

Association of Climate Control Officers

The Waste and Climate Change Nexus

October 19, 2010

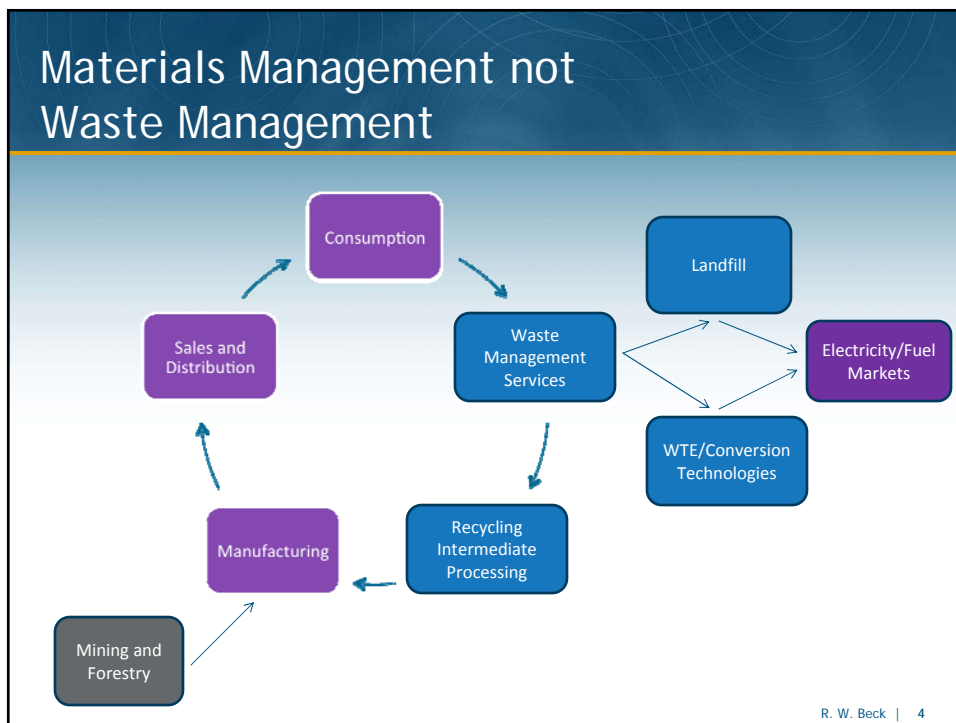
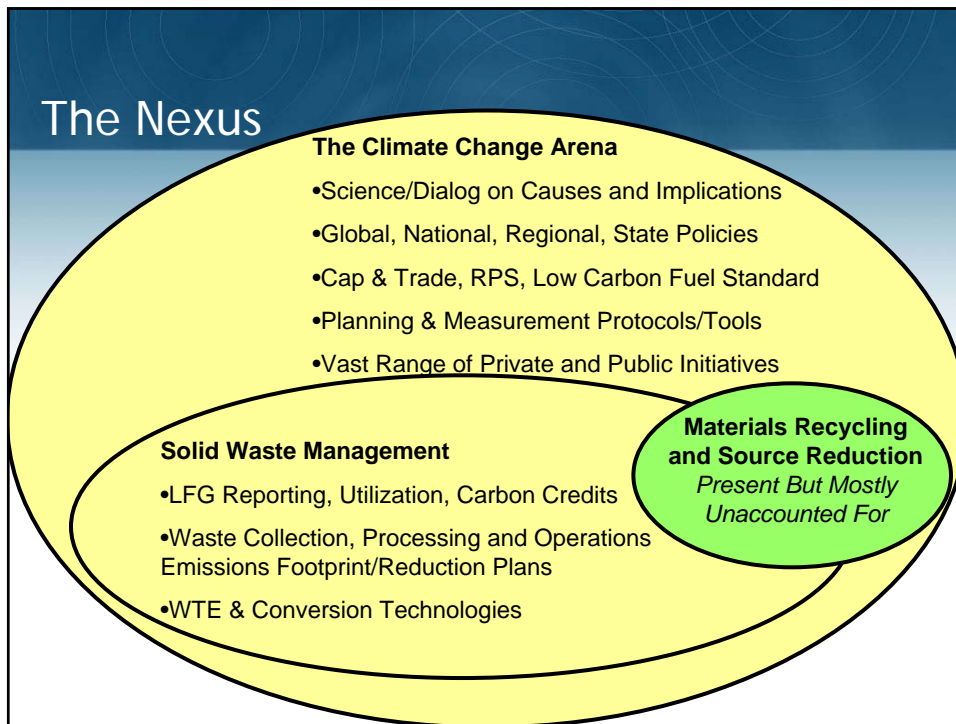
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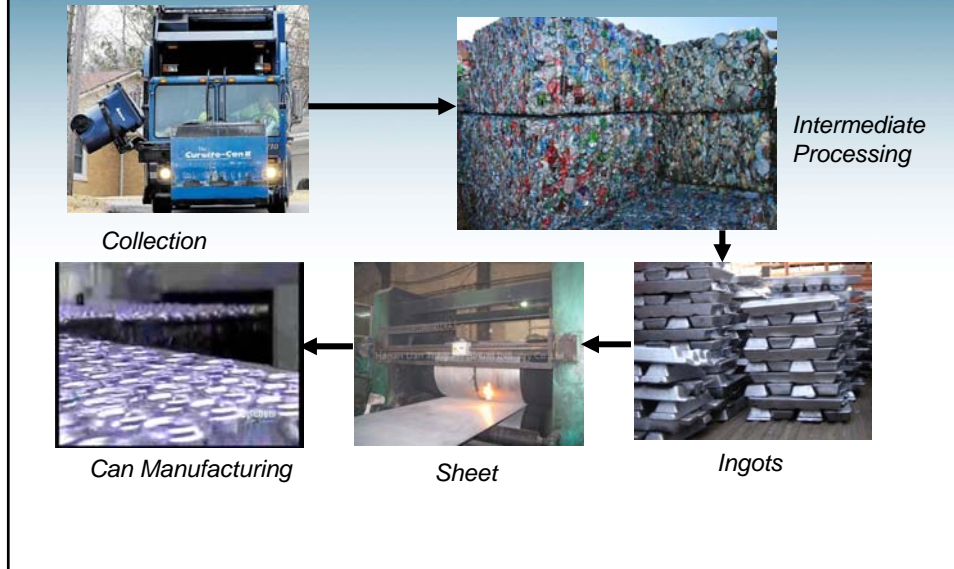


- The Waste-Climate Nexus
- Measurement Challenges
- Waste-Climate Hot Topics

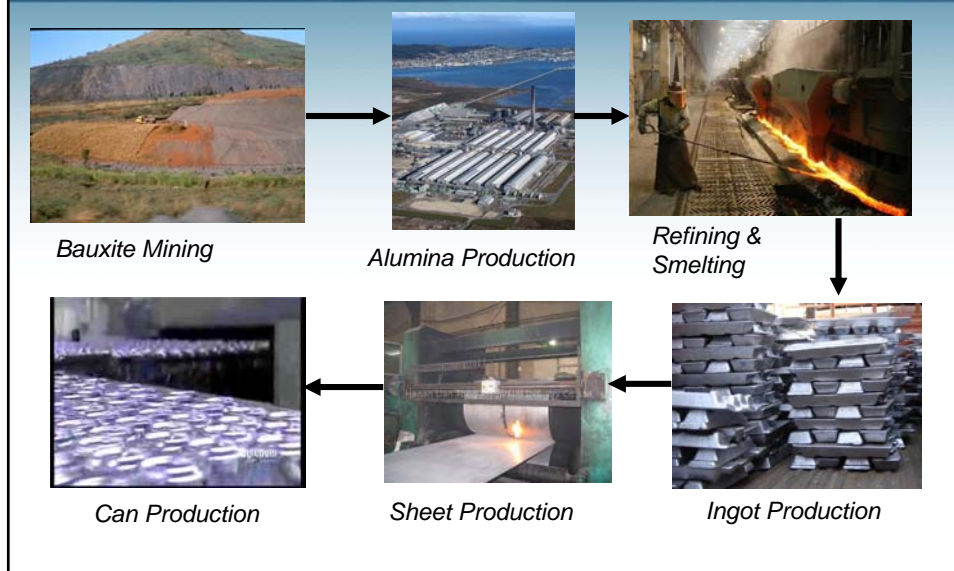
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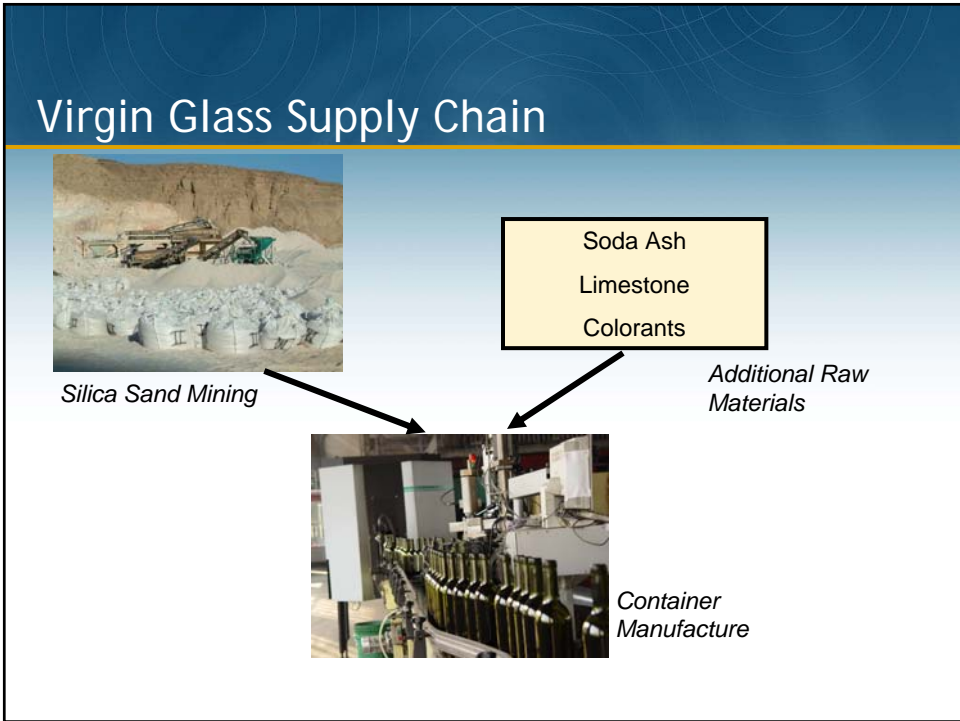


Recycled Aluminum Supply Chain



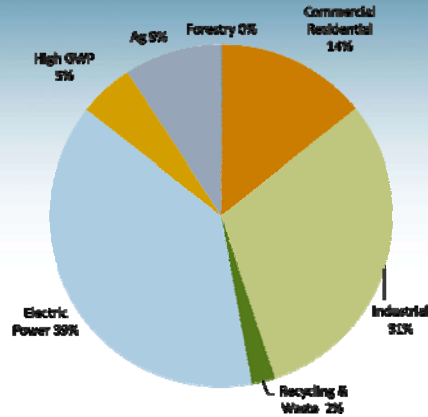
Virgin Aluminum Supply Chain





California GHG Inventory (2008)

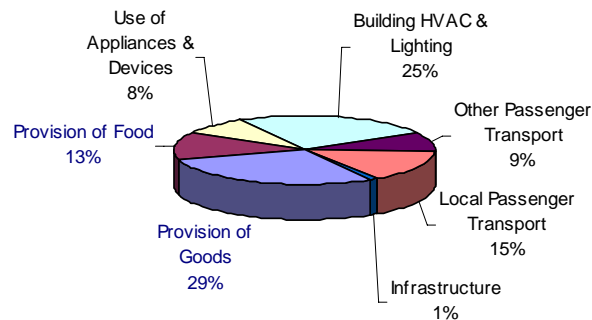
Total Emissions: 474 MMTCO₂e



Recycling Gets Lost in Standard GHG Inventories Because Impacts are Spread Across Sectors and Jurisdictions

Source: CA Air Resources Board
Summary by Scoping Plan Category

US EPA Systems-Based Inventory (2006)



Systems-based inventories show materials management is associated with about 42 percent of US anthropogenic GHG emissions

Source: US Environmental Protection Agency

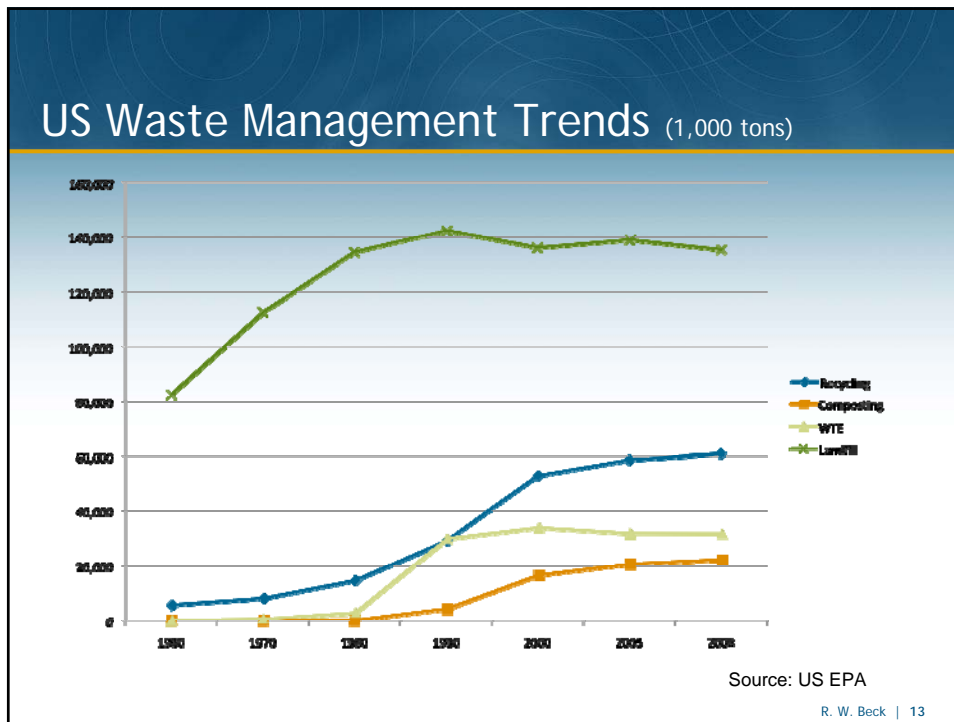
Consumption-Based GHG Inventories

- Allocate Emissions Associated With Products to Consuming Jurisdictions
- Subtract Out Exports
- Oregon DEQ Study Under Way
- King County Joint Study Under Way
- Product Policy Institute:
 - US Consumption Based Emissions are 12% Higher Than Domestic Direct Emissions

Measuring LCA Emissions is Tricky

- Types of Emissions
 - Scope 1 - Organization has Direct Control
 - Scope 2 - Purchased Electricity, Heat, Steam
 - Scope 3 - Supply Chain Emissions
- Most Commonly Used Tool: EPA's WARM Model
- WRI/WBCSD Protocols
 - Product Life-Cycle Accounting Standard
 - Corporate Value Chain Accounting Standard
 - 60 Company "Road Test" Recently Completed

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- ### Shared Responsibility
- Government
 - Waste Management Industry
 - Product and Package Manufacturers
 - Brand Owners
 - Retailers/Distributors
 - Consumers/Waste Generators
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Waste Management Hot Topics

- Funding and Efficiency
- Zero Waste/Intensive Recycling
- Product Stewardship
- Focus on Hard to Recycle/Problem Materials
- Role of WTE and Conversion Technologies
- Market/Infrastructure Development
- Collection and Processing Technologies
- Branding/Education
- Harmonization

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Climate Related Hot Topics

- Integrating Waste Management and Sustainability/Climate Change
- Need for Better LCA Data and Tools
- Offset Credits for:
 - Landfill Gas Mitigation, Composting, Anaerobic Digestion
 - Not Recycling
- How Will Climate Initiatives Drive Waste Management Evolution?

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Policy Example: California's AB 32

- Overview
 - Goal: Reduce GHG Emissions to 1990 Levels by 2020
 - Estimated 174 MMTCO₂e Reduction, or 29% Over Business-as-Usual
 - Broad Authority; Wide Range of Measures
 - Cap & Trade Set for 2012 Implementation
 - Will be Tested in November Election - Potential for Roll Back

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Selected AB 32 GHG Reduction Measures

Measure	Target Reduction (MMTCO ₂ e)
Landfill Methane Control	1.5
Increased Landfill Methane Efficiency	2*
Mandatory Commercial Recycling	5*
Expanded Composting	2*
Green Building	26*
Extended Producer Responsibility	TBD
Environmentally Preferable Purchasing	TBD
Anaerobic Digestion	2*
Renewable Portfolio Standard	7.9 (Current 20% goal)
Renewable Electricity Standard	13.4 (Expanded 33% goal)
Low Carbon Fuel Standard	16
Overall Goal	174

* Not counted Towards Goal

Source: CA Air Resources Board

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Conclusion: Climate Initiatives Will Soon Revolutionize Waste Management

Maybe.

It depends on the two fundamental challenges:

- Objectively documenting materials management impacts across the life cycle
- Allocating responsibility in an effective way to optimize the system

Despite unprecedented market drivers and innovation, this may play out steadily over many years.

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Questions?

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