQ
- Support 200 regional manufacturers to develop EPDs
- Technical and financial assistance



- Focus on carbon intensive and other high priority materials:
 - Concrete
 - Asphalt
 - Steel
 - Structural Wood
 - Emerging products

Embodied carbon in building codes

- HB 3409, Section 7
- Study options for reducing embodied carbon emissions in statewide building code
- Study options for reducing embodied carbon emissions through other means





Holistic life cycle impacts



Material flows and impacts research

- 8 high priority building materials
- Map supply chain and identify impacts in places across the supply chain
- Holistic impacts: climate, health, ecological, social



Food: a sustainable materials management approach

SMMP Task Force Kickoff
October 21, 2024



Why wasted food?

35%

of the food we grow and
import for human
consumption
is wasted



Annual resources used to grow wasted food

Land: Over 140 million acres of agricultural land, an area the size of California and New York state combined



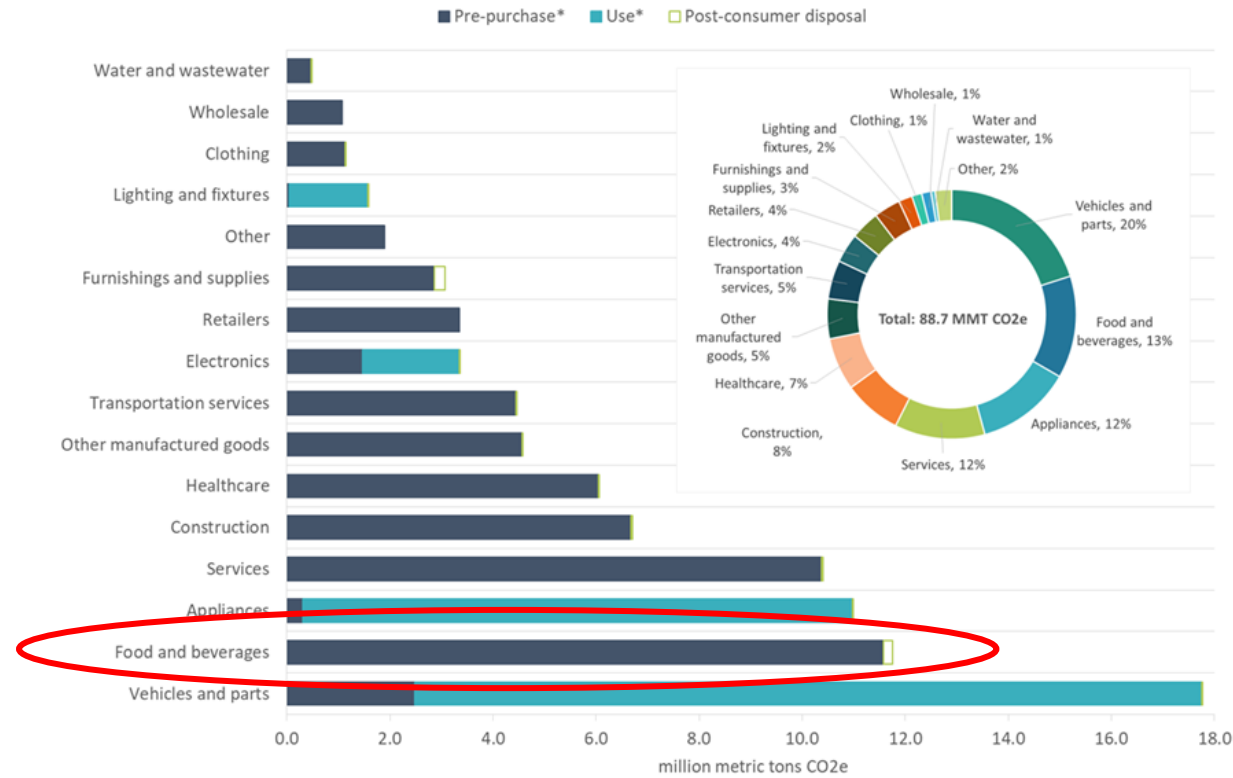
Water: 5.9 trillion gallons of fresh water, equivalent to the water use of well over a third of all U.S. households

Energy: 664 terawatt-hours of energy, enough to power over 50 million U.S. homes for a year



Fertilizer: 14 billion pounds of fertilizers, which the Environmental Protection Agency estimates is enough to grow all of the fruits, vegetables and grains grown and consumed in America each year

Food GHG impacts in Oregon – consumption lens



* "Pre-purchase" are all emissions that occur prior to final purchase, including production, supply chain, transport, retail and wholesale. "Use" refers to emissions resulting from the use of vehicles, appliances, electronics and lighting. Other categories (e.g., food and clothing) have use phase emissions that are accounted for elsewhere. For example, emissions from cooking and laundering are both assigned to the category of "appliances", which include ranges and clothes dryers.

2015 Oregon GHGs emissions by category + lifecycle stage

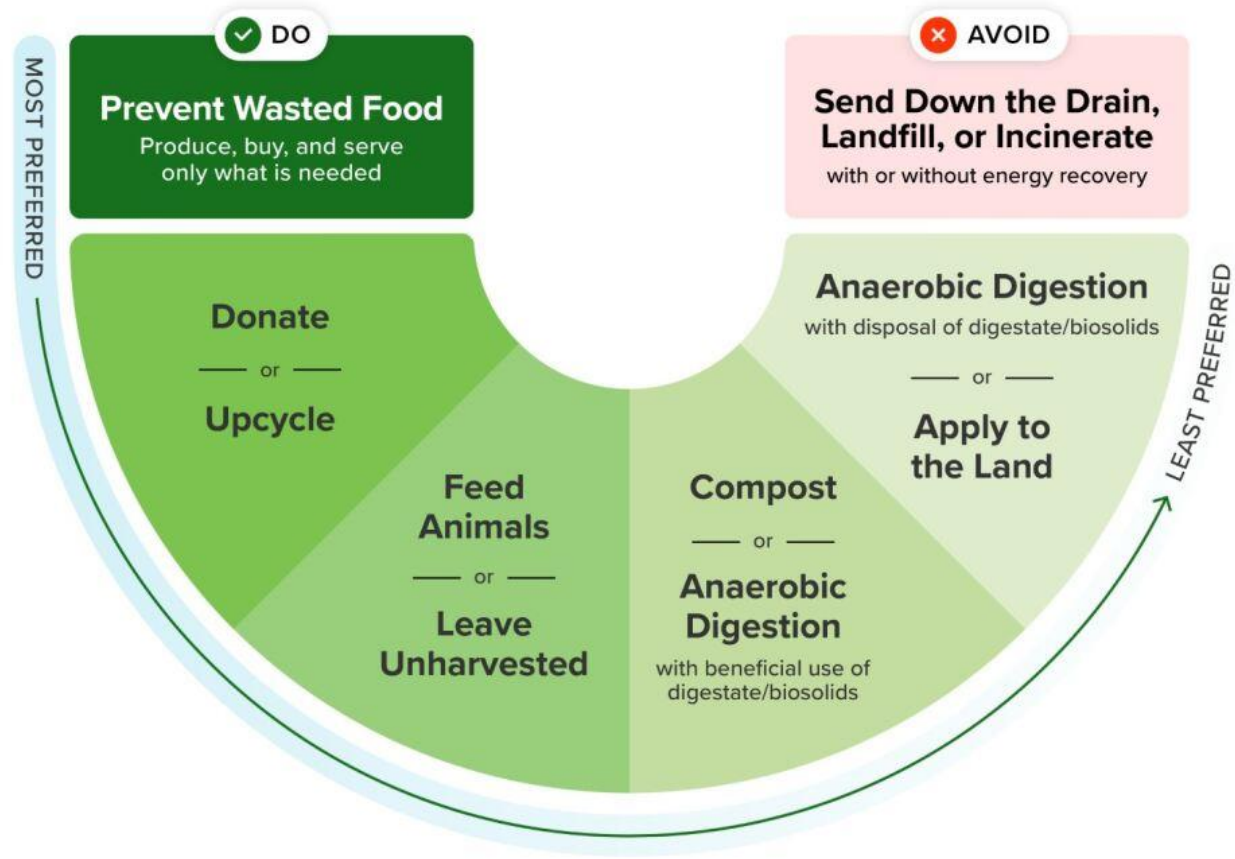


Prevention as a priority



Wasted Food Scale

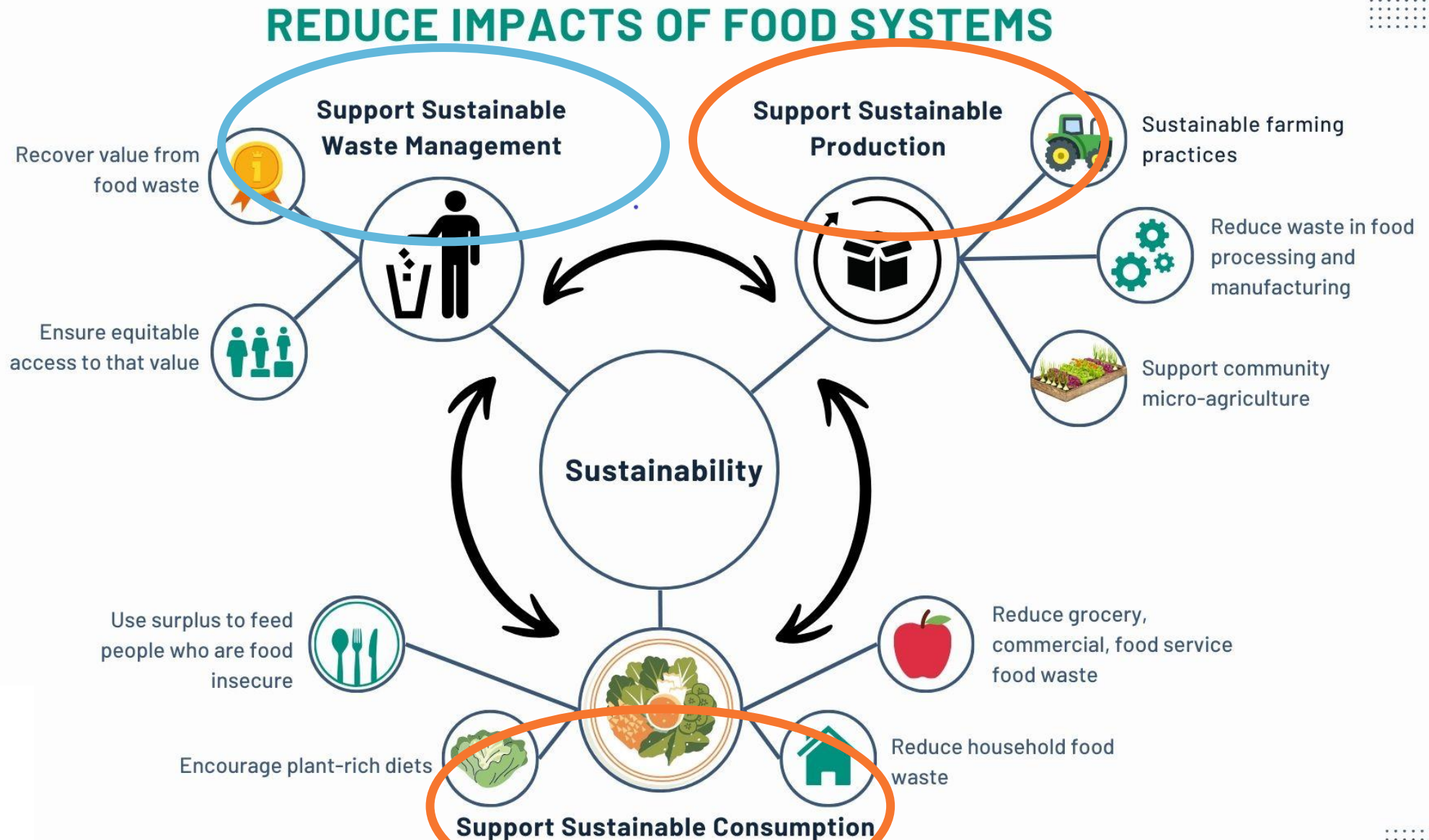
How to reduce the environmental impacts of wasted food



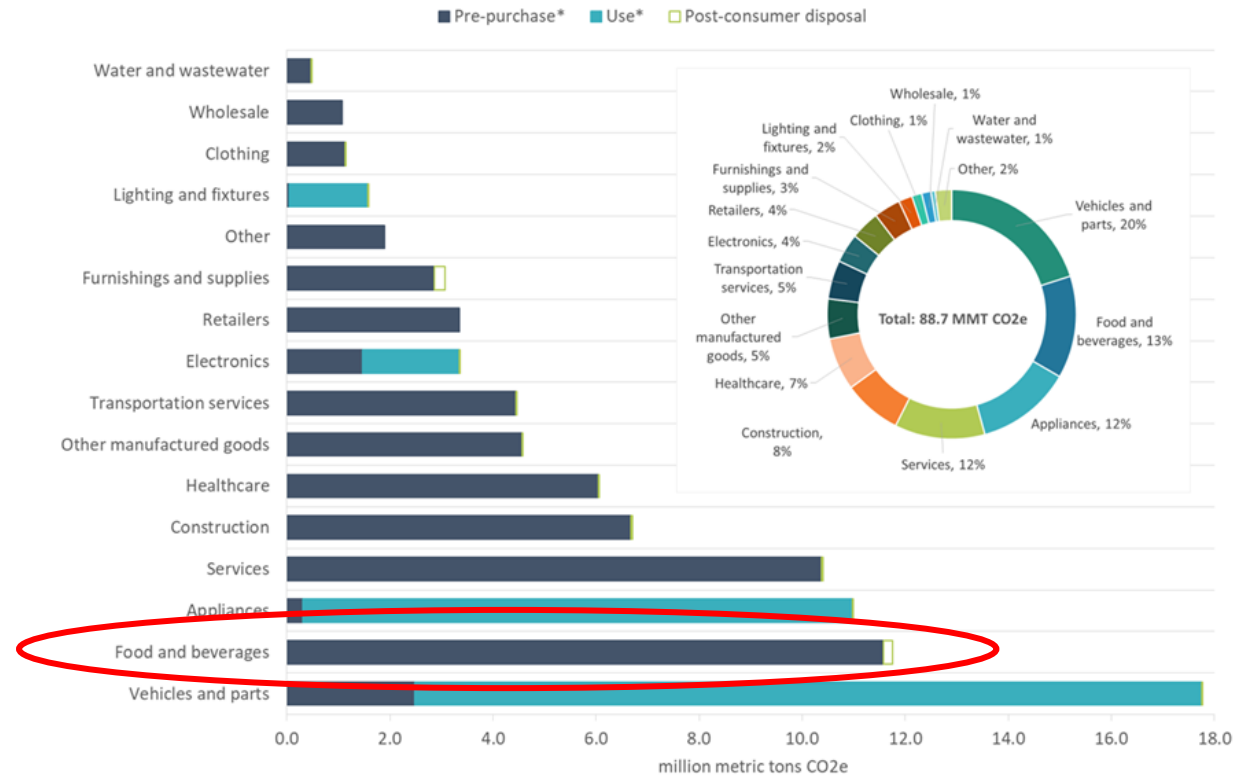
October 2023



Food systems



Where do food impacts occur – production phase



* "Pre-purchase" are all emissions that occur prior to final purchase, including production, supply chain, transport, retail and wholesale. "Use" refers to emissions resulting from the use of vehicles, appliances, electronics and lighting. Other categories (e.g., food and clothing) have use phase emissions that are accounted for elsewhere. For example, emissions from cooking and laundering are both assigned to the category of "appliances", which include ranges and clothes dryers.

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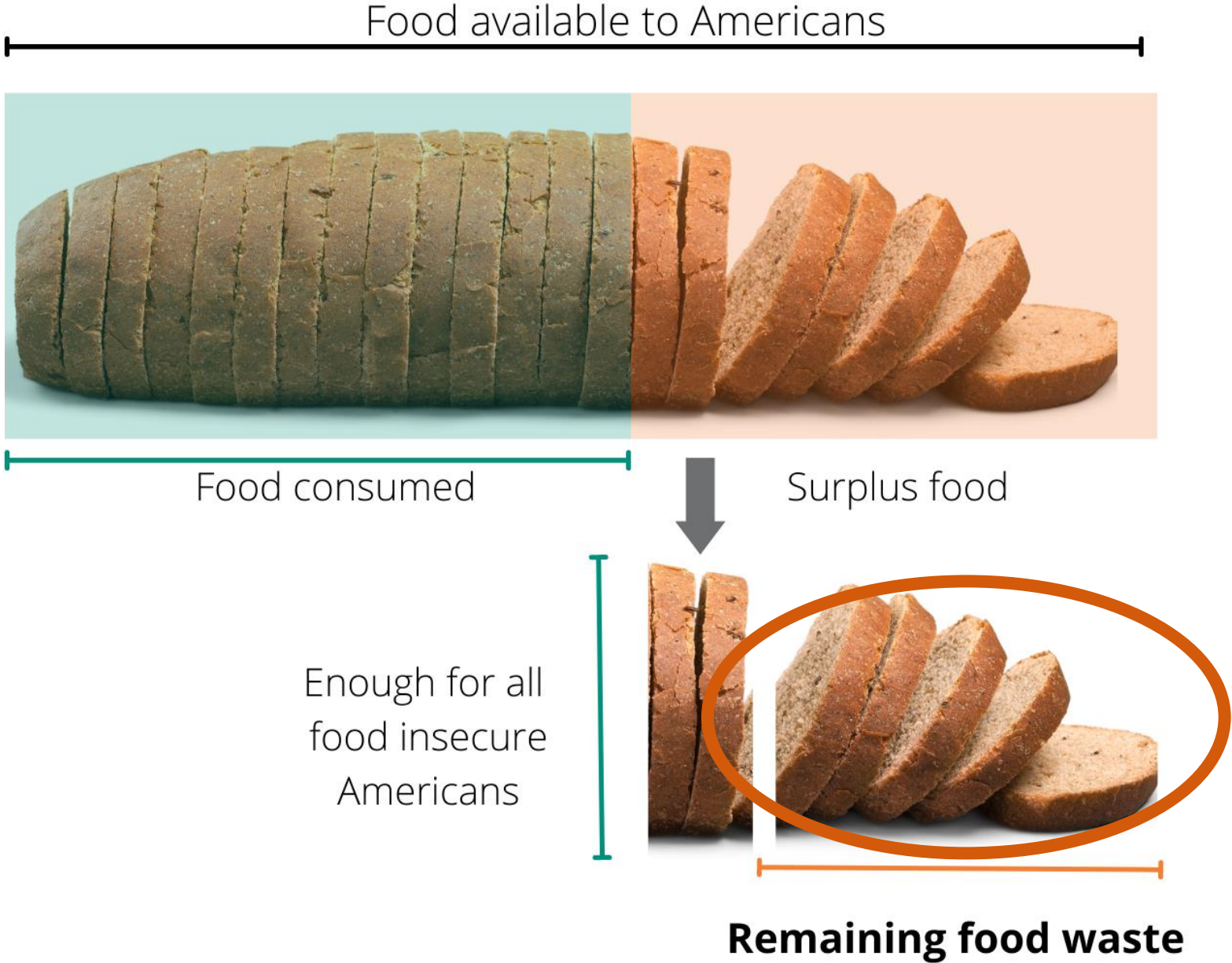




Support feeding food insecure people

- Support rescue of nutritious, culturally appropriate food
- Aim is to make sure donation agencies do not become pathways to disposal.
- And that we reduce food loss along way.

But, rescue is not enough



Recover unavoidable
food waste for its
highest and best use





What we eat matters, too

- Encourage consumption of lower impact foods
- Support lower impact production practices for higher impact foods
- You don't have to be a vegetarian!

Thanks!

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Oregon's 2050 Vision for Materials Management:

Oregonians in 2050 produce and use materials responsibly – conserving resources – protecting the environment – enhancing wellbeing



thank you

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