

# Oregon's *2050 Vision*

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From “Solid Waste” to “Materials Management”

Missouri Recycling Association

September 11, 2018









# Presentation Overview

- **Why** is Oregon transitioning away from “solid waste management” and into “sustainable materials management”?
- **How** is Oregon making this transition?
  - Vision/Plan effort
  - Enabling legislation
- **What** is Oregon doing that is new or different as a result?





# “Sustainable Materials Management” defined

“Sustainable materials management (SMM) is a systemic approach to using and reusing materials more productively over their entire life cycles.”

-U.S. EPA



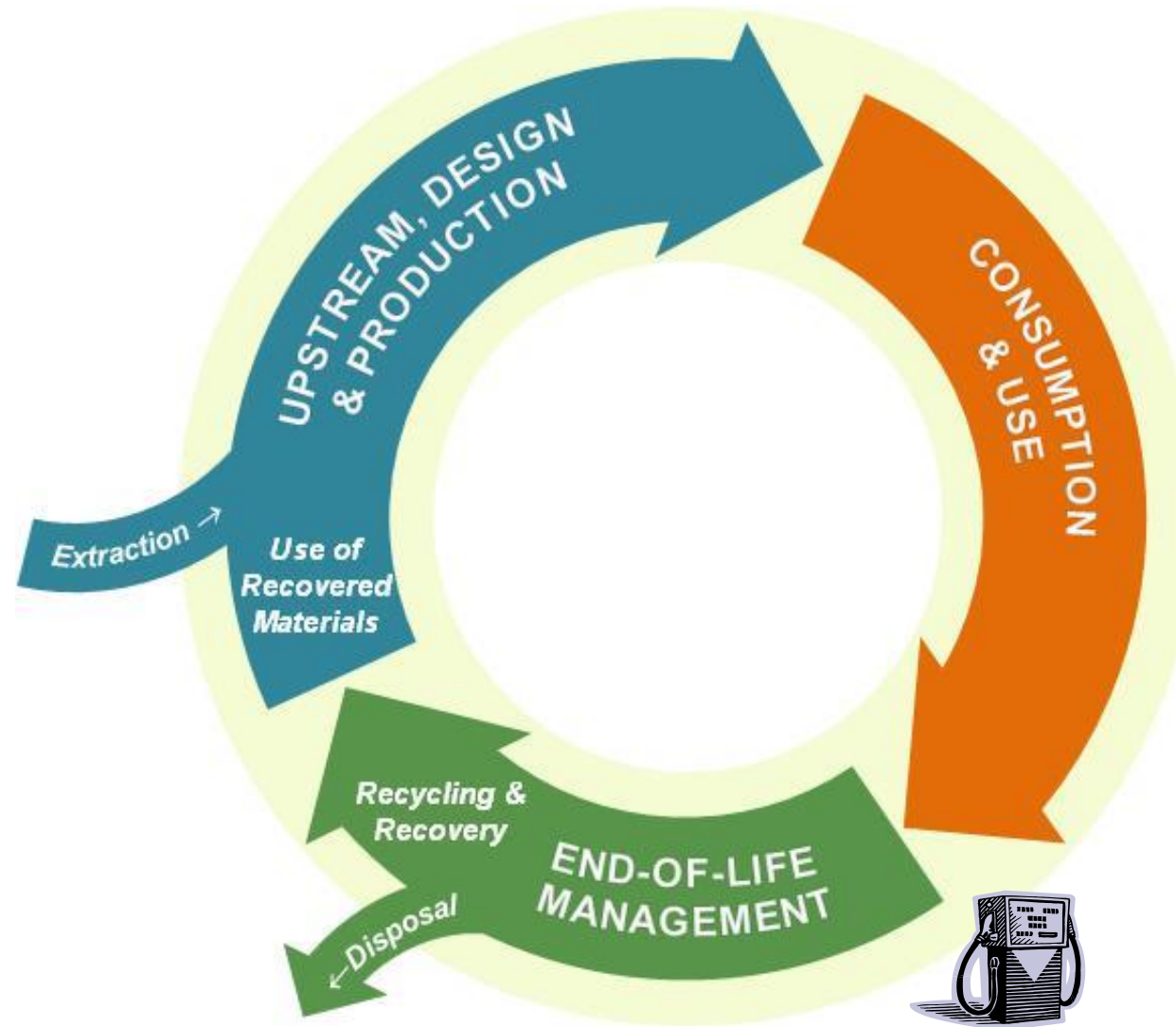


# Life Cycle of Materials



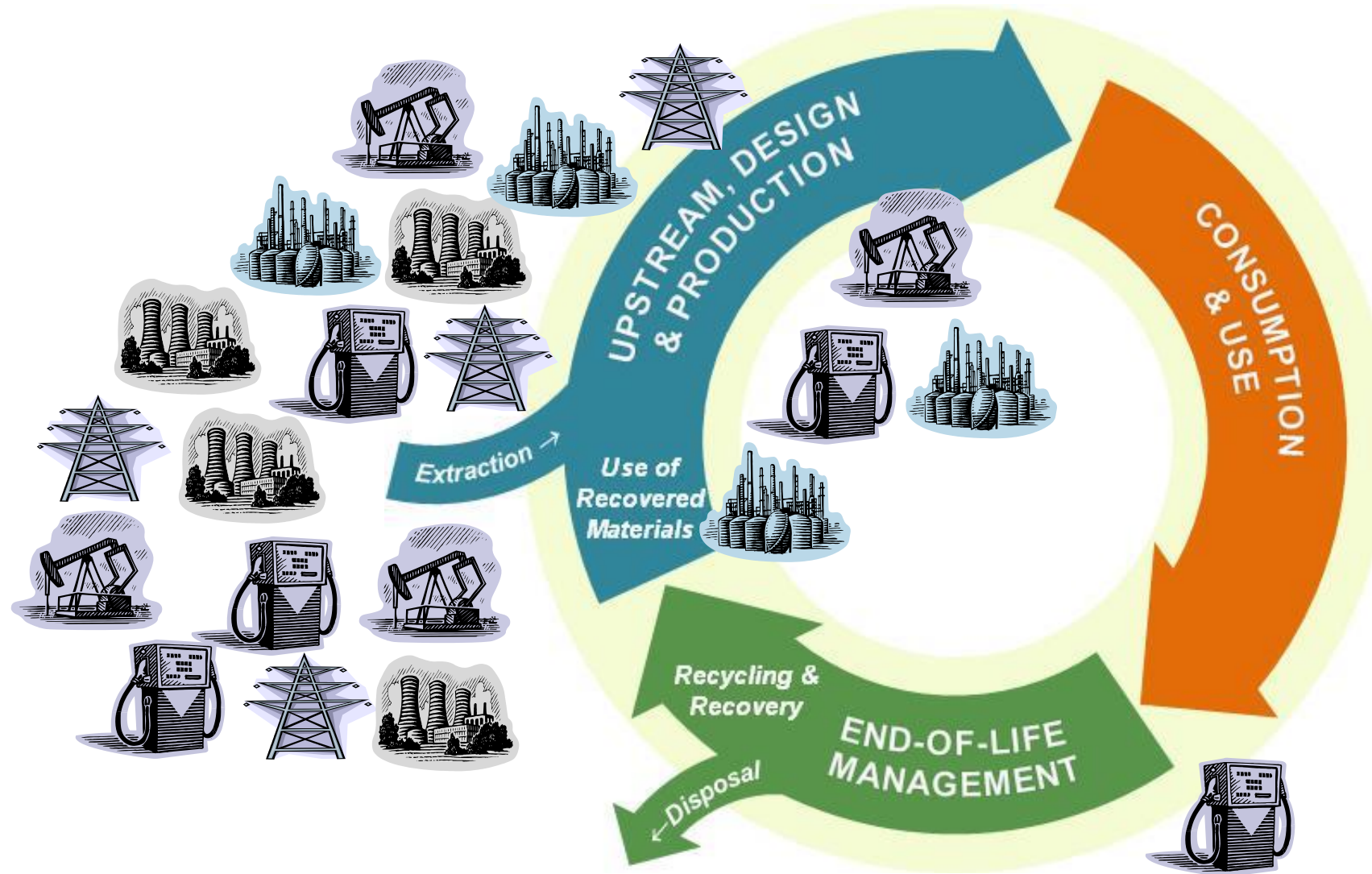


# SMM: A “Life Cycle” View of Impacts and Actions



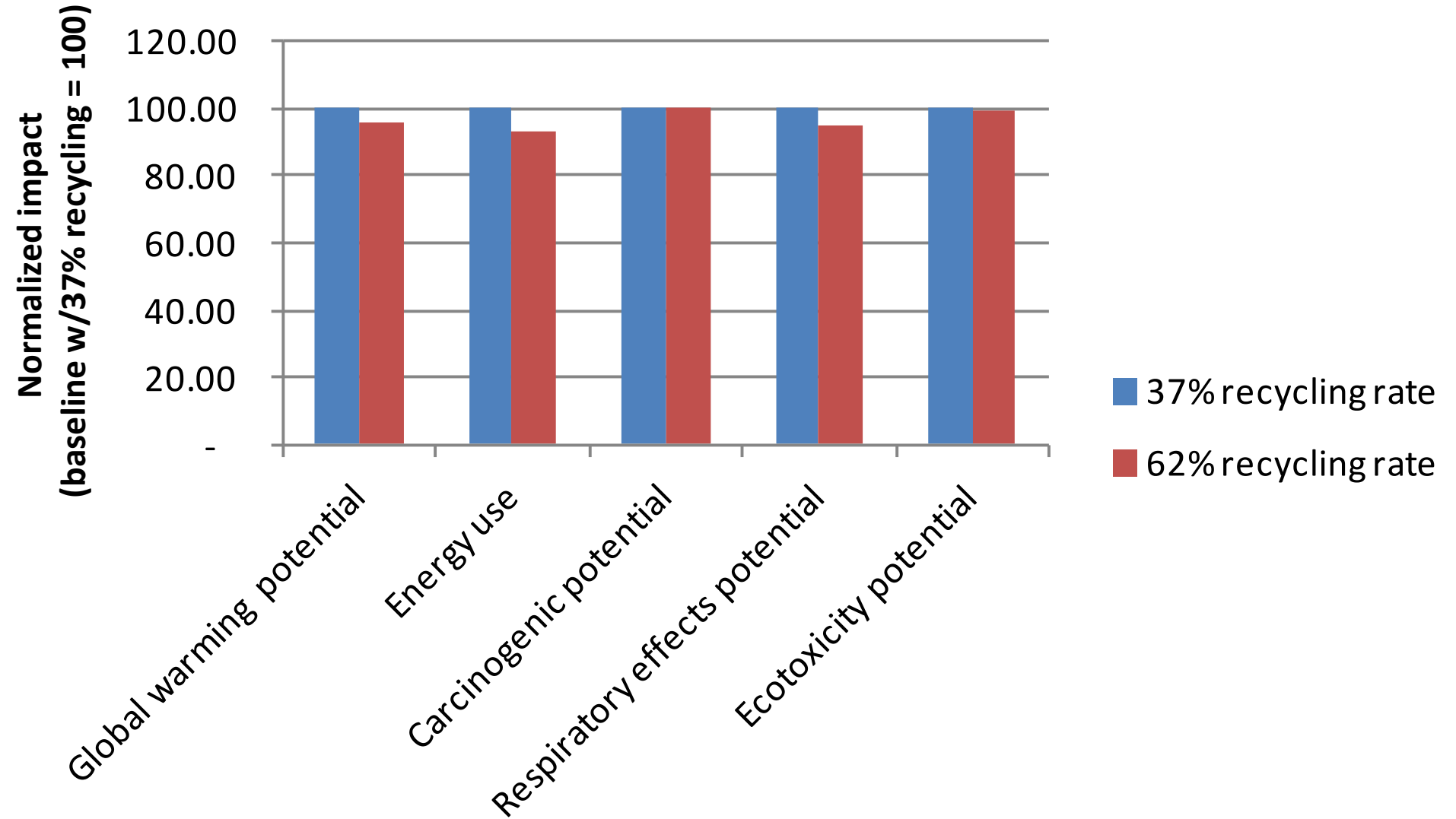


# SMM: A “Life Cycle” View of Impacts and Actions



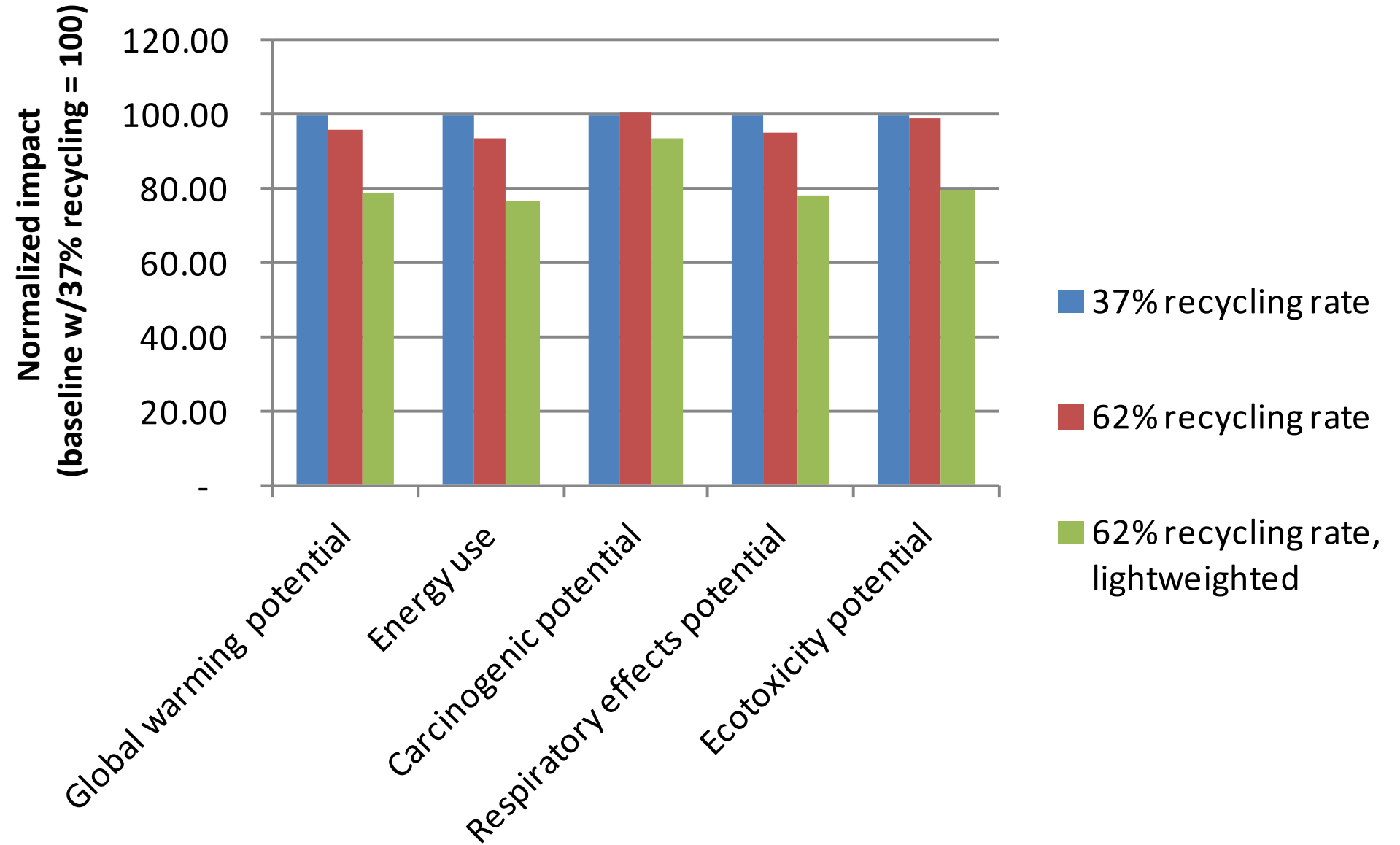


# SMM: A “Life Cycle” View of Impacts and Actions



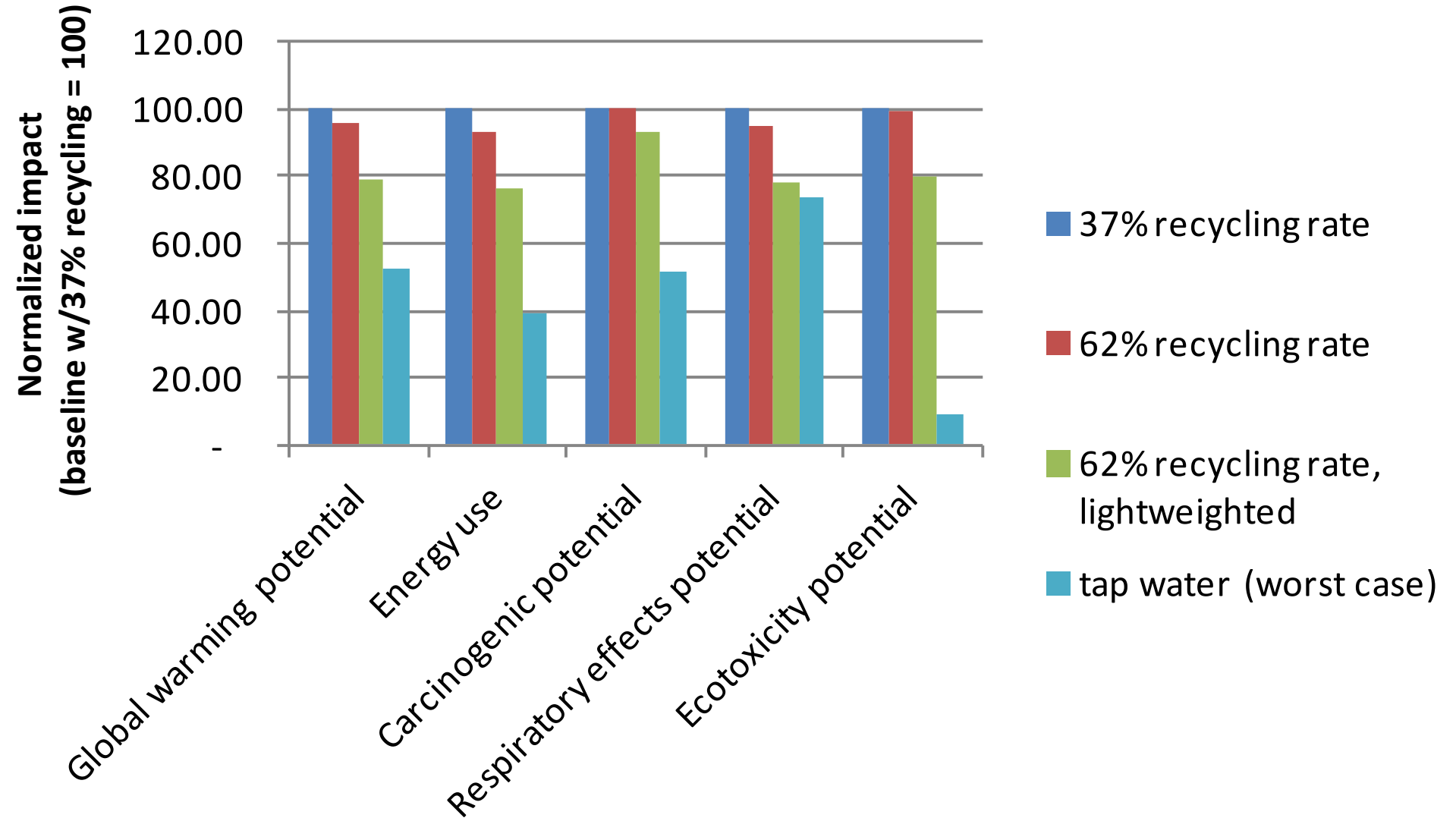


# SMM: A “Life Cycle” View of Impacts and Actions



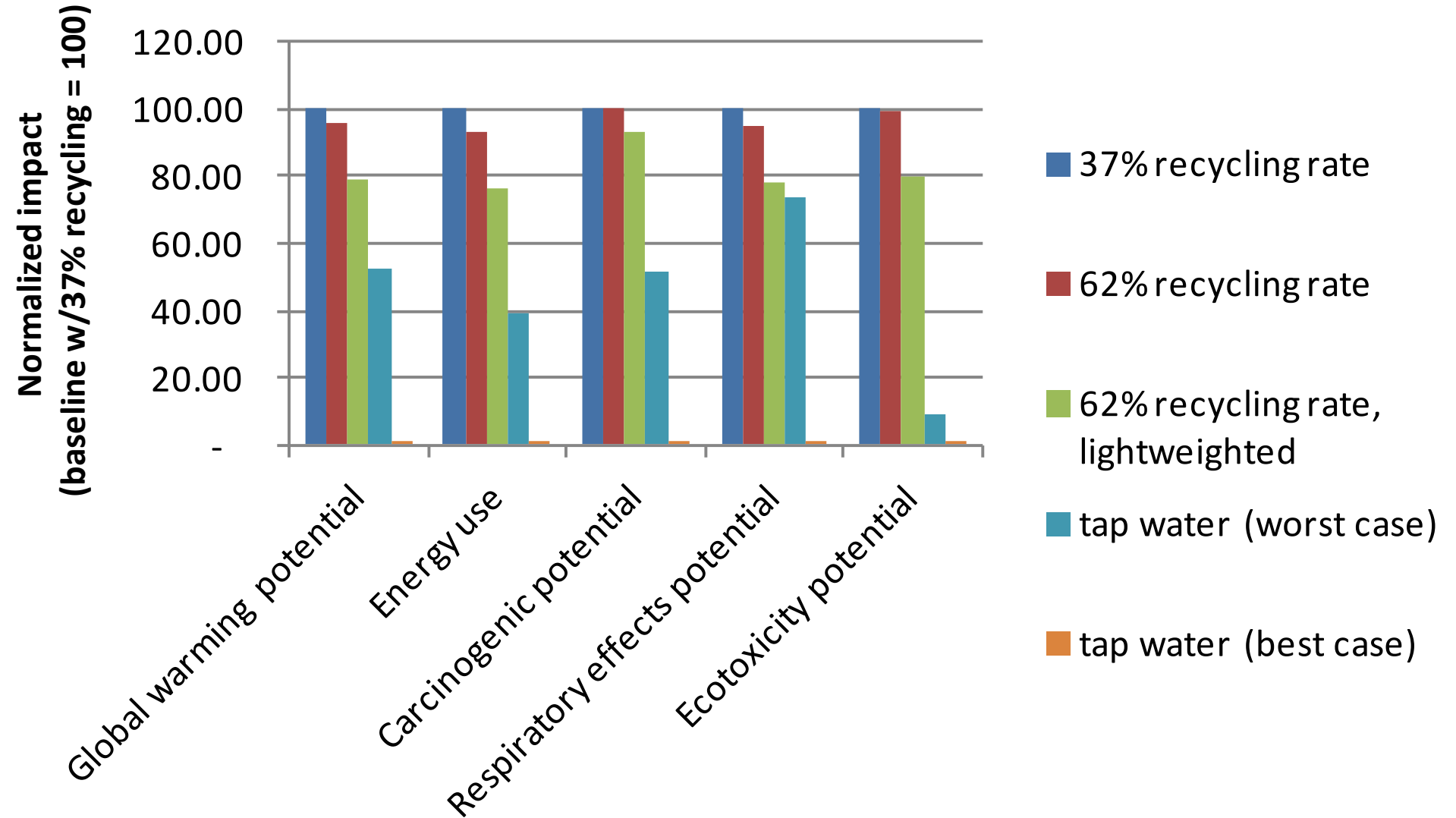


# SMM: A “Life Cycle” View of Impacts and Actions





# SMM: A “Life Cycle” View of Impacts and Actions



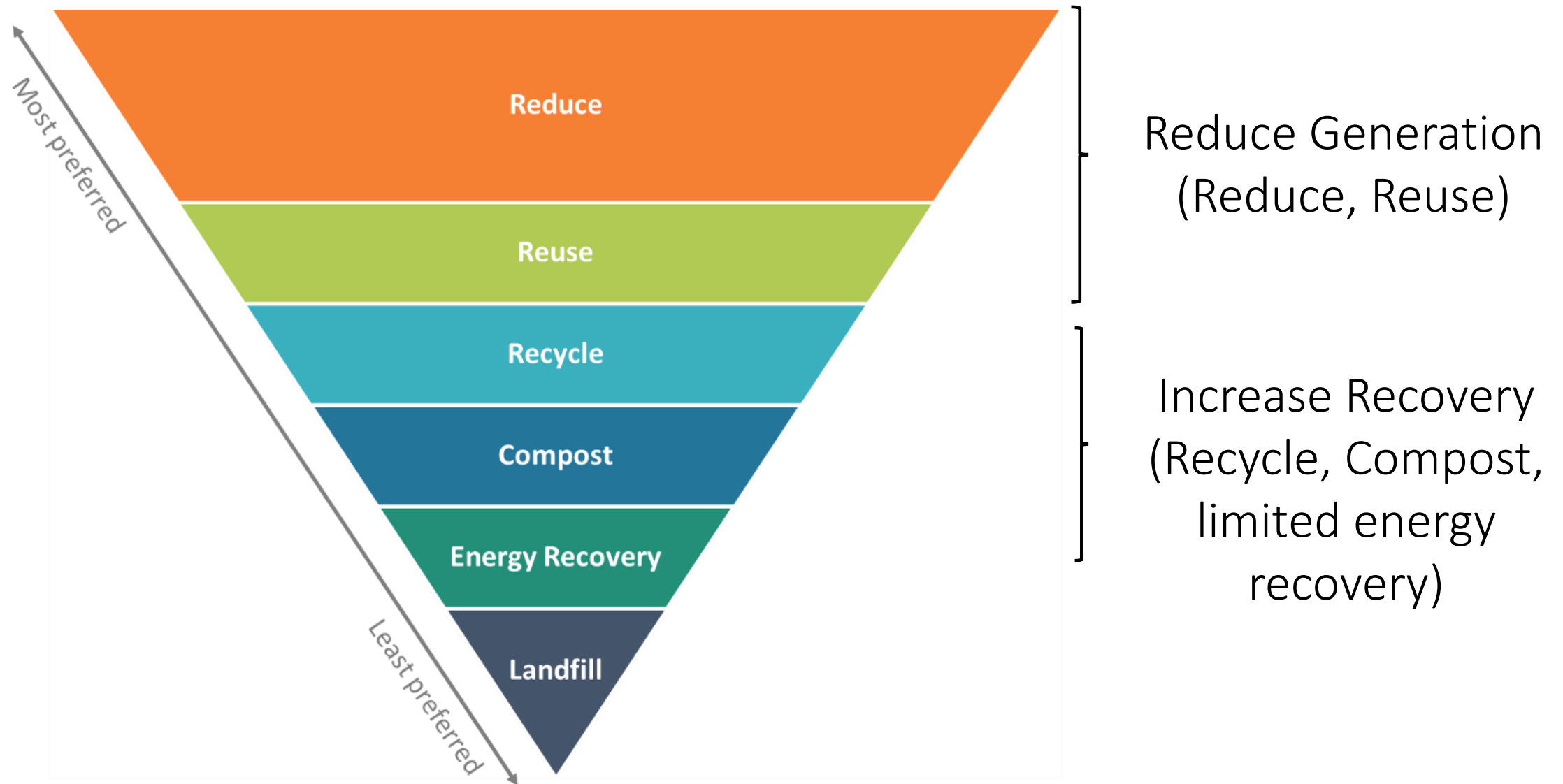


# Sustainable Materials Management



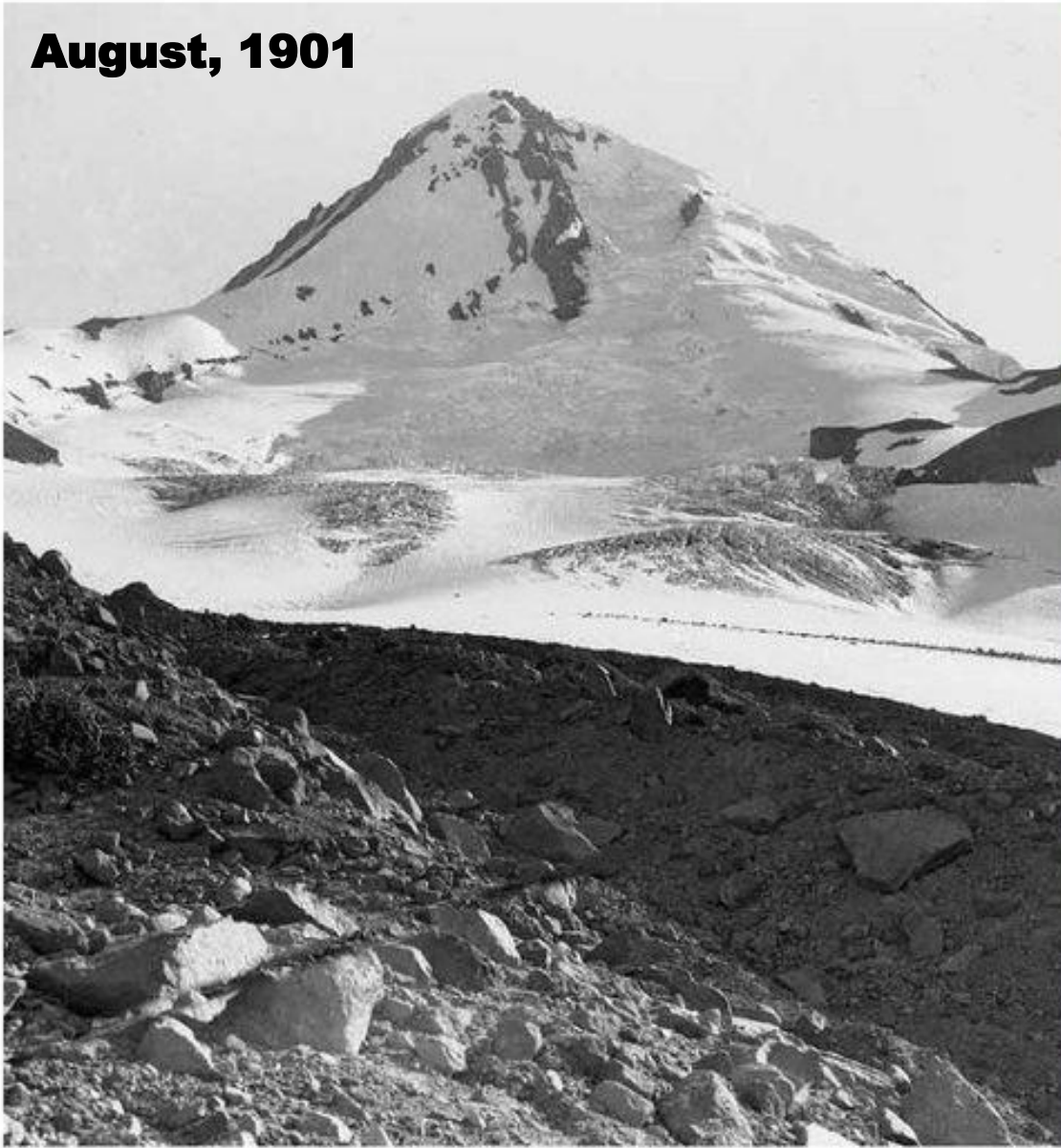


# Goals and metrics: Oregon's approach

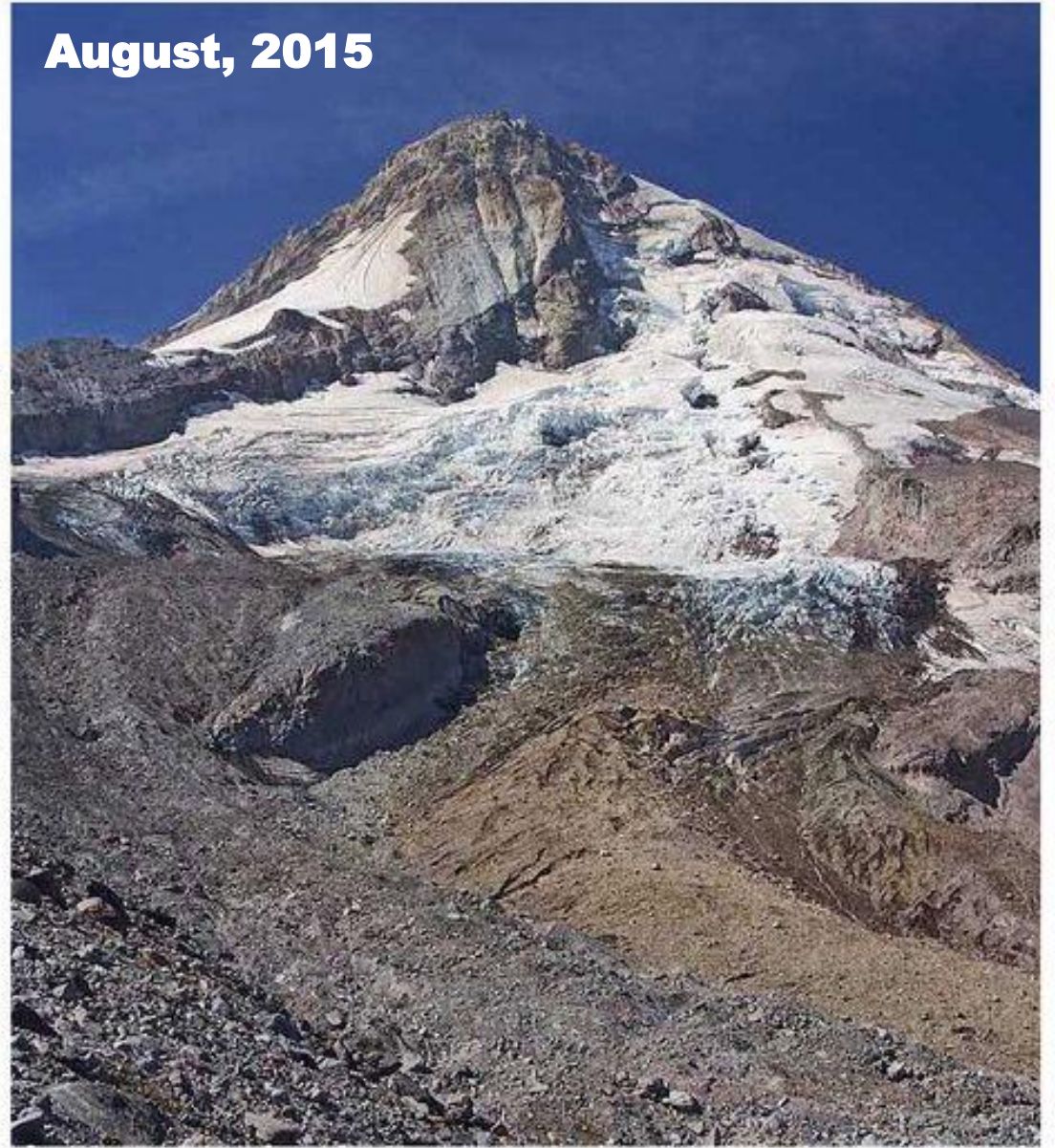




**August, 1901**



**August, 2015**





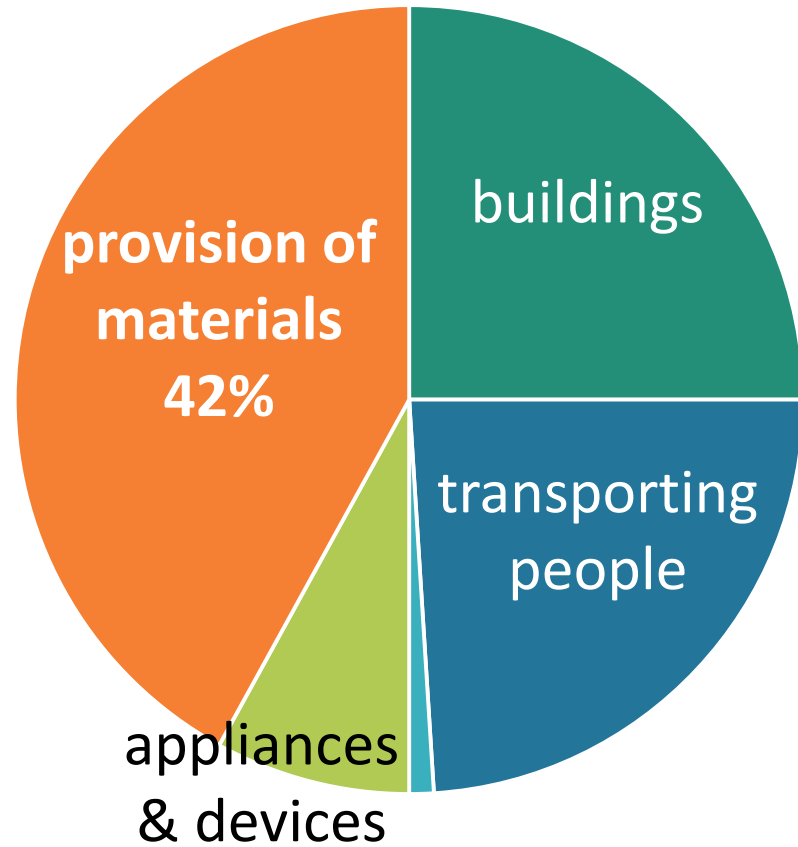
# Benefits of Waste Recovery (Oregon, 2016)

- Prevented the use of 27 trillion BTUs of energy
  - Equivalent to 2.8 percent of Oregon's total energy use
- Reduced 2.9 million metric tons of carbon dioxide equivalents
  - Equivalent to annual tailpipe emissions from ~690,000 passenger cars



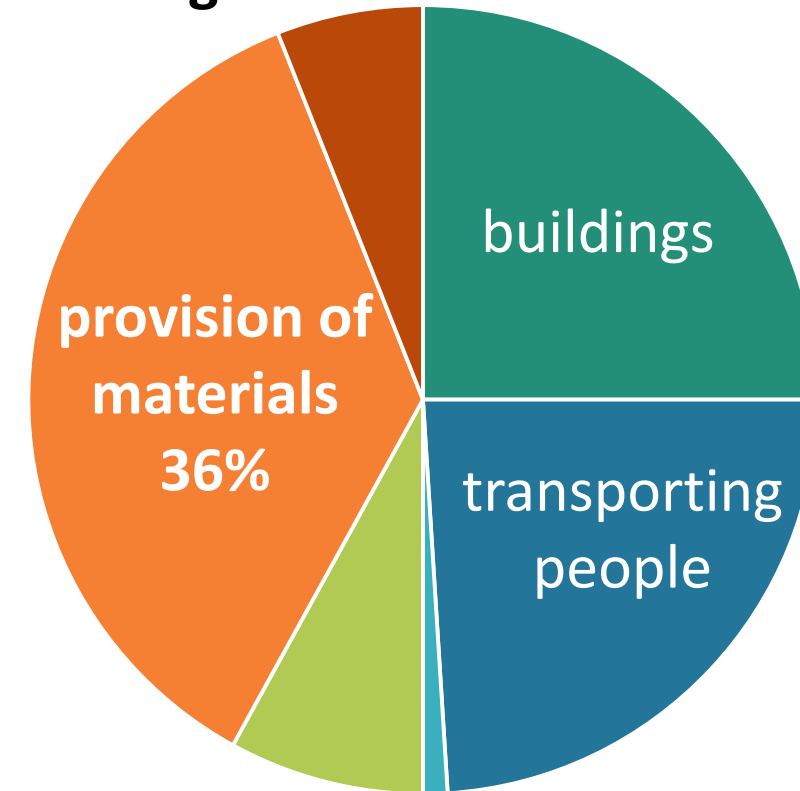


# Benefits . . . and limitations of waste recovery



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

**"savings" 6%**



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



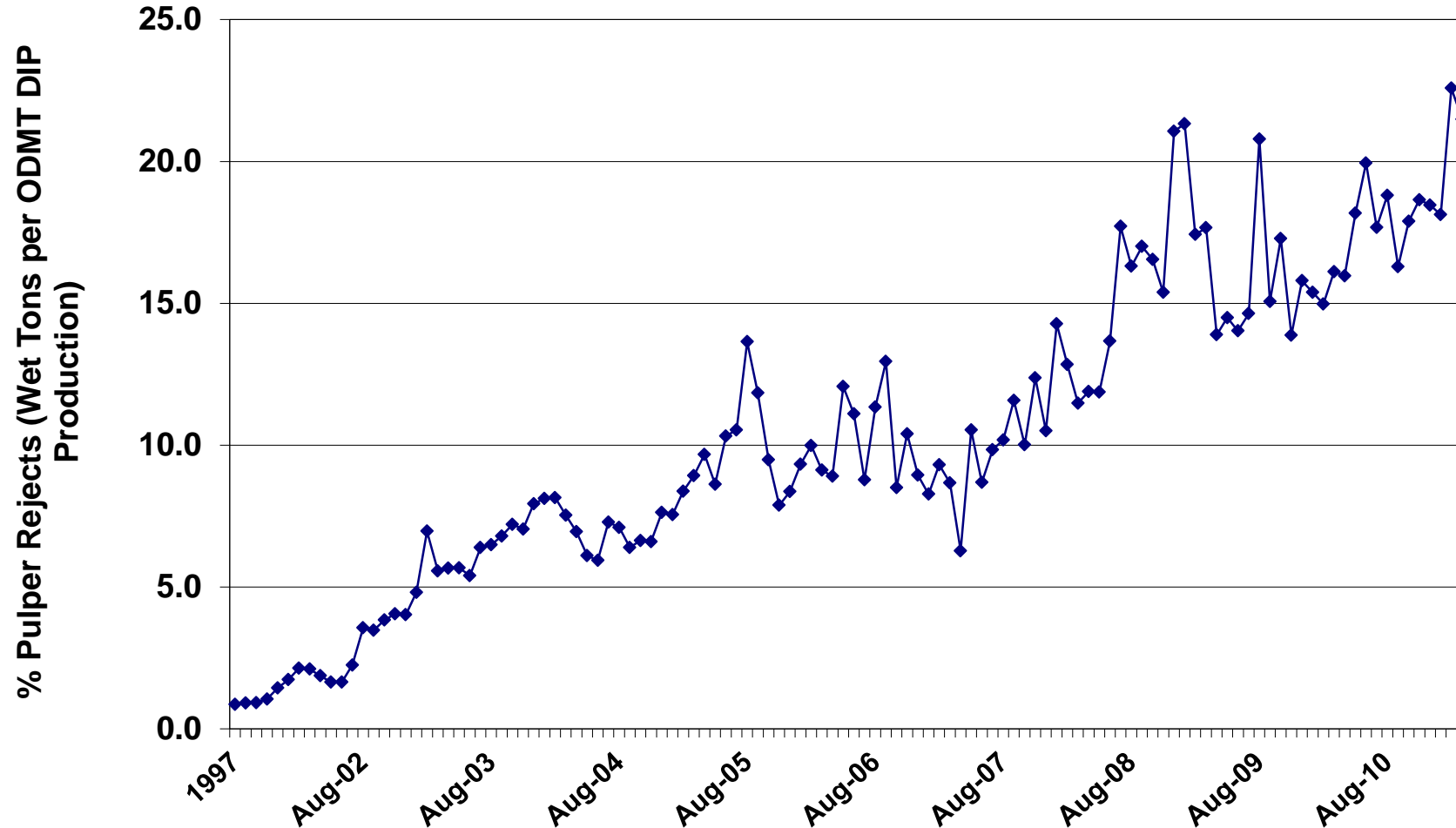
# Why quality matters





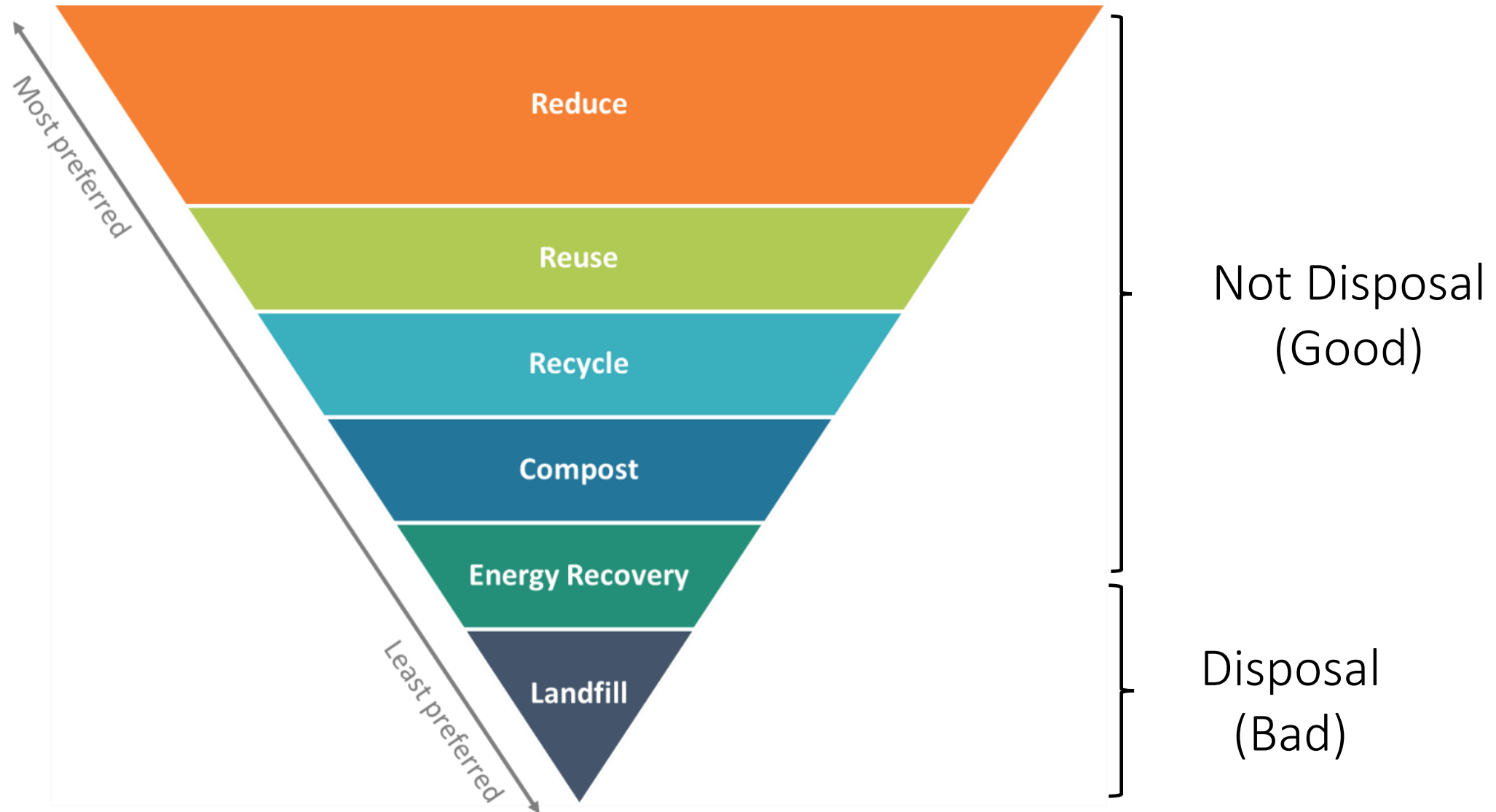
# NORPAC pulper rejects as suppliers switched to commingling and single-stream

**% Pulper Rejects through March 2011**





# Goals and metrics: a disposal avoidance goal



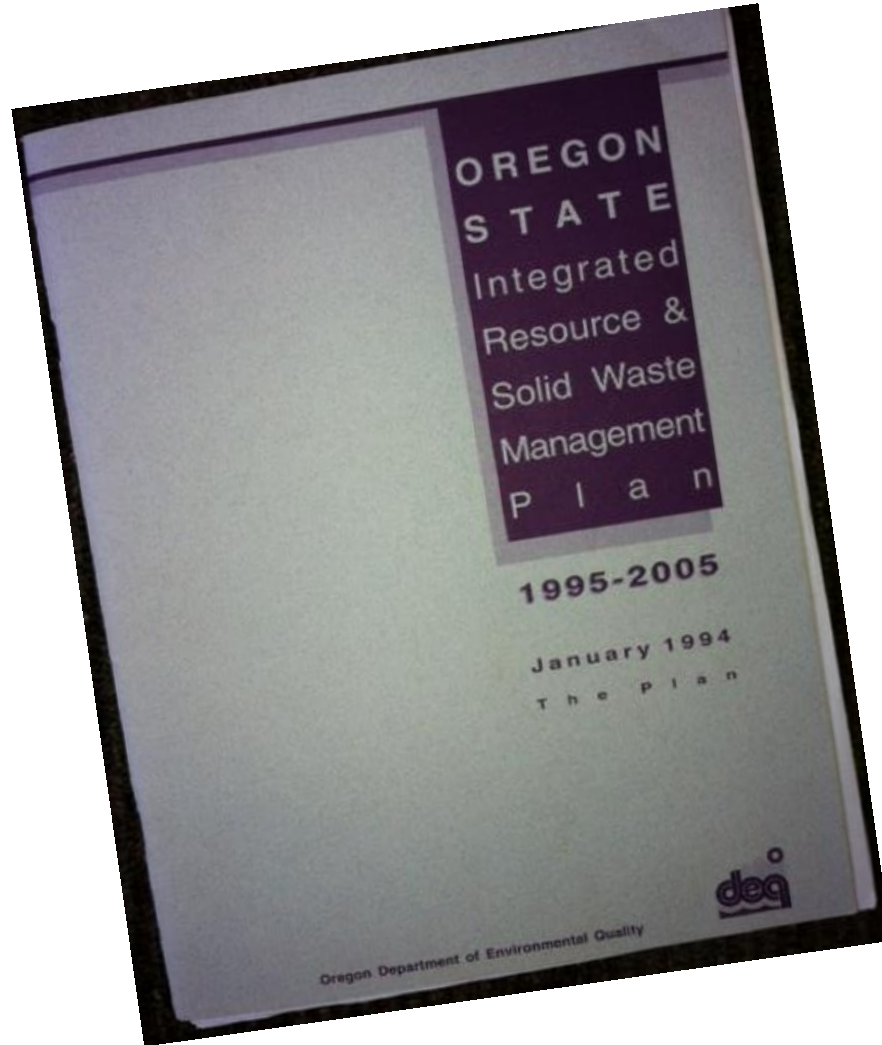


# Not all waste recovery is equally beneficial





# Background

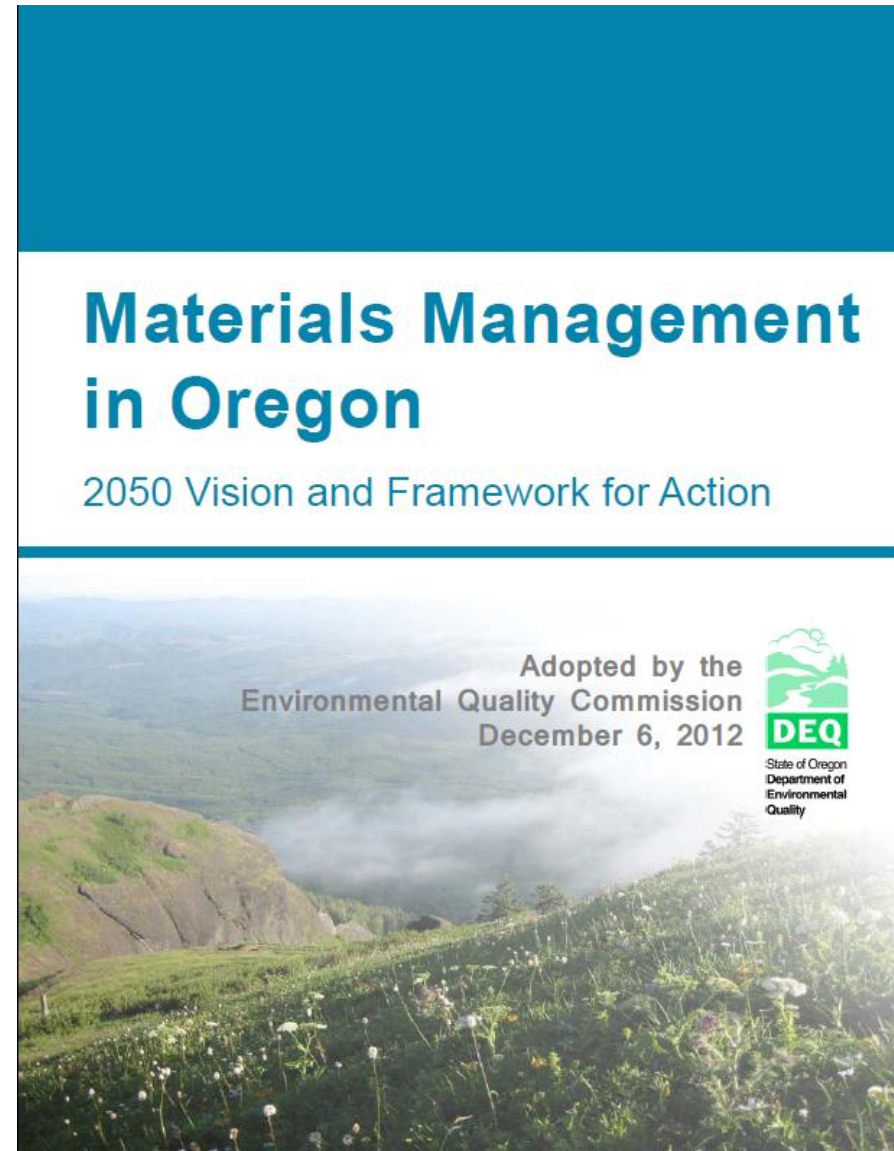


## Sustainable Materials Management: THE ROAD AHEAD





# Oregon's 2050 Vision and Framework for Action





# 2050 Vision

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





# Framework for Action



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



# 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 pre-session 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

**SECTION 1.** ORS 459.235, as amended, is amended to read: (1) Applications for permits for the construction, expansion, or modification of a solid waste disposal facility, including but not limited to a landfill, incinerator, or composting facility, shall be subject to review by the Department of Environmental Quality. An application for a permit shall include a description of the proposed facility, the location of the facility, the type of waste to be disposed of, the estimated volume of waste to be disposed of, the estimated cost of the facility, and the estimated cost of the waste disposal. The Department shall determine whether the site is suitable for the proposed facility and whether the proposed facility will comply with applicable laws, rules, and regulations. (2) The Department shall determine whether the site is suitable for the proposed facility and whether the proposed facility will comply with applicable laws, rules, and regulations. (3) In addition to the fees in ORS 459.235, the Department shall establish a schedule of permit fees for the construction, expansion, or modification of a solid waste disposal facility, including but not limited to a landfill, incinerator, or composting facility, that shall be based on the estimated cost of the facility and the estimated cost of the waste disposal. 279A.125, 279A.155, 279B.025, 279B.026, 279B.027, 279B.028, 279B.029, 279B.030, 279B.031, 279B.032, 279B.033, 279B.034, 279B.035, 279B.036, 279B.037, 279B.038, 279B.039, 279B.040, 279B.041, 279B.042, 279B.043, 279B.044, 279B.045, 279B.046, 279B.047, 279B.048, 279B.049, 279B.050, 279B.051, 279B.052, 279B.053, 279B.054, 279B.055, 279B.056, 279B.057, 279B.058, 279B.059, 279B.060, 279B.061, 279B.062, 279B.063, 279B.064, 279B.065, 279B.066, 279B.067, 279B.068, 279B.069, 279B.070, 279B.071, 279B.072, 279B.073, 279B.074, 279B.075, 279B.076, 279B.077, 279B.078, 279B.079, 279B.080, 279B.081, 279B.082, 279B.083, 279B.084, 279B.085, 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78th OREGON LEGISLATIVE ASSEMBLY-2015 Regular Session

## Enrolled Senate Bill 263

Printed pursuant to Senate Interim Rule 213.28 by order of the President of the Senate in conformance with pre-session 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 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 and local recovery goals (all wastes)
  - 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



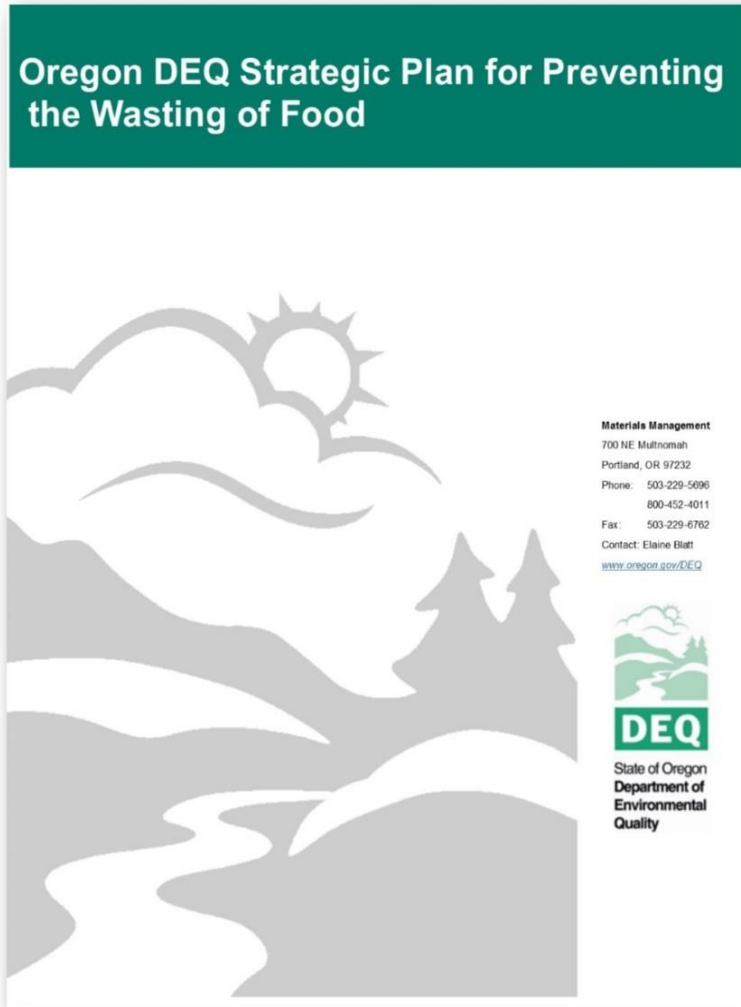
# Waste Recovery (Recycling, Composting)

- Reducing contamination
- Multi-tenant
- High priority materials:
  - Plastics
  - Food





# Preventing the Wasting of Food



- Measurement study
- Messaging research
- Commercial campaigns
- Consumer campaigns and outreach
- Grants
- Optimizing/improving food rescue
- Regional coalition



# Workforce Development Micro-grants



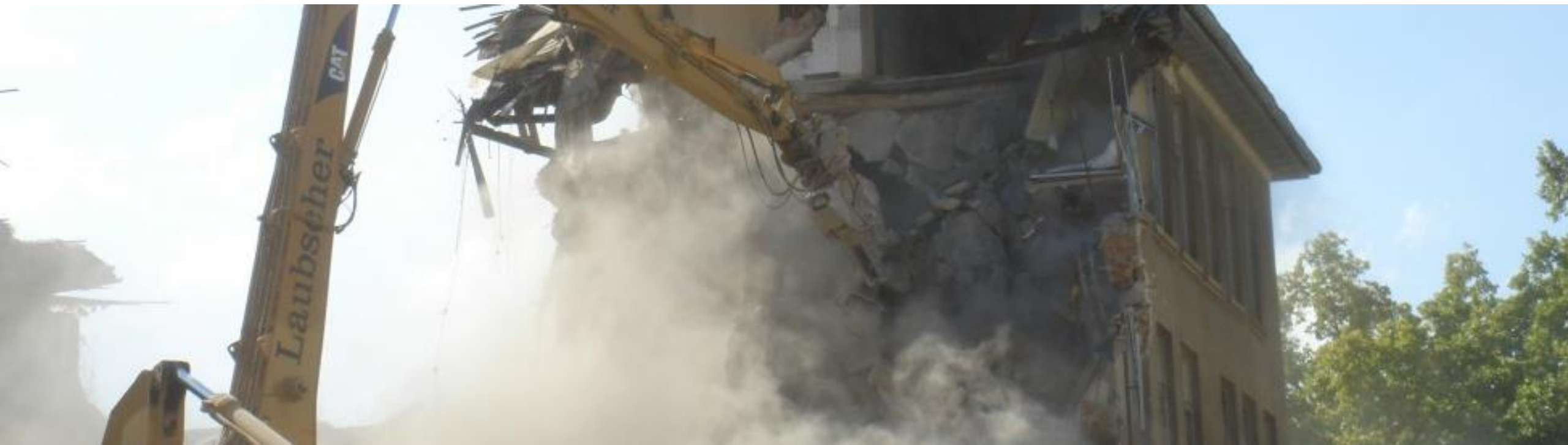


# Deconstruction Skills Training





# SB 871 & Lead-Based Paint Best Practices



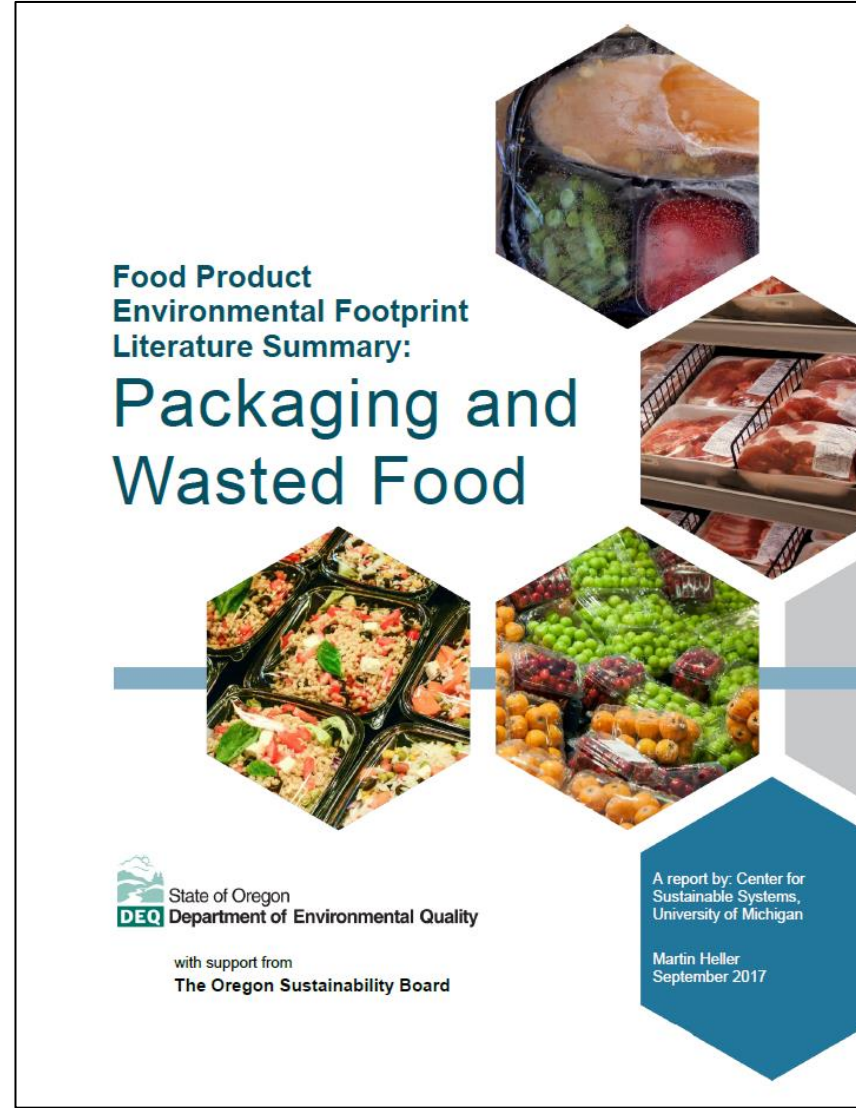


# Project IMFO (environmental Impacts of Material Flows in Oregon)



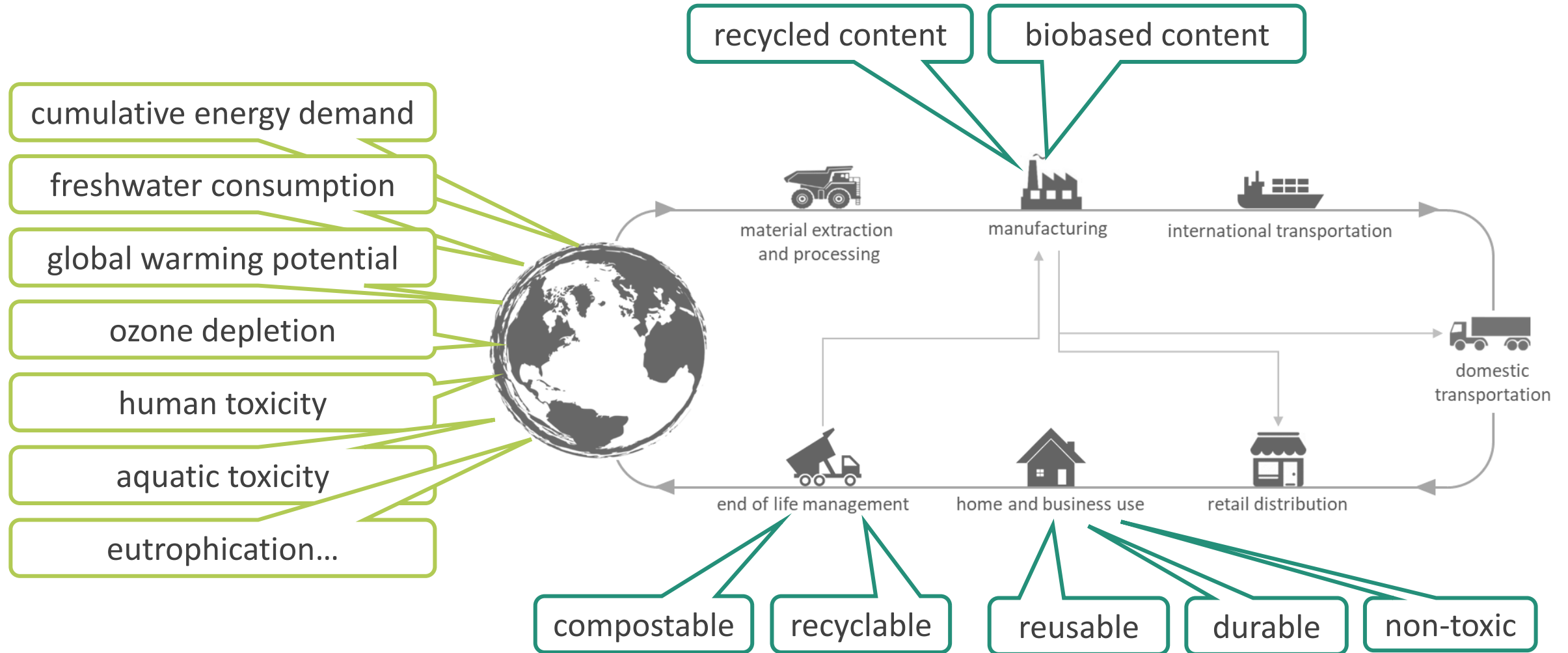


# Food product environmental footprint research





# materials attribute & life cycle impacts





# DEQ life cycle assessment of e-commerce packaging





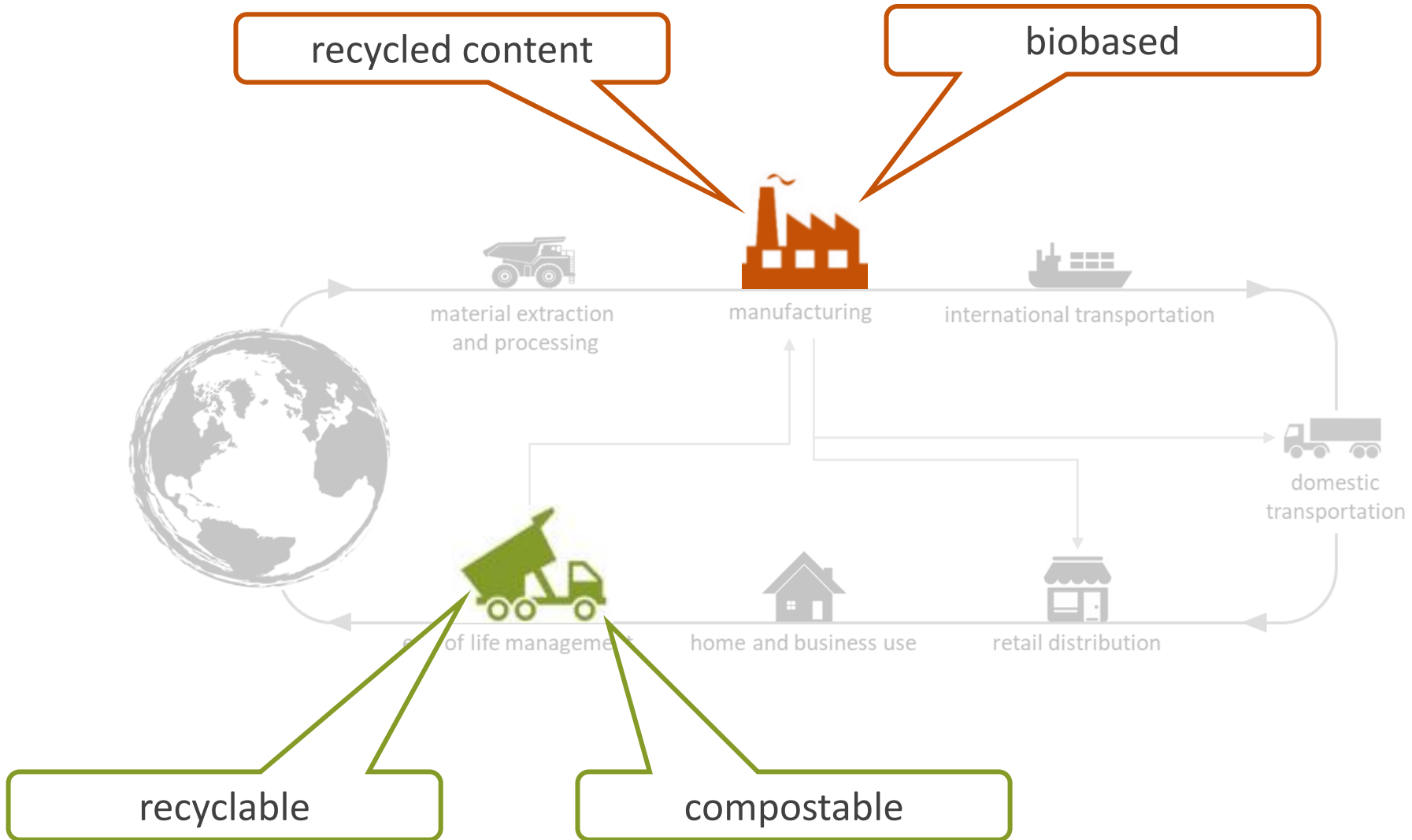
# research question

How well (and when) do popular material attributes correlate with reduced environmental impacts?





# four materials attributes reviewed





# product categories

PACKAGING

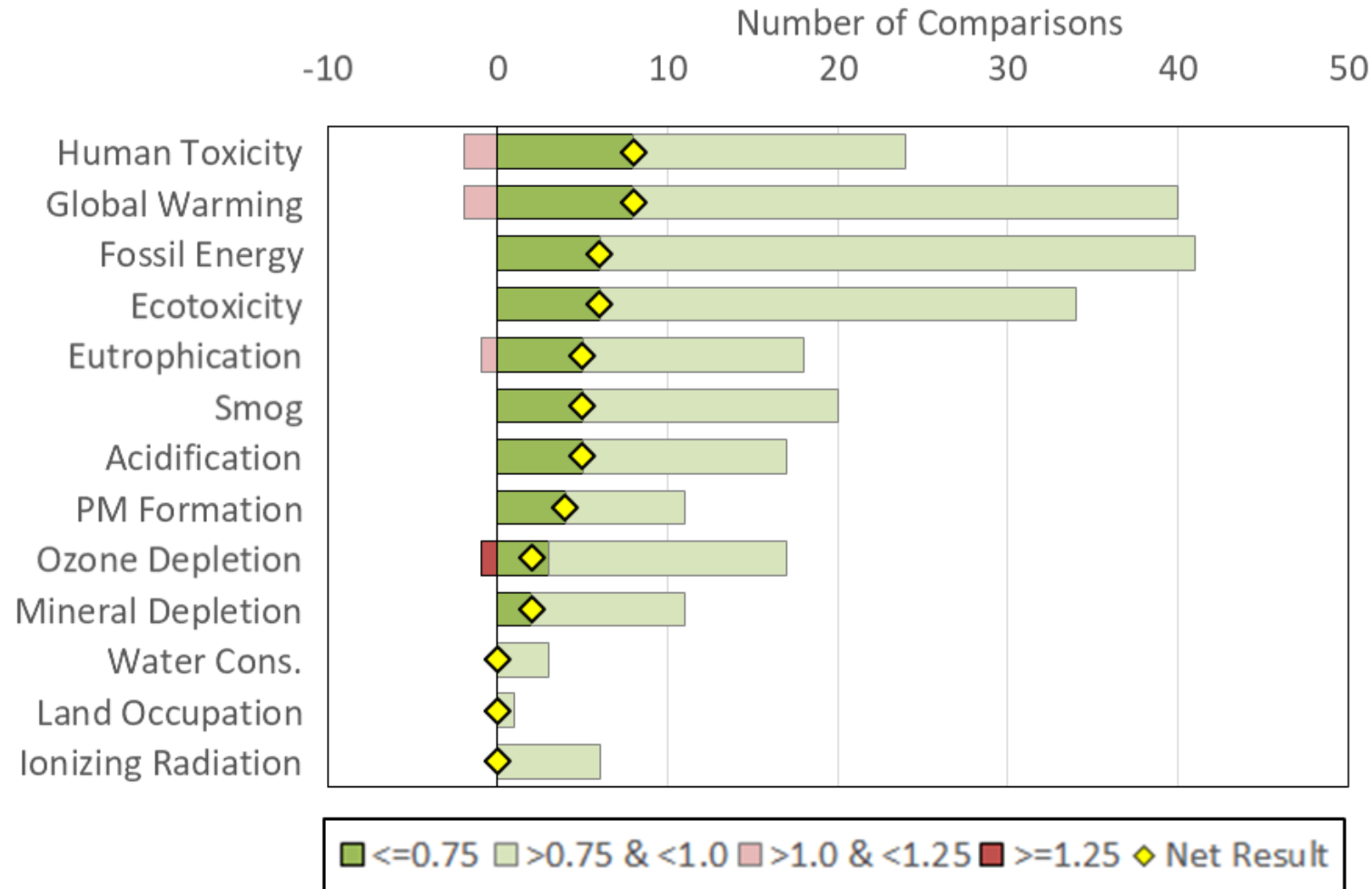


FOOD SERVICE WARE



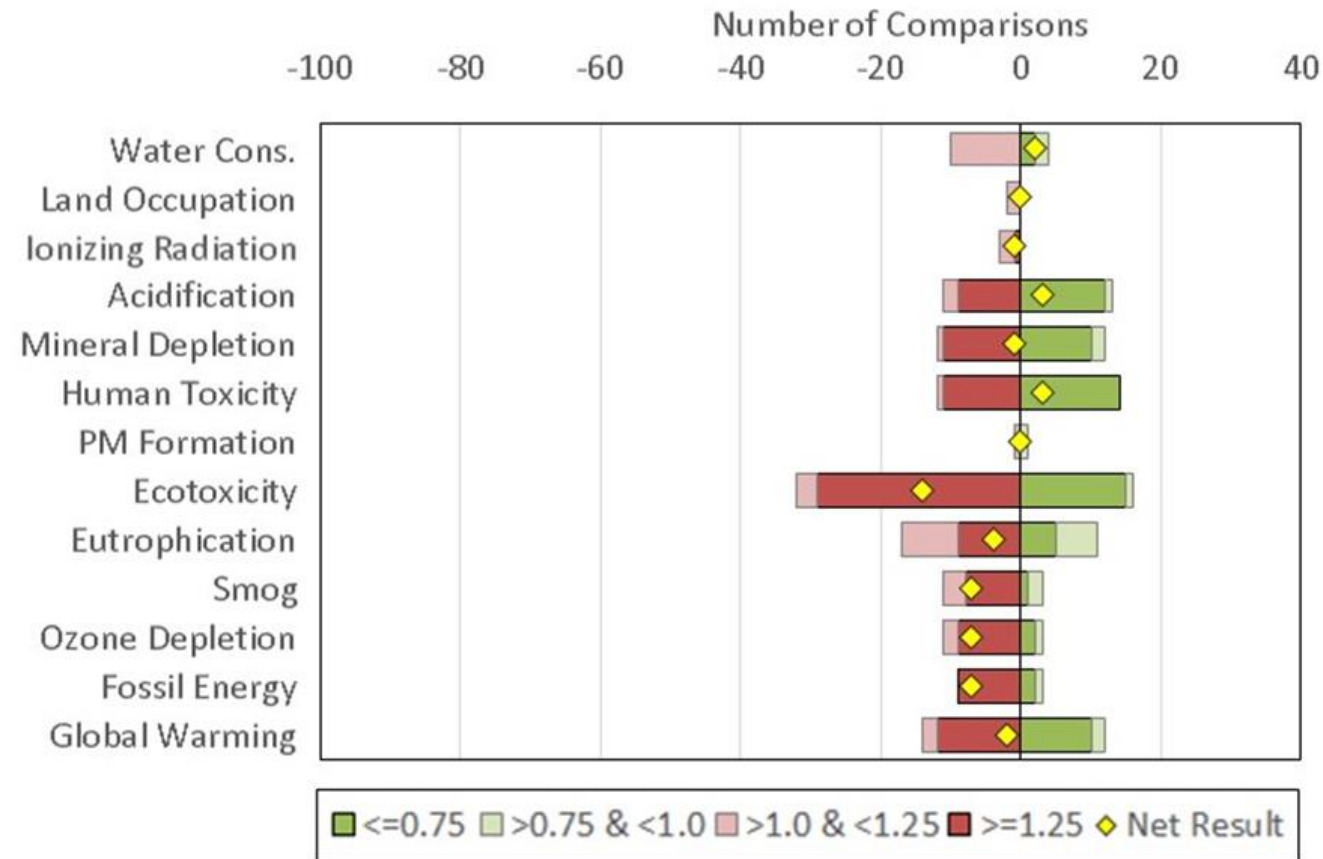


# same material packaging with higher PCR vs. lower PCR





# comparing different materials based on PCR



When considering individual impact categories, the results comparing packaging systems made of a material with higher recycled content with a packaging system of different material with lower or no recycled content are mixed.



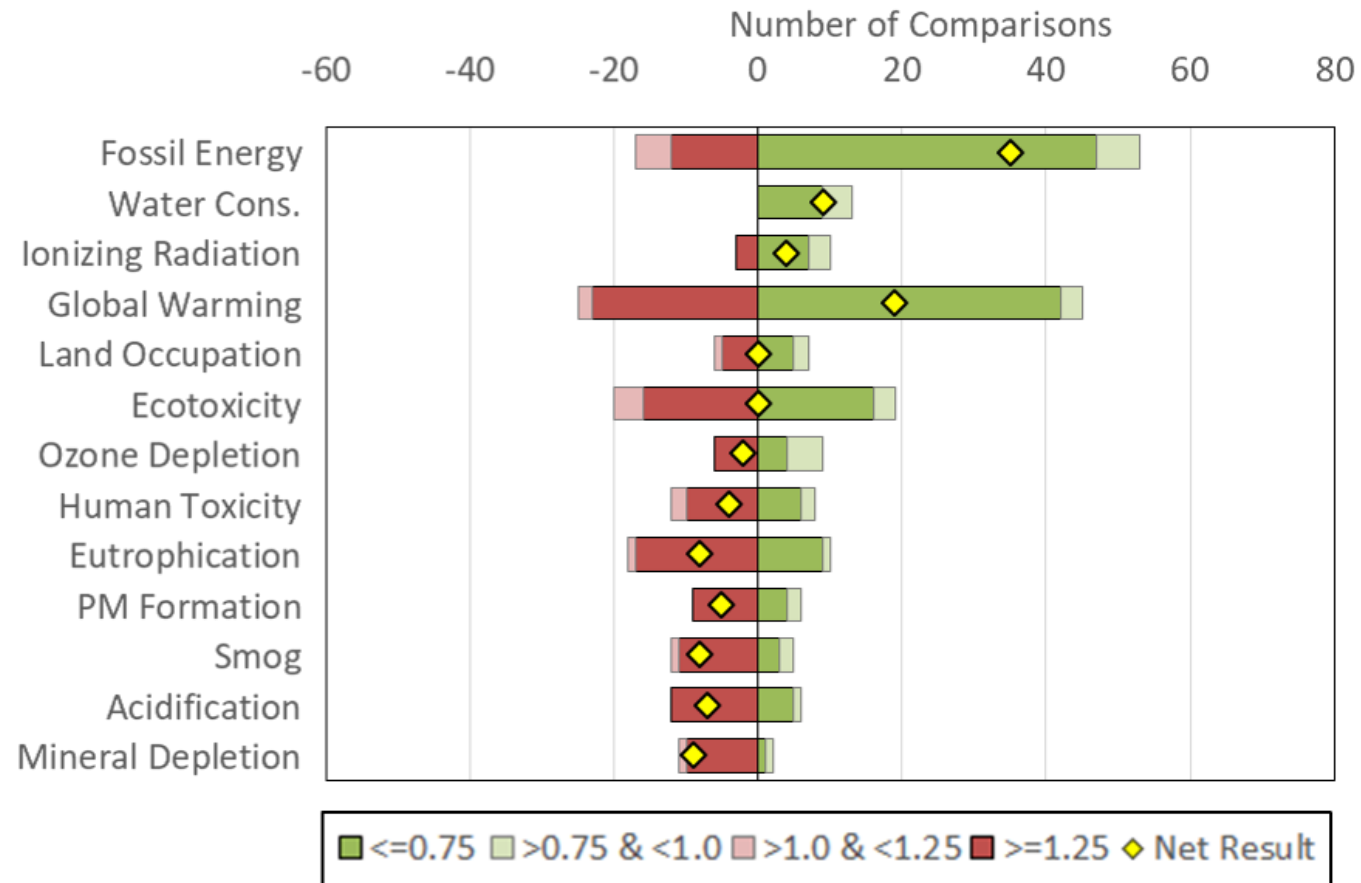
# Recycling ≠ Recyclability

**Recycle** \rē'-si-kəl\ *vt* 1: to collect and treat used objects and materials that are ready to be thrown out in order to produce materials that can be used again

**Recyclable** \rē'-si-klə-bəl\ *adj* 1: able to be recycled



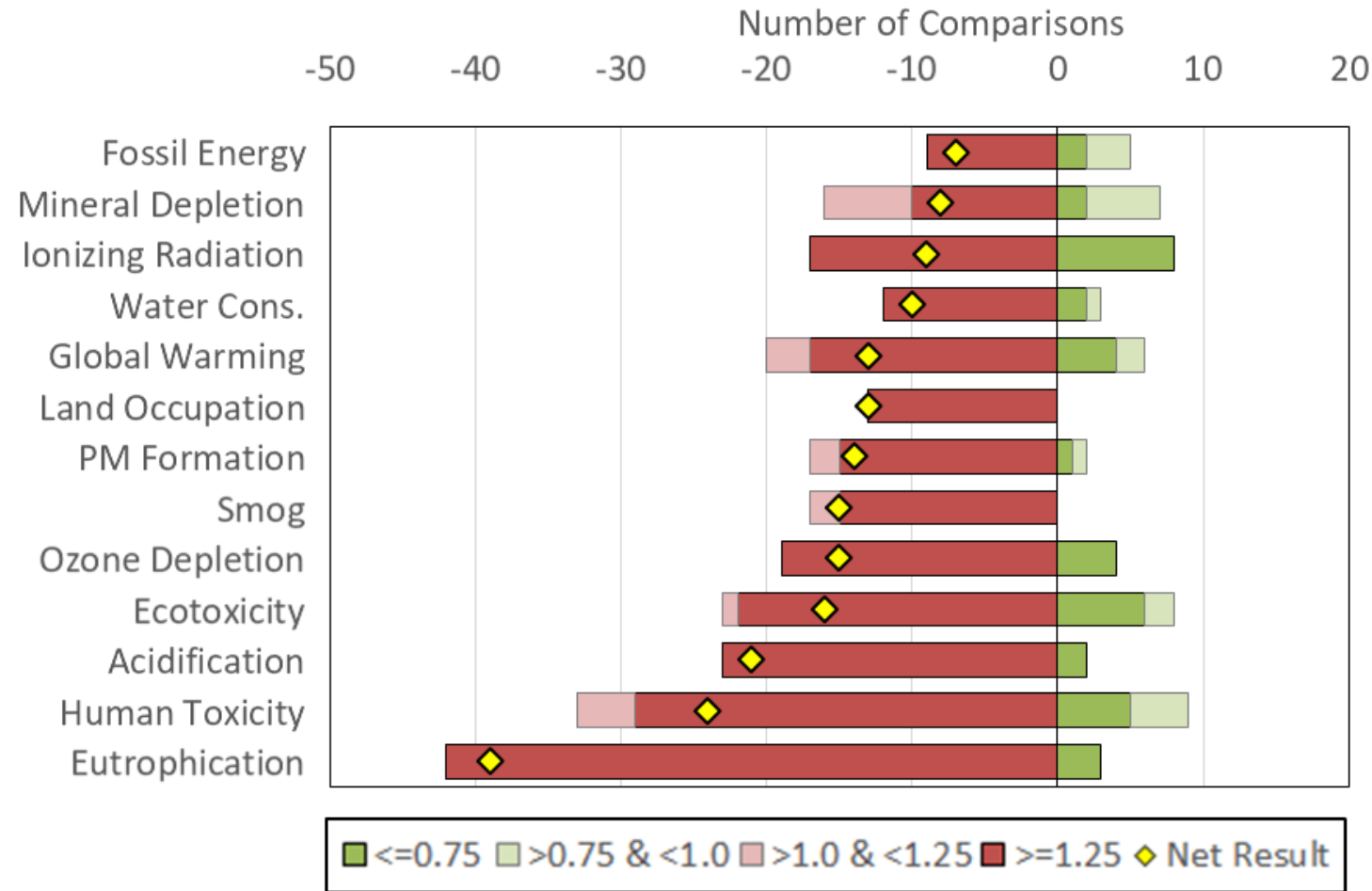
# comparing different materials based on recyclability



Results of all comparisons between different materials across impact categories are mixed. This suggest that packaging materials may be more important in determining a package's environmental footprint than recyclability.



# compostable FSW vs. non- compostable FSW





# Concluding thoughts

1. Be clear about your higher-order goals – and measure against them

*capture and recovery rates; generation rates; actual environmental impacts*

2. Recycle right

*focus on quality; treat recyclables as commodities; design collection as a supplier would; require industry involvement*

3. Expand our toolbox – including the upper tiers of the “waste” hierarchy

*waste prevention and reuse*

4. Build internal capacity to understand environmental impacts

*popular wisdom is always popular but not always wise*





# materials management

*conserving resources · protecting the environment · living well*

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