

# From “Discards Management” to “Materials Management”: Oregon’s *2050 Vision and Framework for Action*

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Oregon Department of Environmental Quality

NEWMOA

June 6, 2017

# Overview of Today's Webinar

- Introduction:
  - **What** is “sustainable materials management” (SMM)?
  - **Why** is Oregon transitioning away from “discards management” and into SMM?
- **How** is Oregon making this transition?
  - Vision/Plan effort
  - Enabling legislation
- **What** is DEQ doing that is new or different as a result?

# What is Materials Management?

## 2 Working Definitions from US EPA:

“Materials management is an approach to using and reusing resources most efficiently and sustainably throughout their lifecycles. It seeks to minimize materials used and all associated environmental impacts.”

“Materials management refers to the life cycle of materials as they trace their course through the economy, from raw material extraction to product manufacture, transport, use, source reduction, reuse, recycling, and disposal.”

# Sustainable Materials Management: A “Life Cycle” View of Impacts and Actions



# Sustainable Materials Management: A “Life Cycle” View of Impacts and Actions

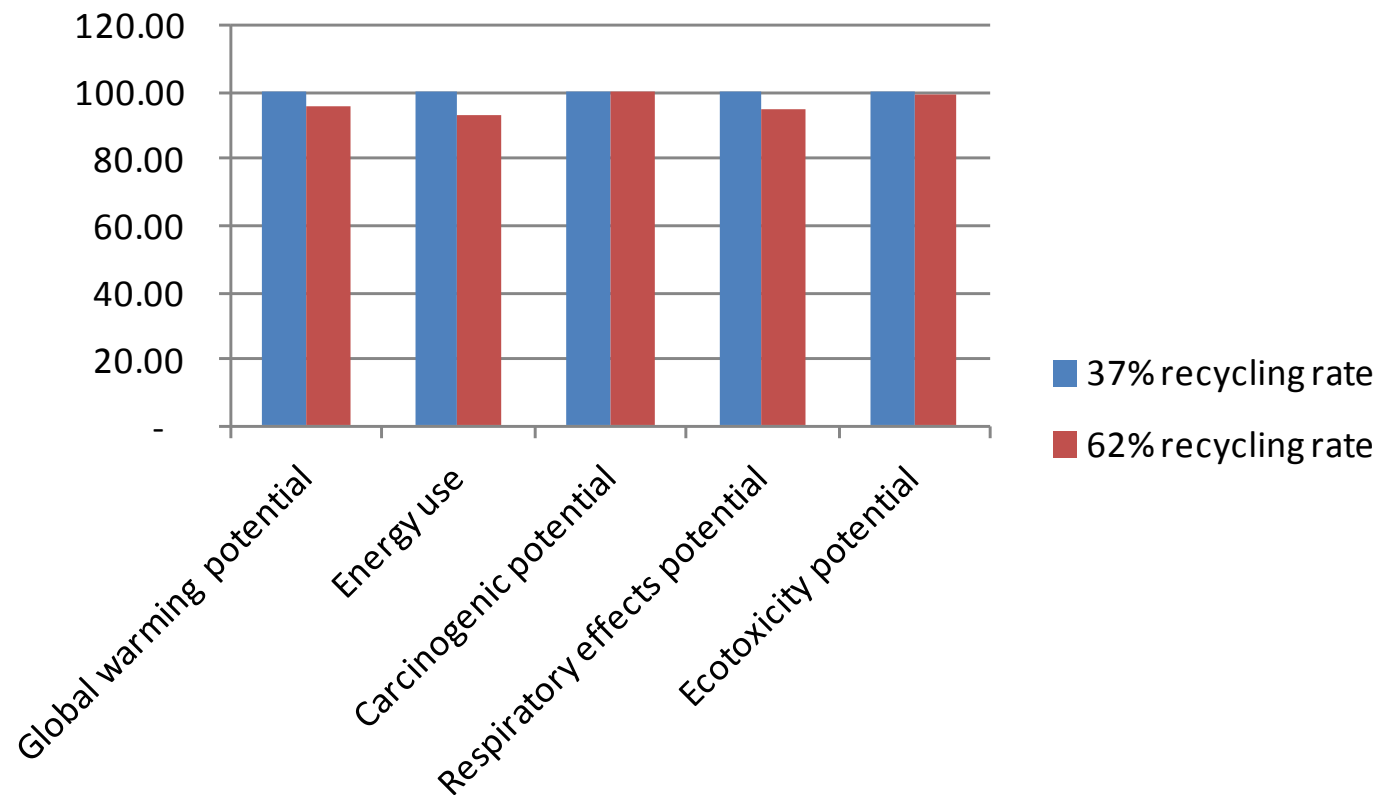


# Sustainable Materials Management: A “Life Cycle” View of Impacts and Actions



# Example of *Actions* Across the Life Cycle: Drinking Water

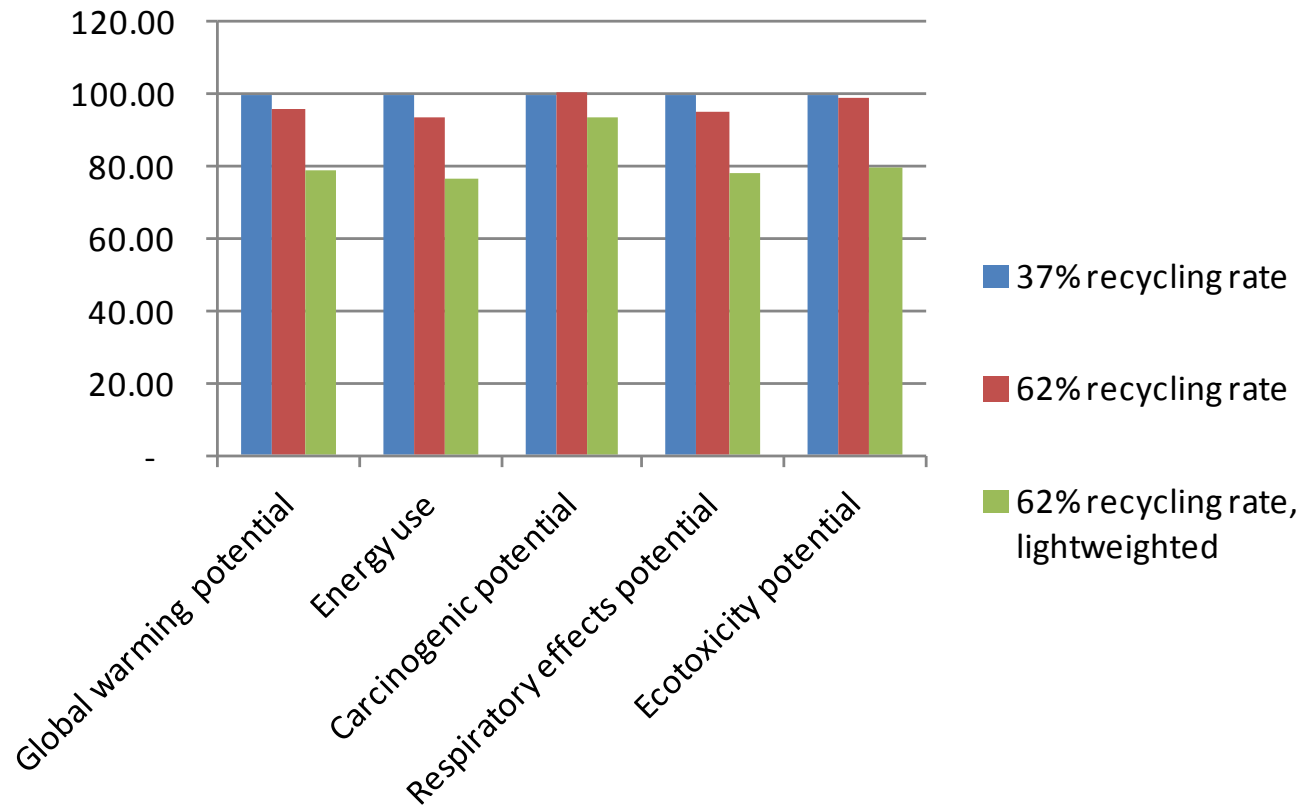
**Relative Impact Potential, Baseline = 100**



“Baseline” = PET, half-liter, 13.3 grams, 0% post-consumer recycled content (PCR), on-site molding, purified municipal water (reverse osmosis, ozone and uv), 50 miles to retail, 5 miles home-to-retail, co-purchase w/24 other products, no chilling.

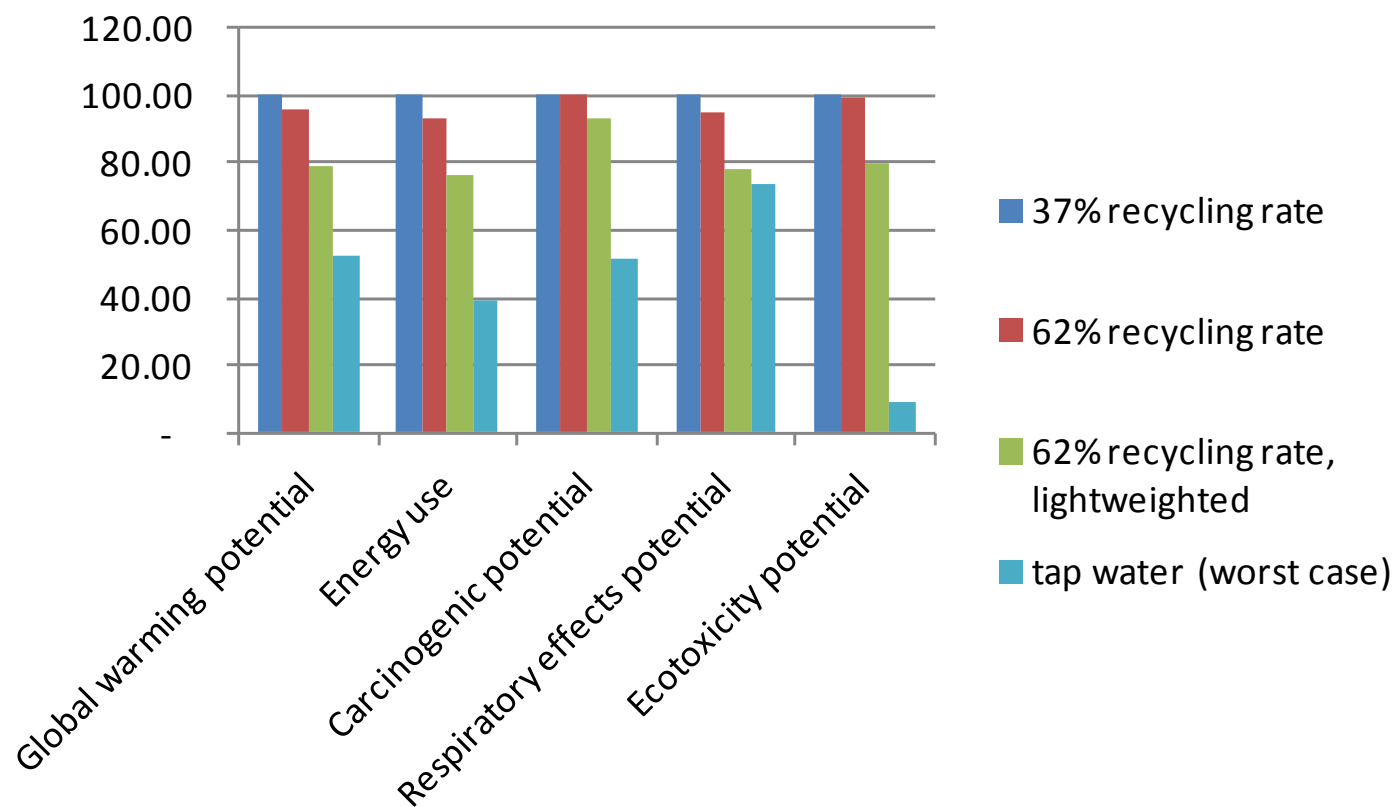
# Example of *Actions* Across the Life Cycle: Drinking Water

**Relative Impact Potential, Baseline = 100**



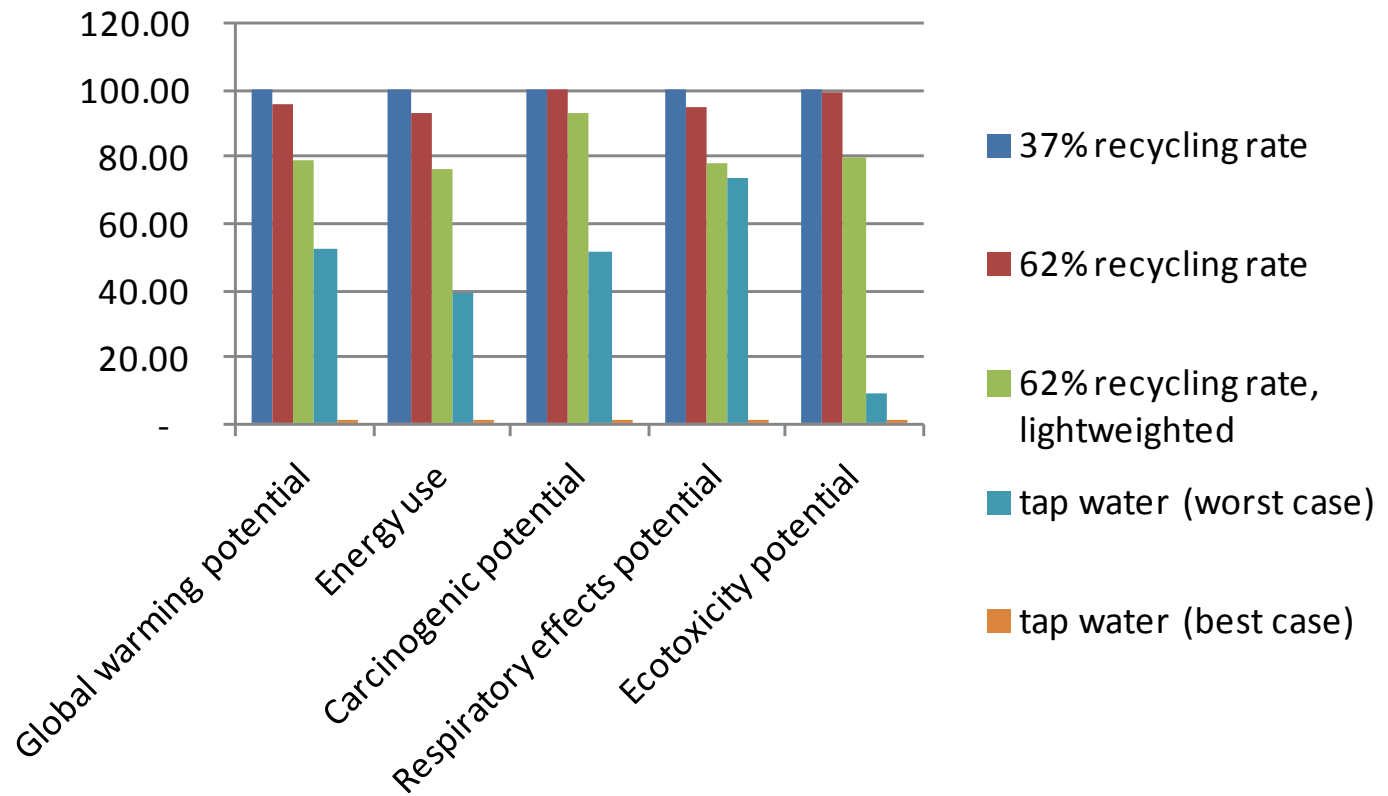
# Example of *Actions* Across the Life Cycle: Drinking Water

Relative Impact Potential, Baseline = 100



# Example of *Actions* Across the Life Cycle: Drinking Water

Relative Impact Potential, Baseline = 100



# Why Materials Management

**Answers Complex Questions about Choices and Impact** - Everyday, people make choices about products and services:

- Which products do we buy?
- What are they made of and how are they made?
- How do we use them?
- What do we do with stuff when we're through with it?

All of these choices have environmental consequences *not limited to solid waste* – some large, some small, almost all unseen.

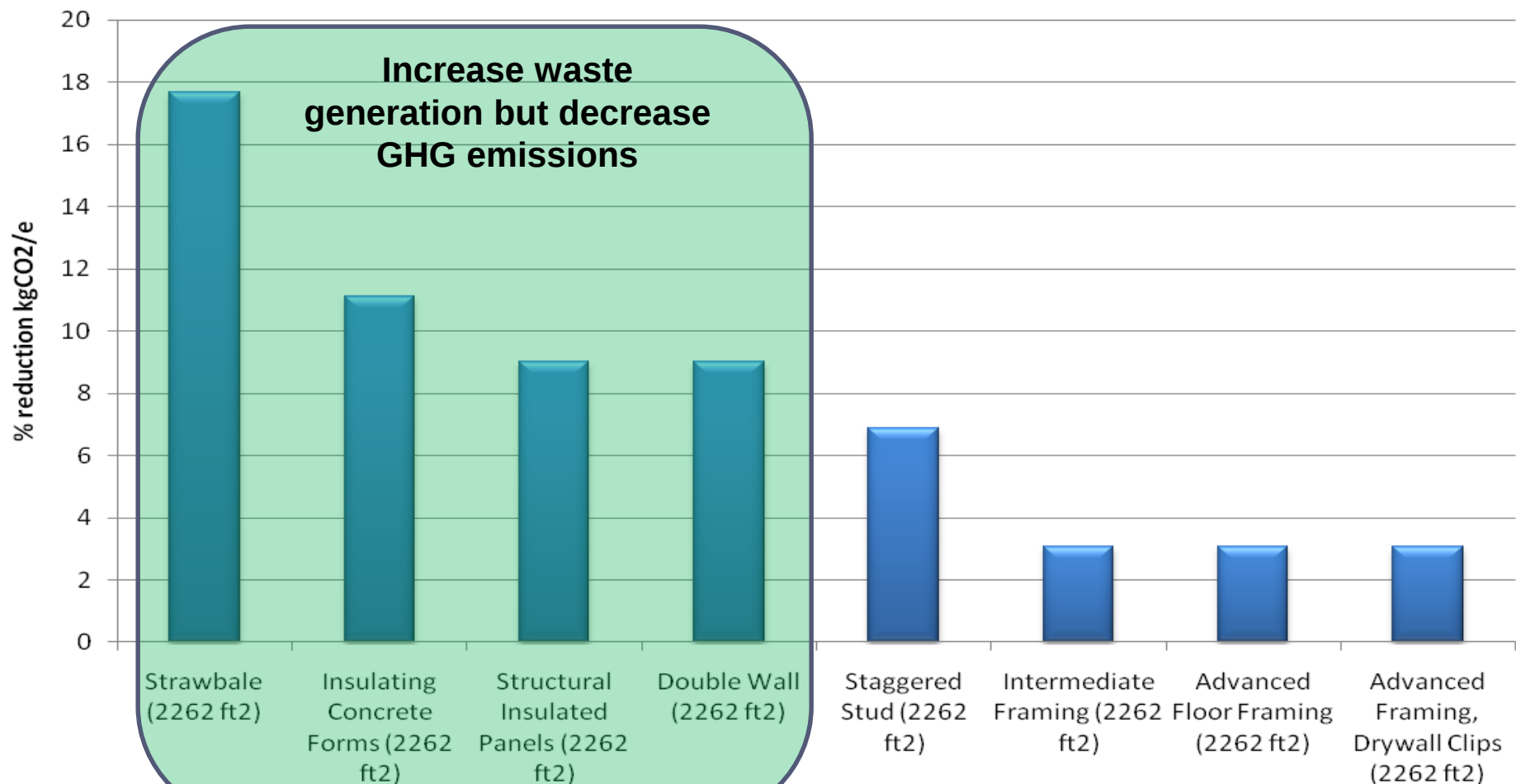
**Multi-attribute** - Very narrowly focused attributes like “recyclable”, “biodegradable”, or “organic” don’t tell us about the actual environmental impacts that occur in all stages of the life cycle.

**Offers Inter-related Solutions** - SMM requires interaction between programs that deal with a wide range of media (air, water, etc.) to identify and address "hotspots" which cause major environmental impacts.

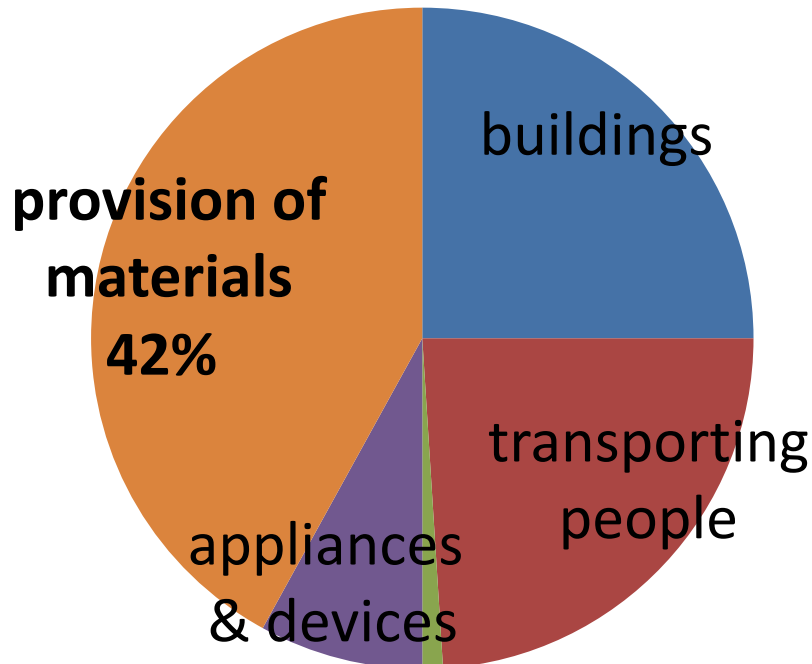
# Solid Waste $\neq$ Environmental Impact

Example: Wall Framing in Single Family Homes (from DEQ housing LCA)

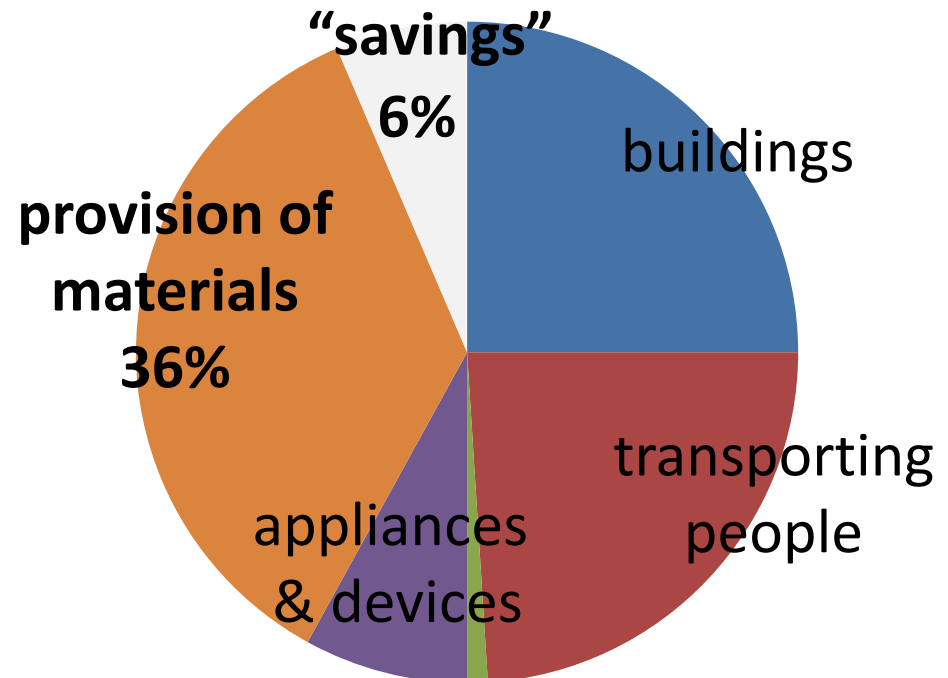
## % GHG reduction compared to Standard Home



# Limitations of Optimizing “Solid Waste”



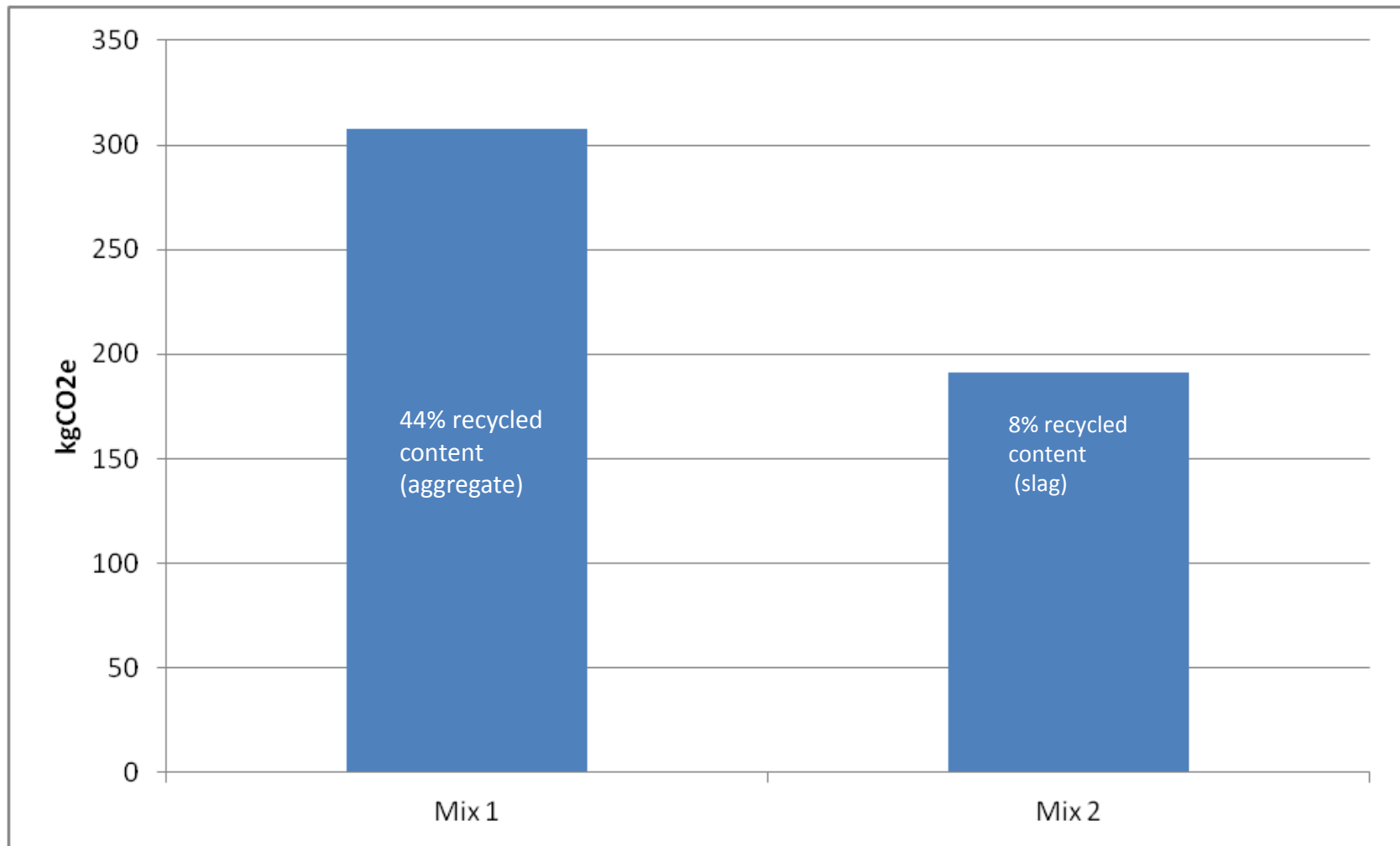
*2006 U.S. GHG inventory  
with 32% recovery  
(MSW)*



*2006 U.S. GHG inventory with  
very high recovery rate  
(~95% MSW + >70% C&D)*

# Recycled Content Doesn't Consistently Predict Environmental "Goodness"

## Example: Concrete



# ... And Neither Does Recyclability

| Coffee Packaging<br>(11.5 oz product)                                               | Material                  | Package Weight | Recyclable by Consumers? | Energy Used (MJ/11.5 oz) | GHG Emissions (lbs CO2e/11.5 oz product)* | MSW Waste Generated (lbs./ 100,000 oz. of product) |
|-------------------------------------------------------------------------------------|---------------------------|----------------|--------------------------|--------------------------|-------------------------------------------|----------------------------------------------------|
|    | Steel can, plastic lid    | ~4 oz.         | Yes                      | 4.21                     | 0.33                                      | 1,305                                              |
|    | Plastic container and lid | ~3 oz.         | Yes                      | 5.18                     | 0.17                                      | 847                                                |
|  | Flexible pouch            | ~0.4 oz.       | No                       | 1.14                     | 0.04                                      | 176                                                |

Source: US EPA

# It's Time to Get Our Heads Out of the Frame of Solid Waste



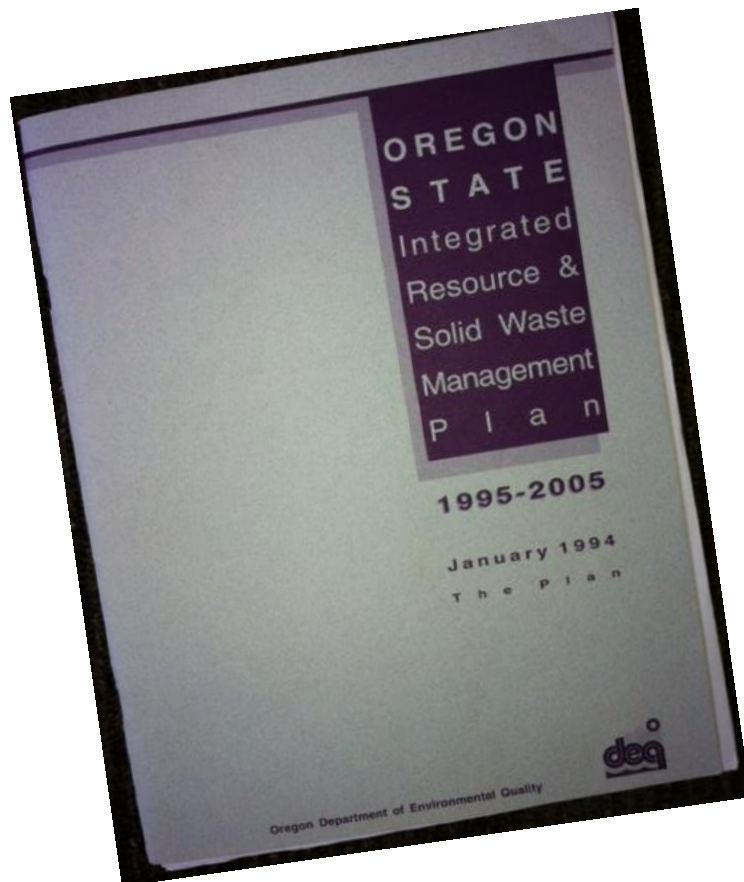
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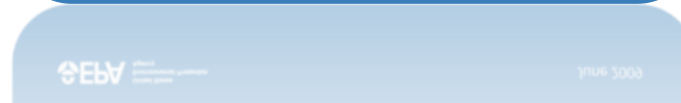
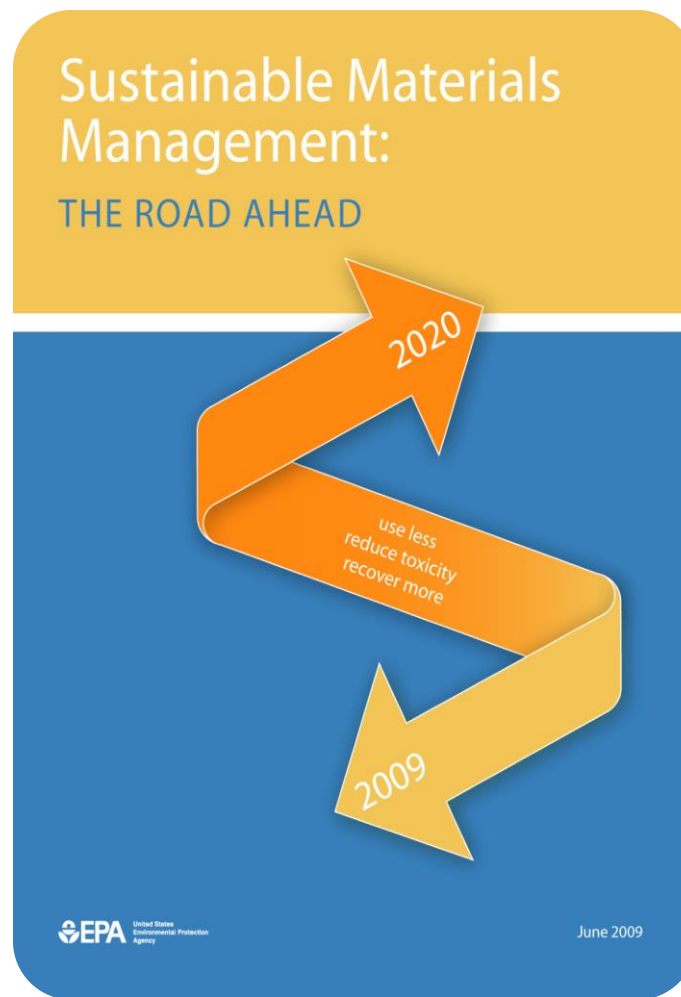
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# Statutorily-Required State Plan



# EPA's "Road Ahead"



# Oregon's *2050 Vision*

## Materials Management in Oregon

2050 Vision and Framework for Action

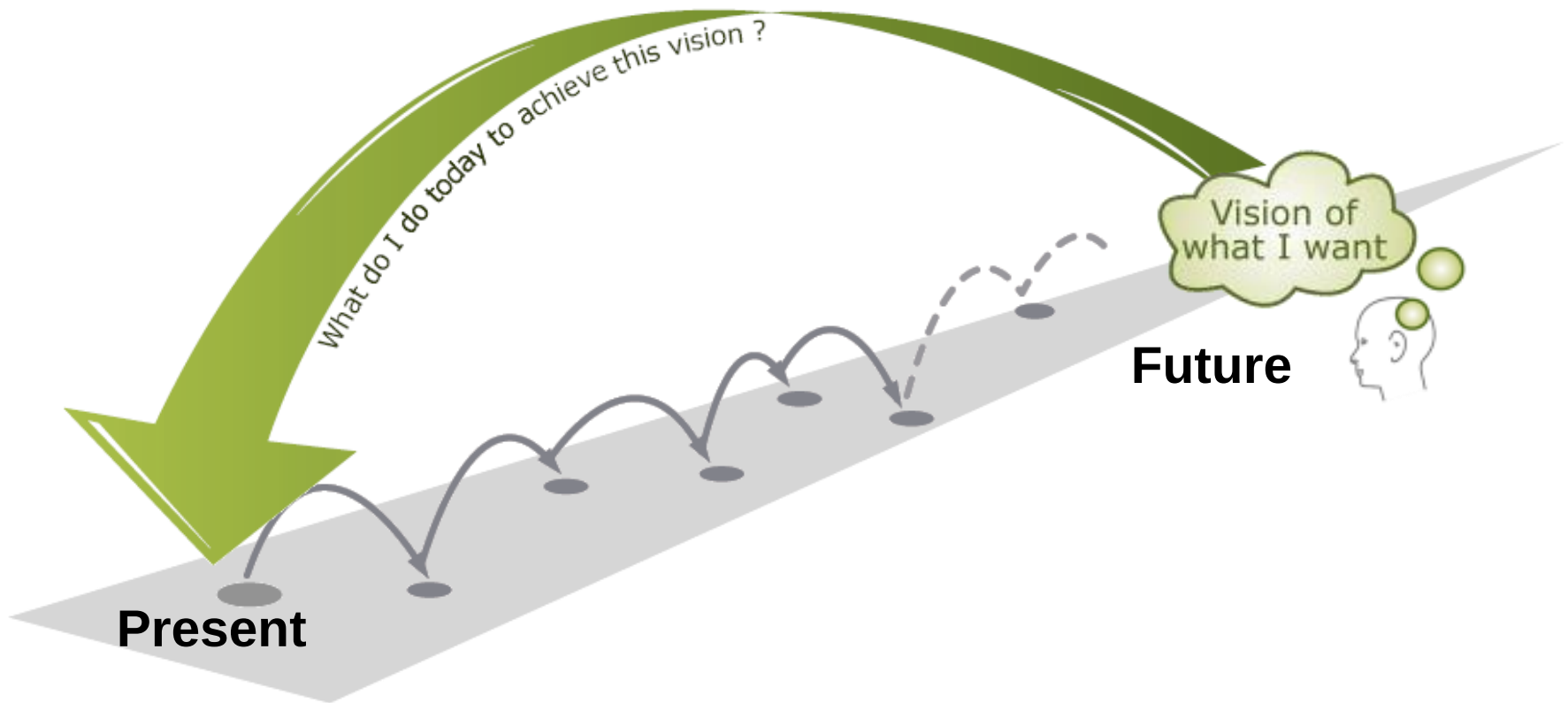
Adopted by the  
Environmental Quality Commission  
December 6, 2012



# Oregon's 2050 Vision

*Oregonians in 2050 produce and use materials responsibly  
conserving resources • protecting the environment • living well*

# Backcasting

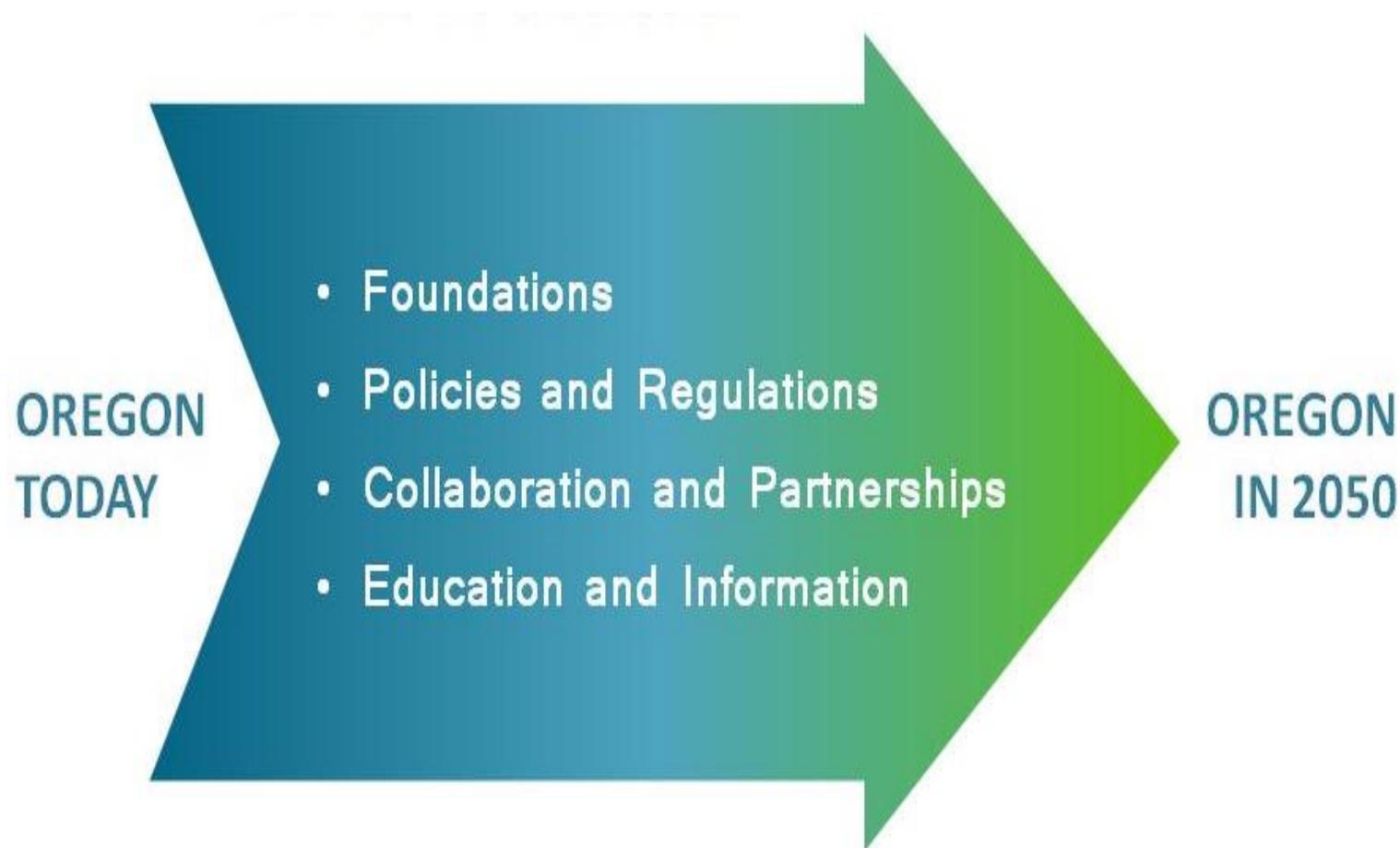




# Framework for Action

- Not an implementation plan
- DEQ will reevaluate every six years

# Framework for Action



# 2015 Legislation



78th OREGON LEGISLATIVE ASSEMBLY—2015 Regular Session

## Enrolled Senate Bill 245

Printed pursuant to Senate Interim Rule 213.28 by order of the President of the Senate in conformance with provision filing rules, indicating neither advocacy nor opposition on the part of the President (at the request of Governor John A. Kitzhaber, M.D., for Department of Environmental Quality)

CHAPTER .....

AN ACT

Relating to solid waste disposal fees; creating new provisions; amending ORS 459.235, 459.236, 459A.025, 459A.110 and 459A.120; and repealing ORS 459.112, 459.114 and 459A.115.

Be It Enacted by the People of the State of Oregon:

### 2016 FUNDING ADJUSTMENTS

**SECTION 1.** ORS 459.235, as amended by section 8 of this 2015 Act, is amended to read:  
459.235. (1) Applications for permits shall be on forms prescribed by the Department of Environmental Quality. An application shall contain a description of the existing and proposed operation and the existing and proposed facilities at the site, with detailed plans and specifications for any facilities to be constructed. The application shall include a recommendation by each local government unit having jurisdiction and such other information the department deems necessary in order to determine whether the site and solid waste disposal facilities located [thereon] at the site and the operation will comply with applicable requirements.

(2) The Environmental Quality Commission shall establish a schedule of fees for disposal site permits. [The permit fees contained in the schedule shall be based on the anticipated cost of filing and investigating the application, of issuing or denying the requested permit and of an inspection program to determine compliance or noncompliance with the permit.] Consistent with the policies in ORS 459.015, moneys collected under this section shall be used to fund oversight activities related to solid waste disposal sites, including but not limited to policy development, permitting, inspecting, monitoring, enforcement, training, technical assistance, responding to complaints, rulemaking and any other activities that support the safe management of solid waste.

[3] In addition to the fees imposed under subsection (2) of this section, the commission shall establish a schedule of permit fees for the purpose of implementing this section and ORS 90.315, 182.375, 278A.120, 278A.155, 278B.005, 278B.240, 278B.270, 278B.280, 459.005, 459.015, 459.247, 459A.115.

78th OREGON LEGISLATIVE ASSEMBLY—2015 Regular Session

## Enrolled Senate Bill 263

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CHAPTER .....

AN ACT

Relating to materials management of solid waste; creating new provisions; and amending ORS 459.055, 459.305, 459A.005, 459A.010, 459A.020, 459A.029, 459A.030, 459A.035 and 459A.050.

Be It Enacted by the People of the State of Oregon:

### OPPORTUNITY TO RECYCLE: GOAL AND RECOVERY RATE UPDATES

**SECTION 1.** ORS 459A.005 is amended to read:  
459A.005. (1) As used in ORS 459.015, 459.250 and 459A.005 to 459A.665, the "opportunity to recycle" means at least that the city, county or metropolitan service district responsible for solid waste management:

(a)(A) Provides a place for collecting source separated recyclable material located either at a disposal site or at another location more convenient to the population being served and, if a city has a population of 4,000 or more, collection at least once a month of source separated recyclable material from collection service customers within the city's urban growth boundary or, where applicable, within the urban growth boundary established by a metropolitan service district; or  
(B) Provides an alternative method [which] that complies with rules of the Environmental Quality Commission; and  
(b) Complies with the [rates and program elements required under ORS 459A.010] program element requirements described in section 5 of this 2015 Act.

(2) The "opportunity to recycle" defined in subsection (1) of this section also includes a public education and promotion program that:  
(a) Gives notice to each person of the opportunity to recycle; and  
(b) Encourages source separation of recyclable material.

**SECTION 2.** ORS 459A.005, as amended by section 1 of this 2015 Act, is amended to read:  
459A.005. (1) As used in ORS 459.015, 459.250 and 459A.005 to 459A.665, the "opportunity to

# 2015 Legislation: Key Outcomes

- Revised authority
- Restored and stable funding
- Expanded granting authority
- Revised/new goals
  - Statewide recovery goal (all wastes)
  - Local (“wasteshed”) recovery goals
  - Statewide material-specific recovery goals (food, plastics, carpet)
  - “Outcome-based recovery rates”
  - Updated waste generation goals
- Changes to Oregon’s “Opportunity to Recycle” requirements
  - New waste prevention and reuse program elements
  - New requirements related to reducing contamination
  - Closed multi-tenant recycling opportunity loophole

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# Smorgasbord



# Recovery (Recycling, Composting)

- Reducing contamination
- Multi-tenant
- High-priority materials:
  - Plastics
  - Food
- “Outcome-based” recovery rates



# Preventing the Wasting of Food

## Oregon DEQ Strategic Plan for Preventing the Wasting of Food



### Materials Management

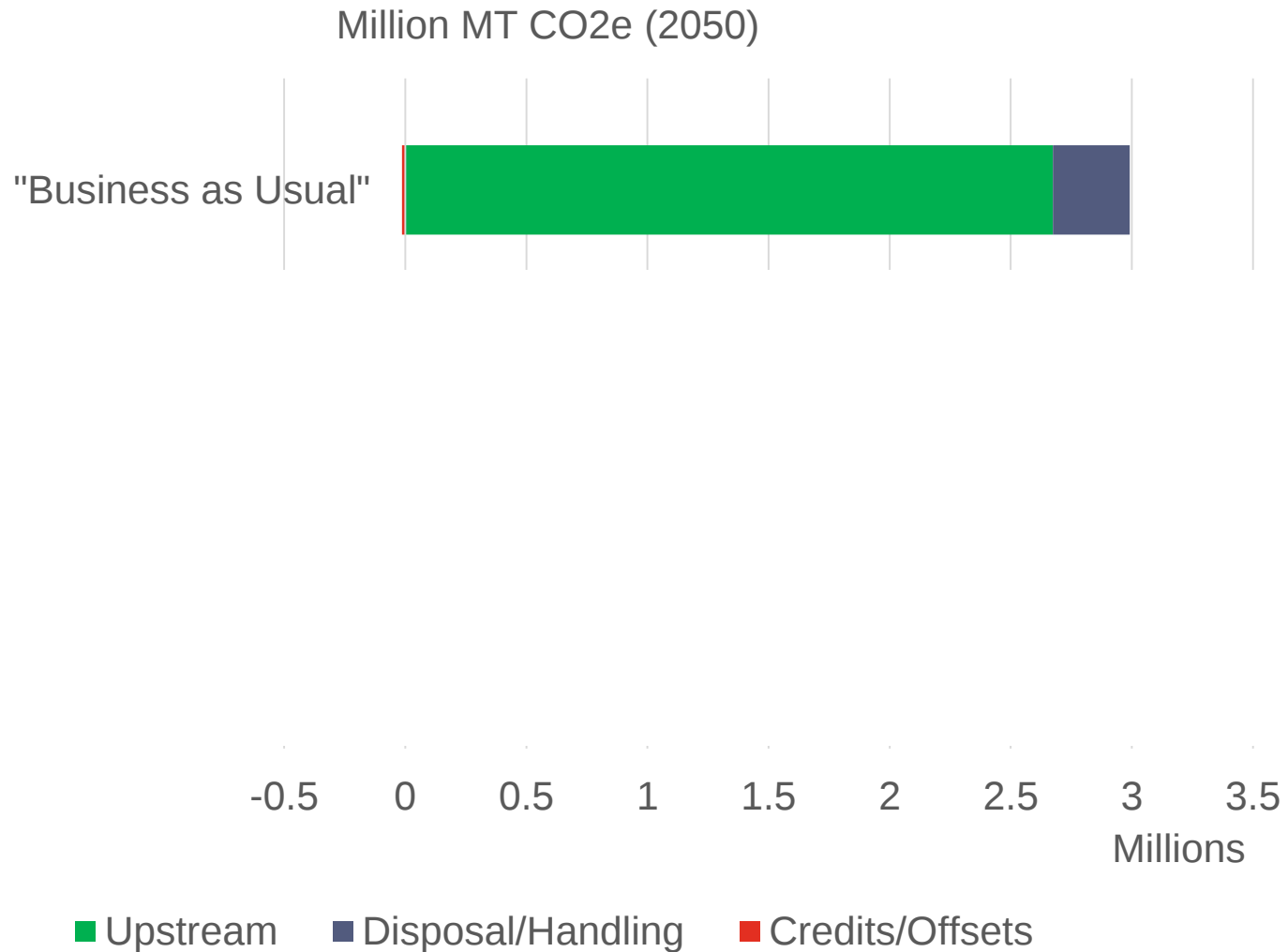
700 NE Multnomah  
Portland, OR 97232  
Phone: 503-229-5096  
800-452-4011  
Fax: 503-229-6762  
Contact: Elaine Blatt

[www.oregon.gov/DEQ](http://www.oregon.gov/DEQ)

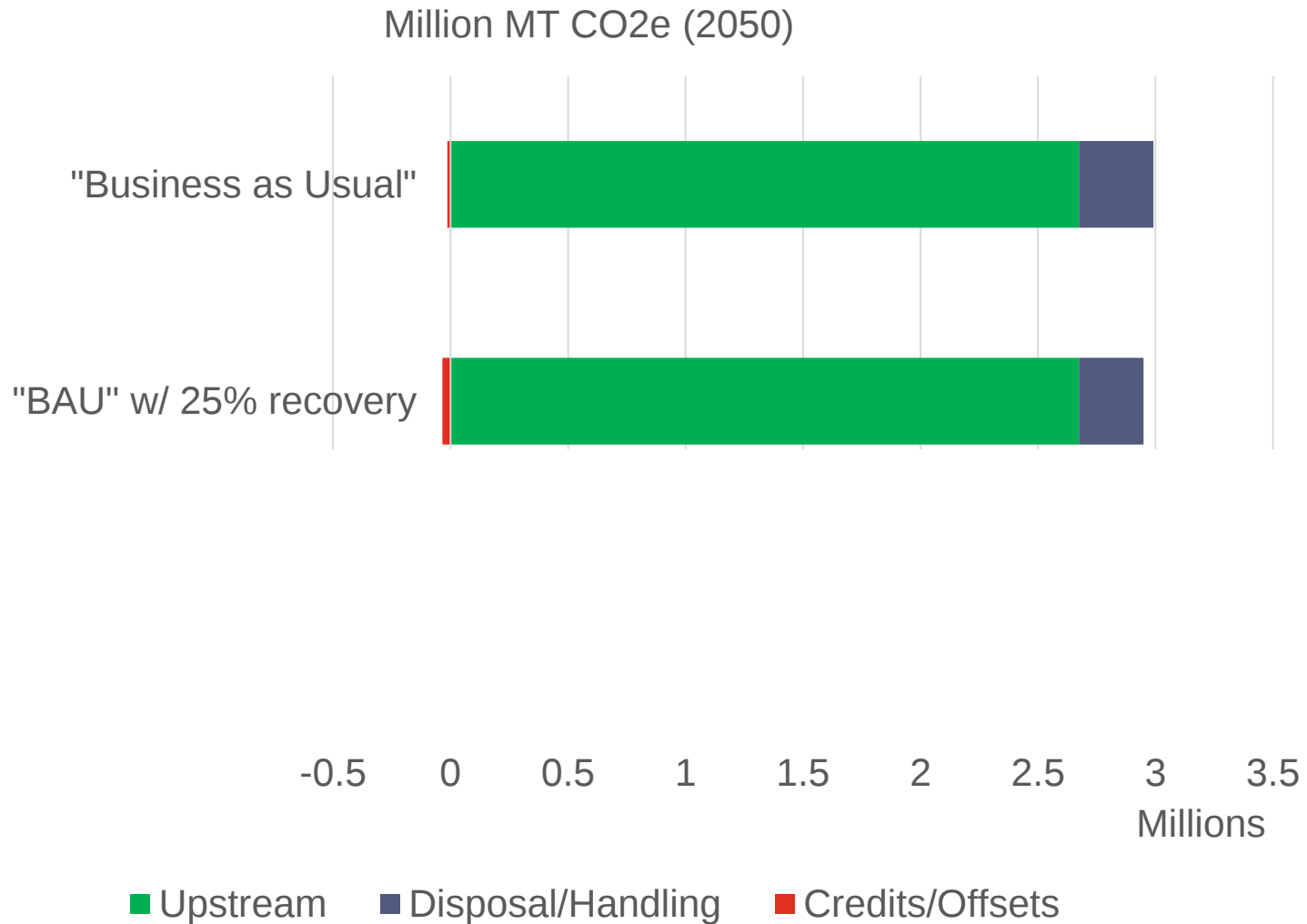


State of Oregon  
Department of  
Environmental  
Quality

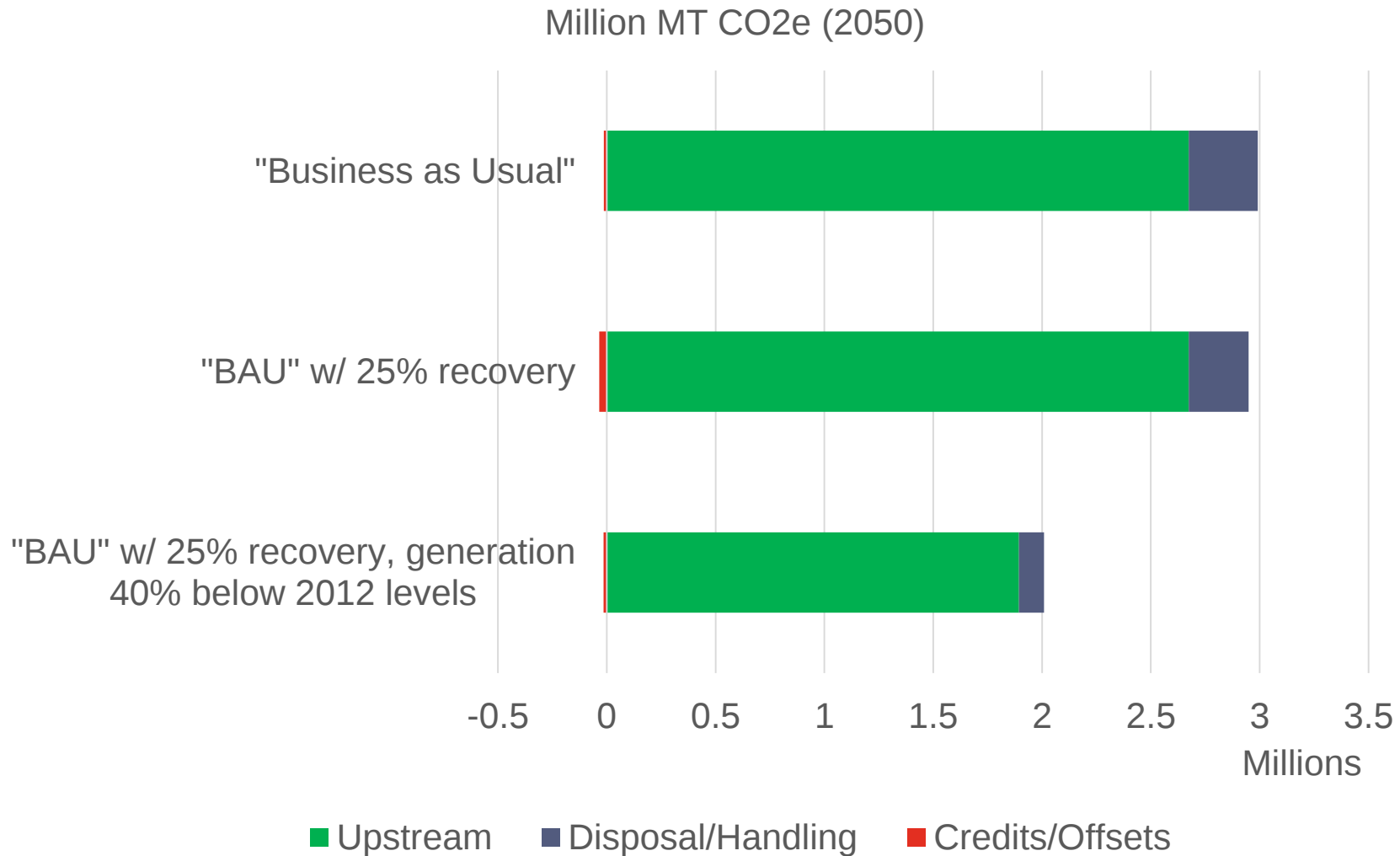
# Greenhouse Gas Projections of Wasted Food: Scenarios



# Greenhouse Gas Projections of Wasted Food: Scenarios



# Greenhouse Gas Projections of Wasted Food: Scenarios



# Oregon's Strategic Plan – Goals

- Develop the state of knowledge and building blocks to help reduce wasted food
- Increase business and consumer actions to prevent wasted food
- Reduce GHG emissions, water use, energy use and wasted resources by reducing the generation of wasted uneaten food by
  - ✓ 15 percent by 2025
  - ✓ 40 percent by 2050.

# Preventing the Wasting of Food

## Strategic Plan for 2017 – 2021

### Near term projects

- Measurement study
- Messaging research
- Consumer campaigns and outreach
- Commercial campaigns
- Date labeling – initial research and tracking
- Regional coalition
- Comparative analysis of prevention actions
- Research on impacts of food rescue approaches



# Food LCA Literature Summaries

- Wine
  - Tomatoes
  - Freshwater aquaculture
  - Pork
  - Beer
  - Coffee
  - Citrus and citrus juices
- 
- Contribution of transportation to life cycle impacts
  - Food waste and packaging use/waste trade-offs



# Product Environmental Footprinting: Concrete



## EPD “Nutrition” Label

### Your Building Product

Amount per Unit

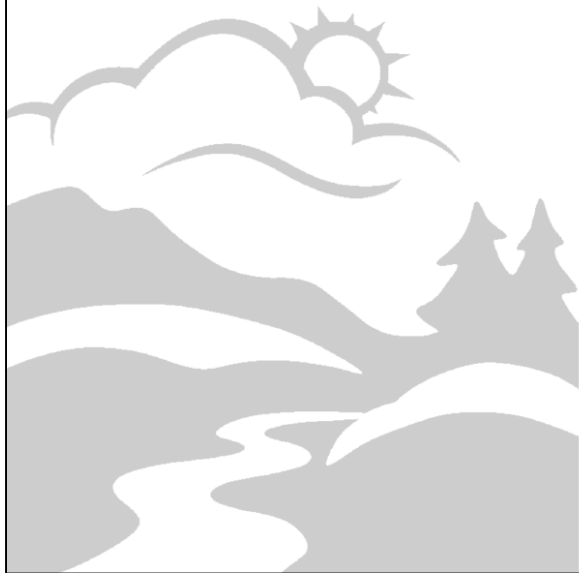
| LCA IMACT MEASURES                                      | TOTAL    |
|---------------------------------------------------------|----------|
| Primary Energy (MJ)                                     | 12.4     |
| Global Warming Potential (kg CO <sup>2</sup> eq)        | 0.96     |
| Ozone Depletion (kg CFC-11 eq)                          | 1.80E-08 |
| Acidification Potential (mol H <sup>+</sup> eq)         | 0.93     |
| Eutrophication Potential (kg N <sup>-</sup> eq)         | 6.43E-04 |
| Photo-Oxidant Creation Potential (kg O <sub>3</sub> eq) | 0.121    |

Your Product's Ingredients: Listed Here

# Reuse, Repair and Product Lifespan Extension

## Strategic Plan for Reuse, Repair, and Extending the Lifespan of Products in Oregon

December 2016



Environmental Solutions  
Division, Materials  
Management Program  
700 NE Multnomah St  
Portland, OR 97232  
Phone: 503-229-5606  
800-452-4011  
Fax: 503-229-4762  
Contact: Simone Love  
[www.oregon.gov/DEQ](http://www.oregon.gov/DEQ)

*DEQ is a leader in restoring,  
maintaining and enhancing  
the quality of Oregon's air,  
land and water.*



State of Oregon  
Department of  
Environmental  
Quality

# Reuse, Repair and Product Lifespan Extension



# Reuse, Repair and Product Lifespan Extension

- Projects under way
  - Deconstruction workforce training with City of Portland
  - Materials management grants program
  - Workforce development research and outreach
- Upcoming projects
  - Textile system research – where, when, how textiles are disposed
  - Whole building reuse vs replacement
  - Environmental impacts of residential demolition vs deconstruction

# Attributes Research

Recyclable

Compostable

Bio-degradable



Bio-based

Planet Friendly

# Additional Business Initiatives

- Expand measurement and transparency
- Develop resources for best environmental practices
- Capacity building via alliances
- Influence relevant national dialogues



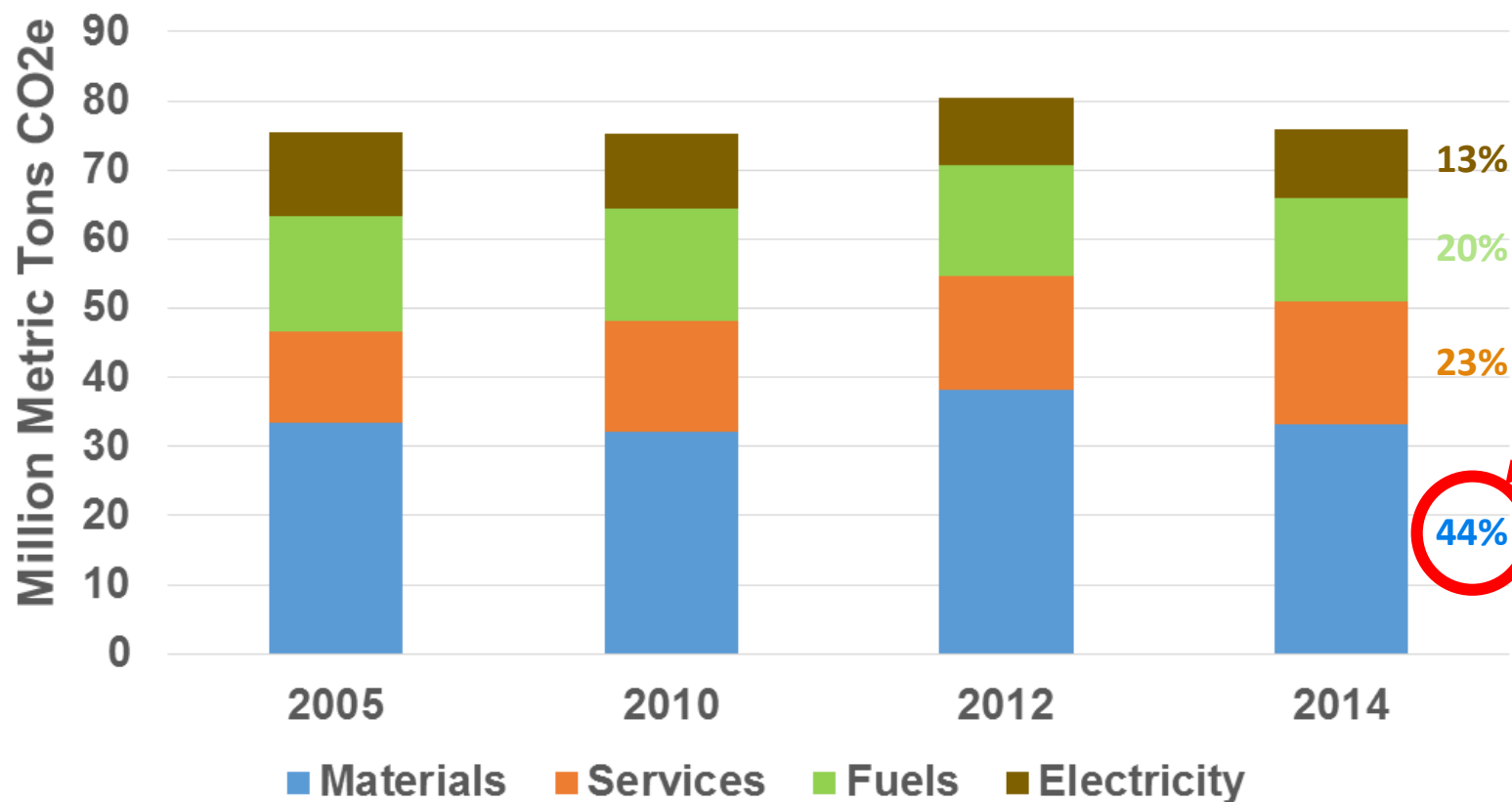
# Purchasing



**Accelerate environmental standards in state and local purchasing**

# Consumption-Based Greenhouse Gas Emissions Inventory

Oregon Consumption-Based GHGs, by Type of Consumption



# Thank you

David Allaway

Oregon Department of Environmental Quality

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