



Recycled Content Mandates: The Good, the Bad, and the Ugly

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Today's presentation

1. Some limitations of PCR mandates
2. An alternative approach to the challenge of recycling markets



Potential limitations & unintended consequences

1. Long supply chains don't support local supply



Potential limitations & unintended consequences

1. Long supply chains don't support local supply
2. Environmental benefits may not be maximized
 - And existing beneficial end markets may be disrupted, at higher cost!

Example: end markets for glass packaging



Packaging



Fiberglass



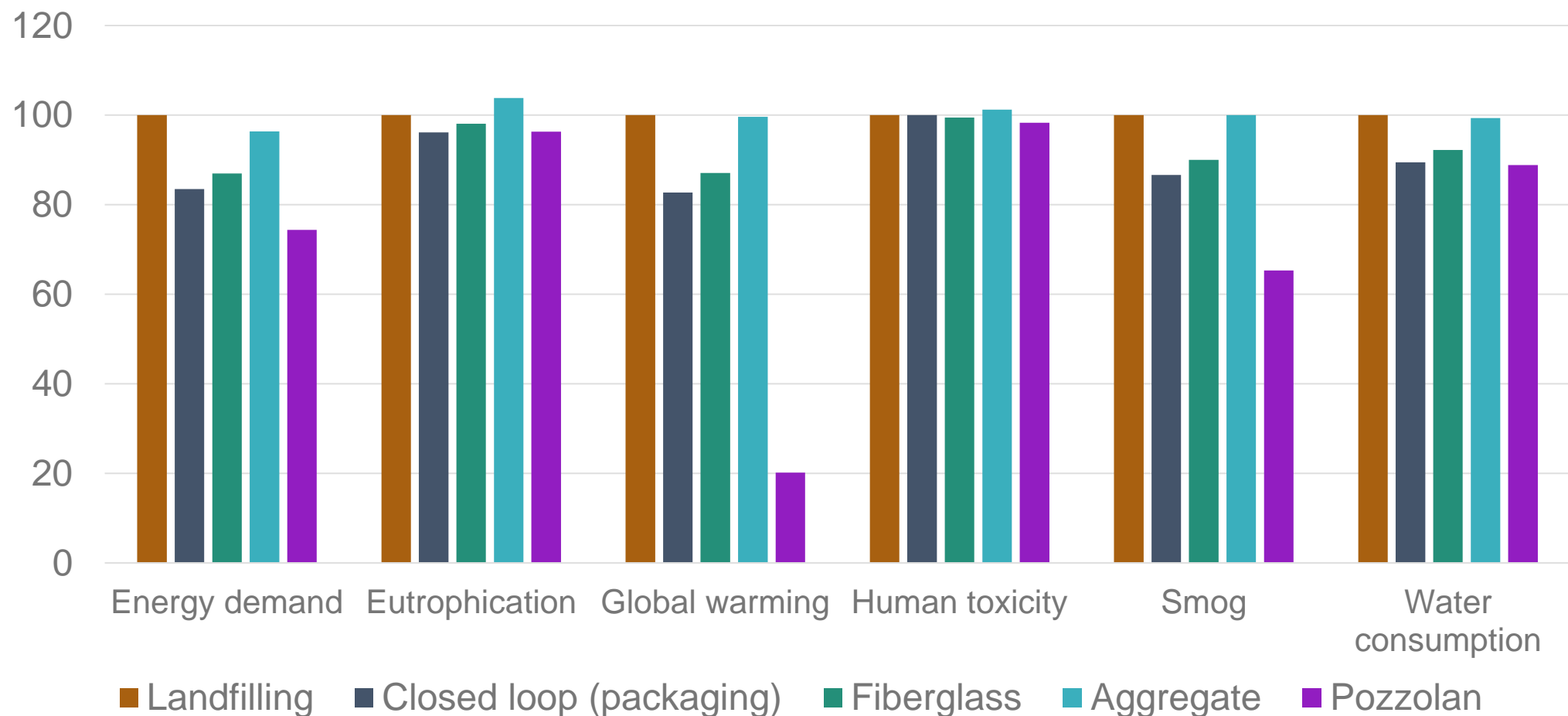
Aggregate



Pozzolan

Relative environmental impacts (life cycle)

Glass bottle production plus disposal or recycling via 4 different end markets





Sample exemption language

Oregon Revised Statute 459A.550

(5) On or after January 2, 2008, in determining whether a glass container manufacturer has met the 50 percent minimum percentage requirement, the department shall credit toward the requirement the combined amount of recycled glass generated in Oregon for secondary end uses. If the combined amount meets the 50 percent minimum percentage requirement, the department shall not initiate enforcement action.

Example: end markets for HDPE packaging

End market	Material displaced	Processing requirements	Net benefit
Closed loop 	Virgin HDPE	Higher	Worse
Open loop 	Virgin HDPE	Lower	Better

Closed Loop (“Upcycling”) vs. Open Loop (“Downcycling”)

FORUM

Common Misconceptions about Recycling

Roland Geyer, Brandon Kuczynski, Trevor Zink, and Ashley Henderson

Keywords:

closed-loop
displacement
industrial Ecology
life cycle assessment
open-loop
recycling

Summary

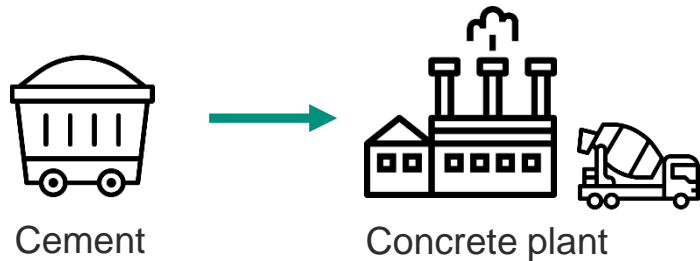
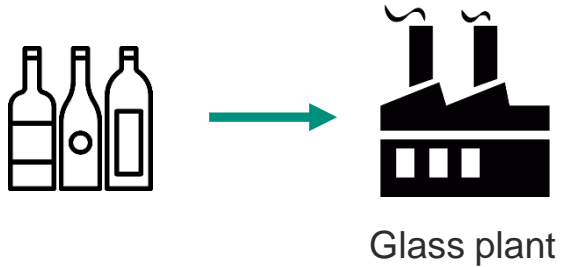
The recycling of material resources lies at the heart of the industrial ecology (IE) metaphor. The very notion of the industrial ecosystem is motivated by the idea that we should learn from natural ecosystems how to “close the loop.” Recycling is not just central to IE, it is part of everyday life. Unfortunately, how the IE community and the public at large think about recycling includes several misconceptions that have the potential to misguide environmental assessments, policies, and actions that deal with recycling and thus undermine its environmental potential. One misconception stems from naïve assumptions regarding recycled material displacing primary production. Two others assert the environmental advantages of recycling material multiple times, or at least in a closed loop. A final misconception is the assumption that the distinction between closed and open recycling loops is generally useful. This article explains why these misconceptions are flawed, discusses the implications, and presents an alternative set of principles to better harness the potential environmental benefits of closing material loops.

Article *in* Journal of Industrial Ecology · October 2015

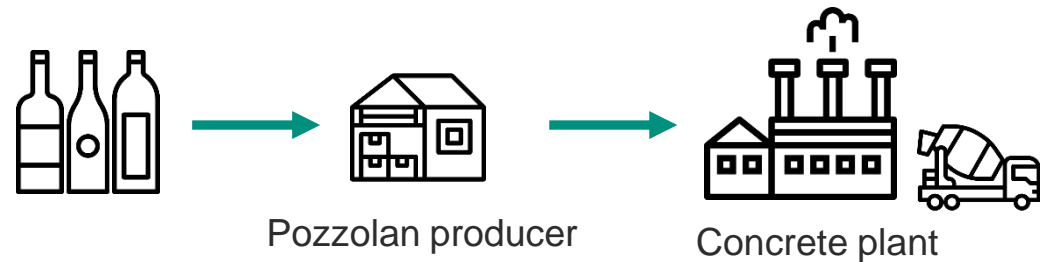
DOI: 10.1111/jiec.12355

A simple example

“Closed loop” recycling



“Open loop” recycling



Higher levels of PCR don't always translate into displacement of virgin resources



Potential limitations & unintended consequences

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3. Administrative burdens, loopholes and exemptions

Potential limitations & unintended consequences

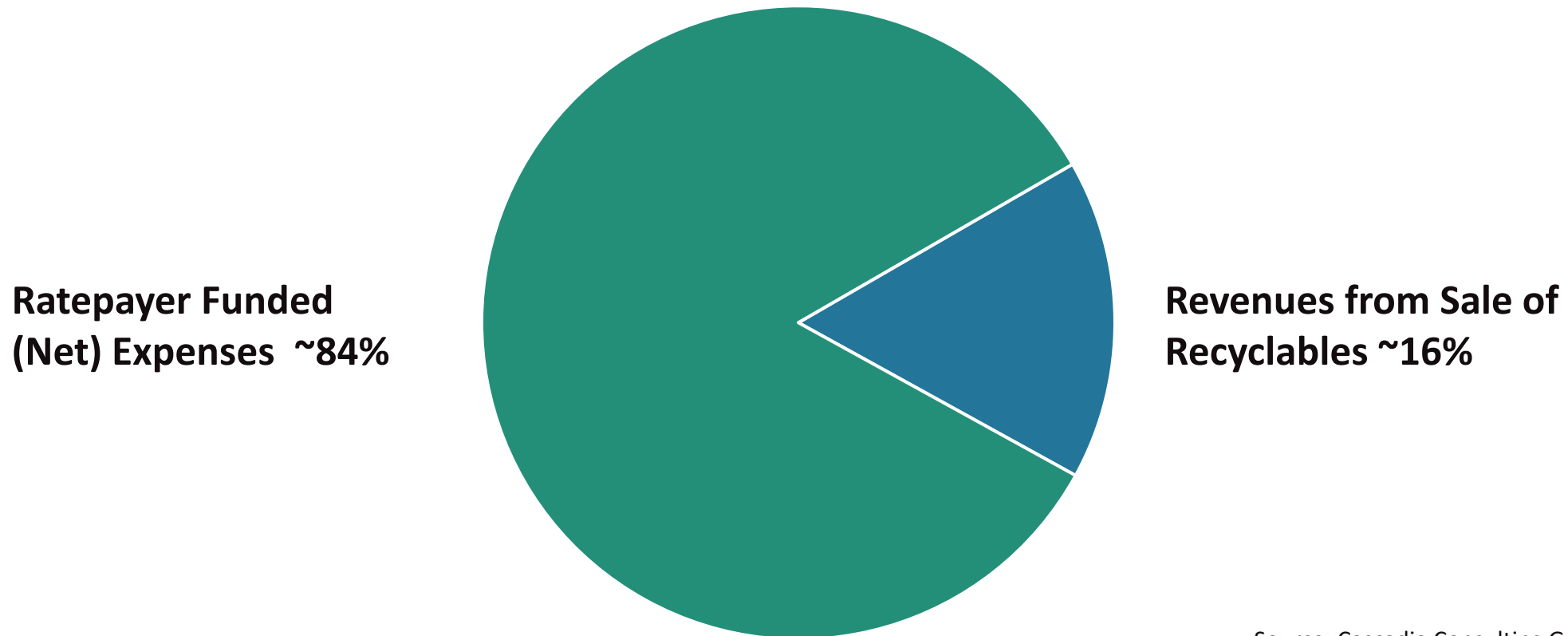
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4. Potential for limited impact on prices (recycling revenue)

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3. Administrative burdens, loopholes and exemptions
4. Potential for limited impact on prices (recycling revenue)
5. Limited impact on supply

The “signal” of market prices is masked by public mandates and subsidies

Estimated Oregon 2018 Public Recycling System Gross Expenses (in 2020\$): \$267 million

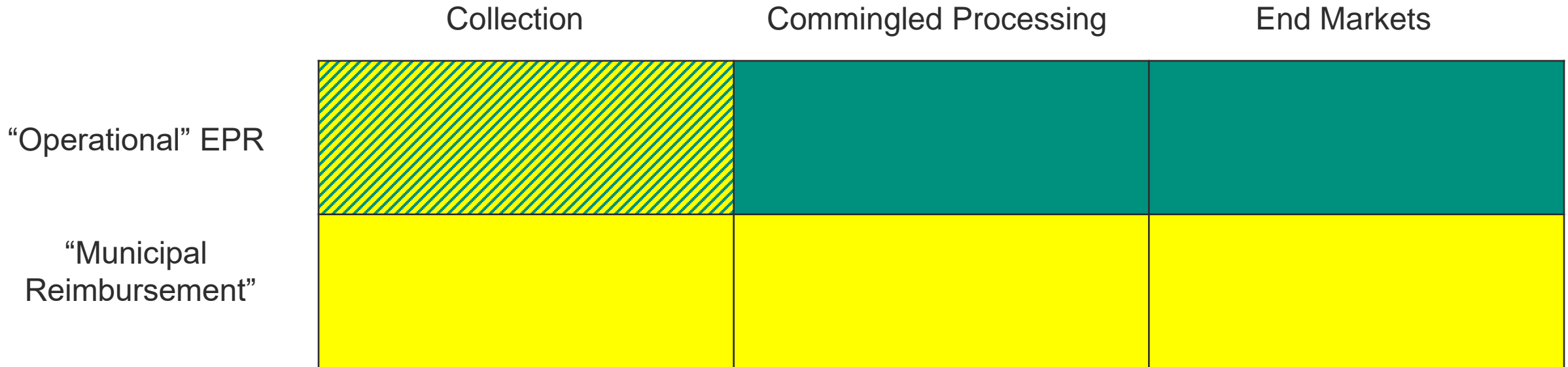


Source: Cascadia Consulting Group/Oregon DEQ


Is there another path?



Elements of EPR



 Operational obligation by PRO(s)

 Reimbursement obligation by PRO(s)

Elements of EPR

Collection

Commingled Processing

End Markets

“Operational” EPR

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“Municipal Reimbursement”

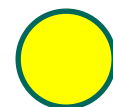
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Oregon’s Recycling Modernization Act (SB 582, 2021)

<p>some materials (e.g., commingled mix)</p>		
<p>other materials (e.g., return to retail)</p>		



Operational obligation by PRO(s)



Reimbursement obligation by PRO(s)

Additional elements of reform

- Boost supply by expanding collection services and increasing the number of materials collected
- Close loopholes that result in harmful exports
- Significantly improve quality of material sent to end markets
- Address multiple social equity concerns
- Disclose and reduce life cycle environmental impacts
- Fund waste prevention and reuse



Photos: Megan Ponder

Can EPR and PCR mandates work together?





Thank you!

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