



West Coast Climate & Materials Management Forum

Reducing Greenhouse Gas Emissions through Smart Materials Management: Expanding the Menu for Reductions

Governor's Council on Climate Change (G3)
State of Connecticut
March 2, 2016

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www.westcoastclimateforum.com



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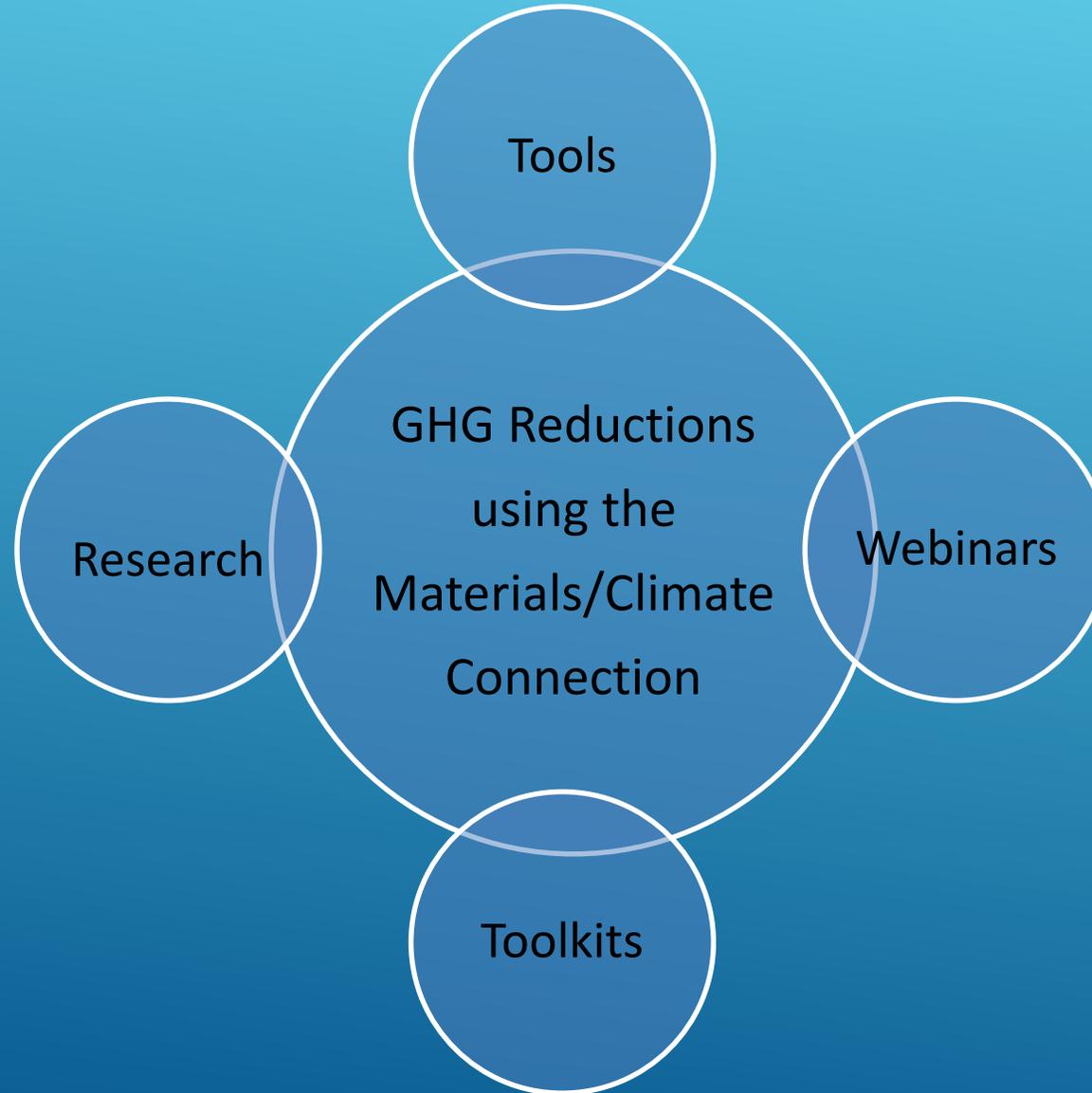
Overview

- Introduction to the West Coast Climate Forum
- A short history of materials
- Materials vs discards
- Connecting materials to climate
- Upstream policies, practices and resources



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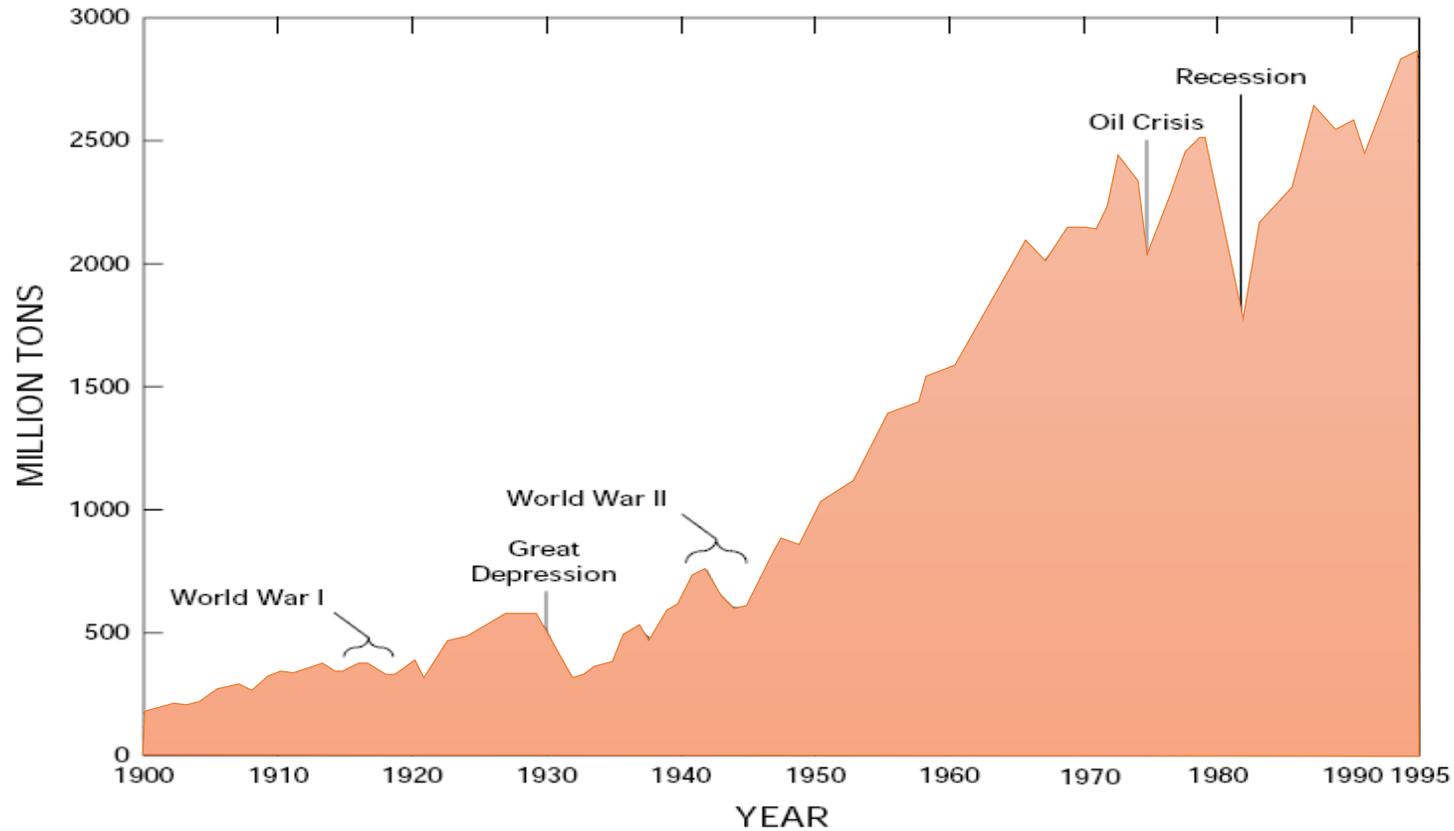
“Our mission is to inspire, inform and show communities how to significantly reduce GHG emissions by improving the way they source, use, and recover materials.”





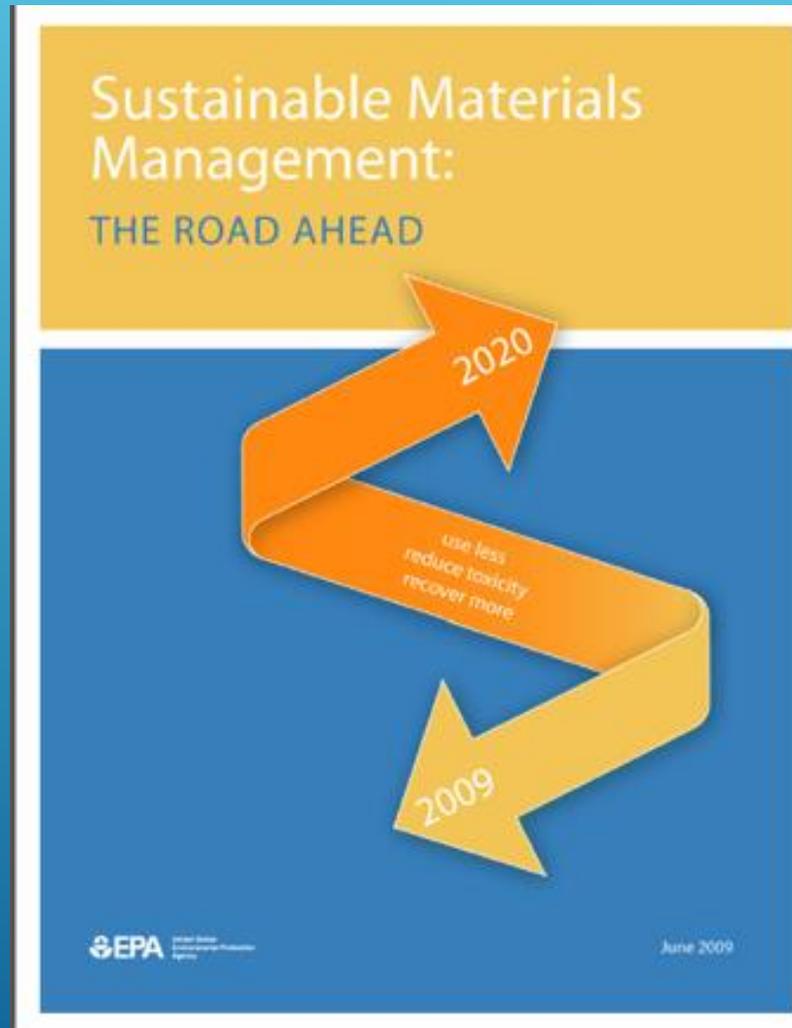


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Use of materials in the United States, 1900-1995. Modified from Matos and Wagner, 1998, p. 110.

Shifted the paradigm from managing wastes to managing materials





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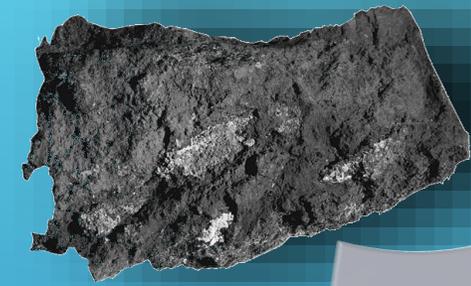
Materials Management: (US EPA)

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



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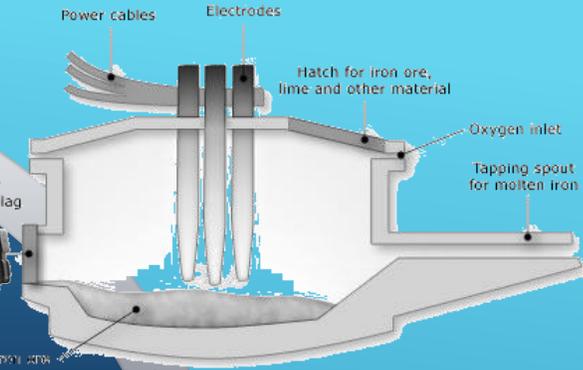




Resource
Extraction



Processing
Manufacturing



Recycling

Distribution

Landfill



Use



Lifecycle of Steel



Extraction →



DISCARDS MANAGEMENT & MATERIALS MANAGEMENT

	Discards Management	Materials Management
Goal	<ul style="list-style-type: none">• Managing discards	<ul style="list-style-type: none">• Sustainable Use (see definition slide ?)
Lifecycle Stage	Primarily downstream	All lifecycle stages
Environmental Scope	<ul style="list-style-type: none">• Emissions from waste facilities• Resource conservation from recovery	<ul style="list-style-type: none">• All pollutants• All resource inputs
Partners	<ul style="list-style-type: none">• Waste generators• Waste industry• Users of recovered materials	<ul style="list-style-type: none">• Everyone involved in the life cycle of materials

▶ Discards → Materials

▶ Materials → Climate



WHY AND **HOW** GHGS ARE MEASURED

Issue de jour

Establish leadership & set policy

Required reporting

Drive accountability and transparency

Emphasize opportunities & tell stories

Traditional Inventories

Operational/Corporate Inventories

Consumption Based Emissions Inventories

Government Operations

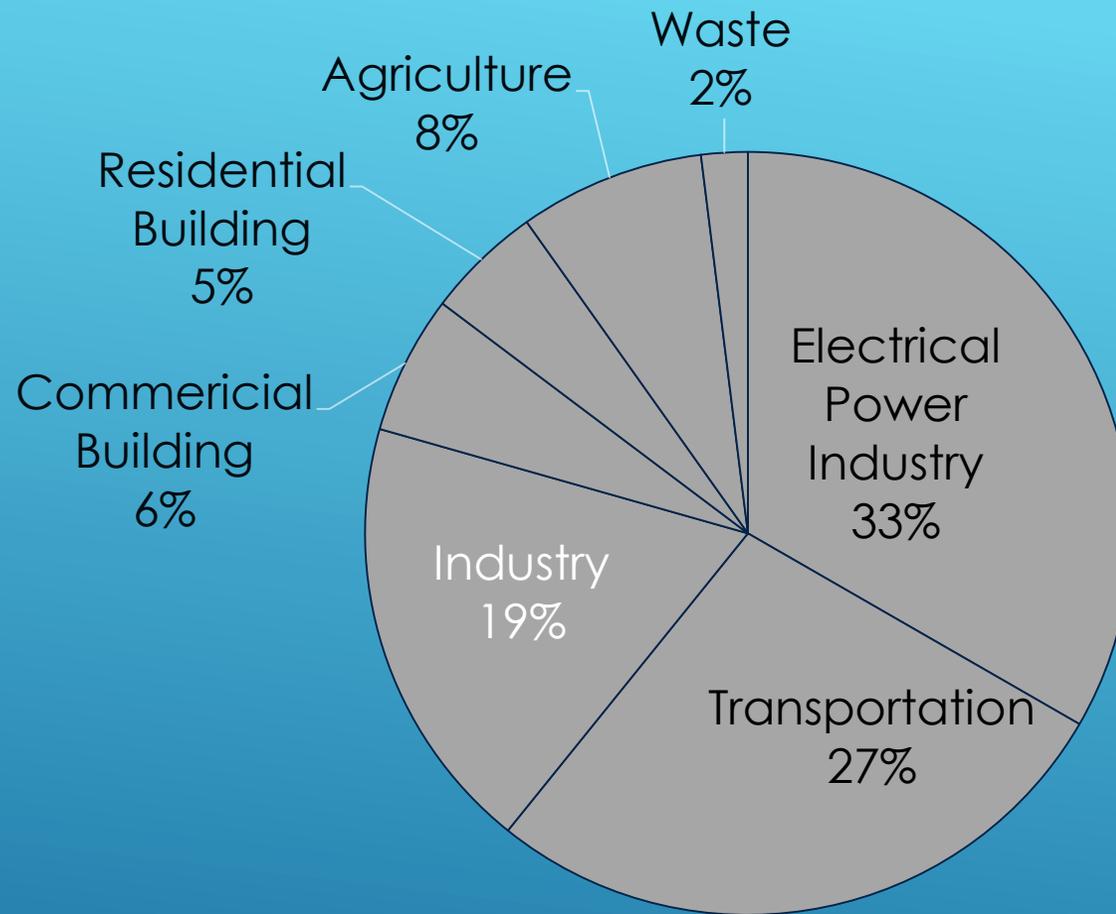
Improve the
understanding
between
materials....
and
greenhouse
gas emissions



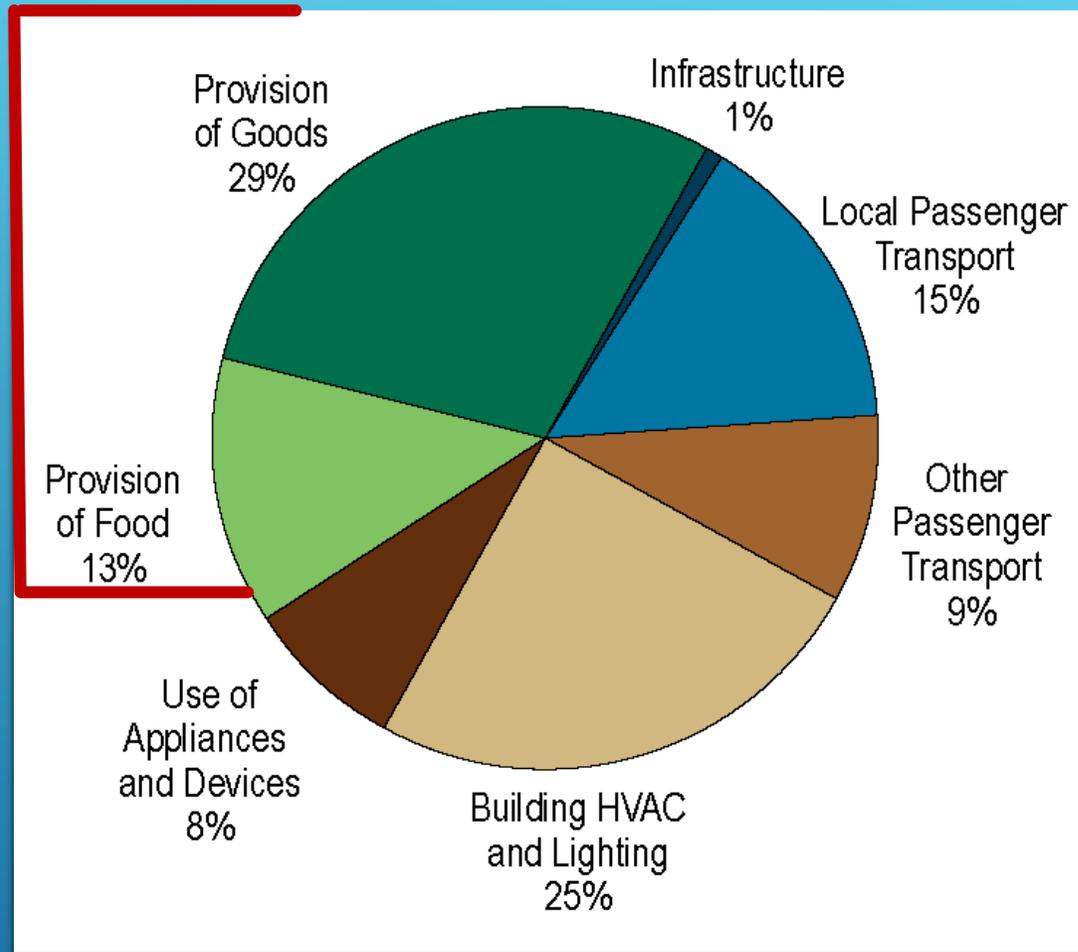
**Opportunities to Reduce Greenhouse Gas Emissions through Materials and
Land Management Practices**

**U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response**

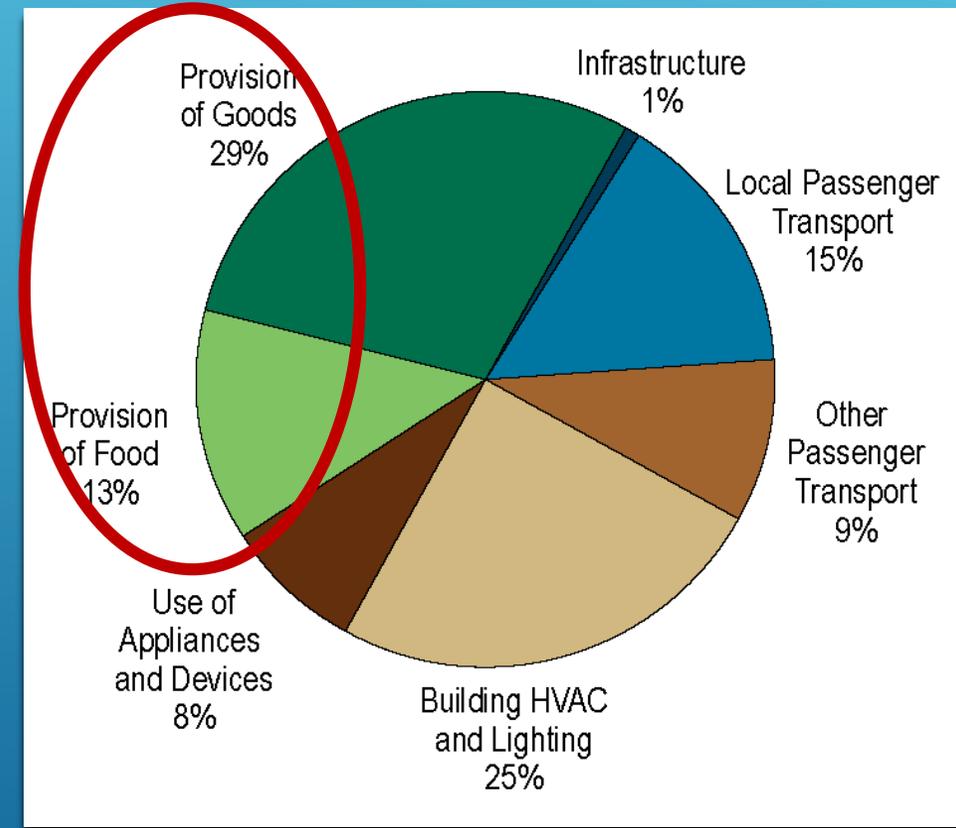
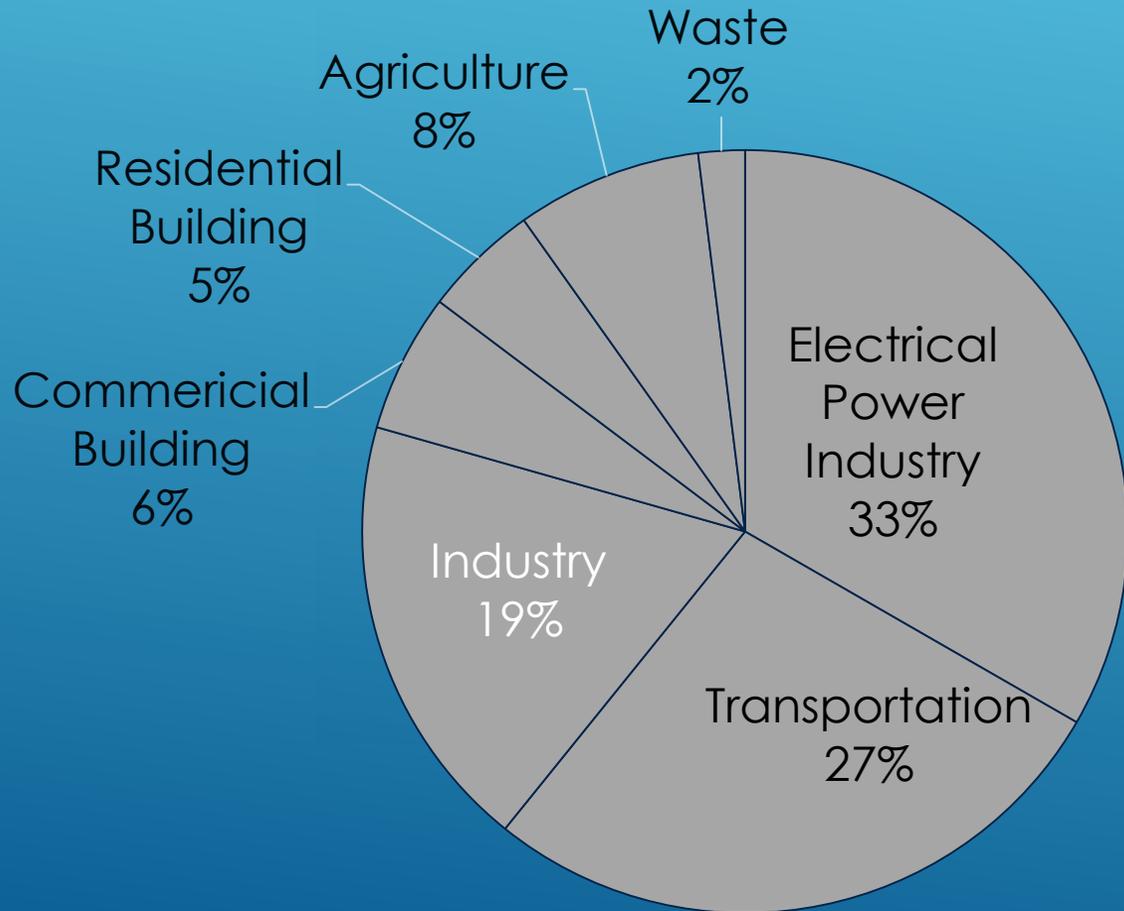
September 2009



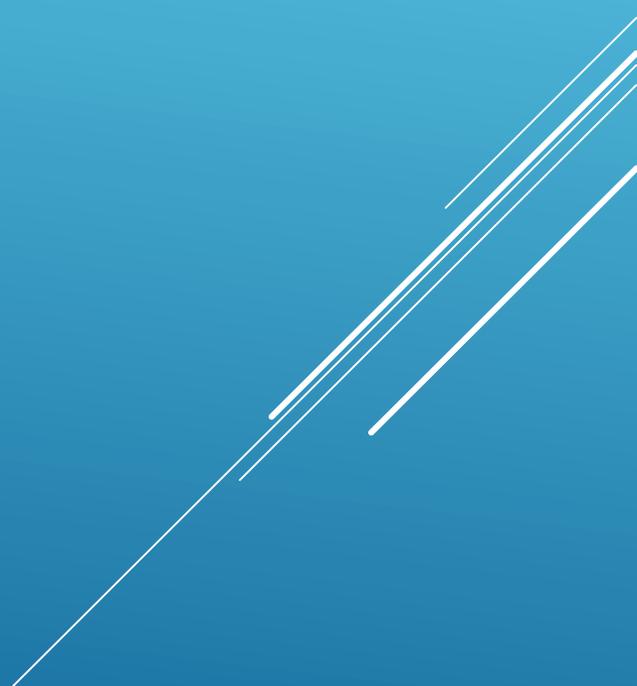
Source: U.S. Inventory of GHG Emissions and Sinks : 1990-2006 (US EPA, 2008)



US Greenhouse Gas Emissions (2006)



SUSTAINABLE MATERIALS MANAGEMENT PRINCIPLES, POLICIES AND PROGRAMS

- ▶ View impacts, actions and connections across the lifecycle
 - ▶ Recycling conserves resources and reduces pollution
 - ▶ The environmental impacts of production far outweigh the impacts of disposal
 - ▶ Partner, partner, partner!
- 
- A decorative graphic consisting of several parallel white lines of varying lengths and orientations, located in the bottom right corner of the slide.



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About Materials Management



The Materials Message



Climate Action Toolkit



Food: Too Good To Waste



Use & Purchase



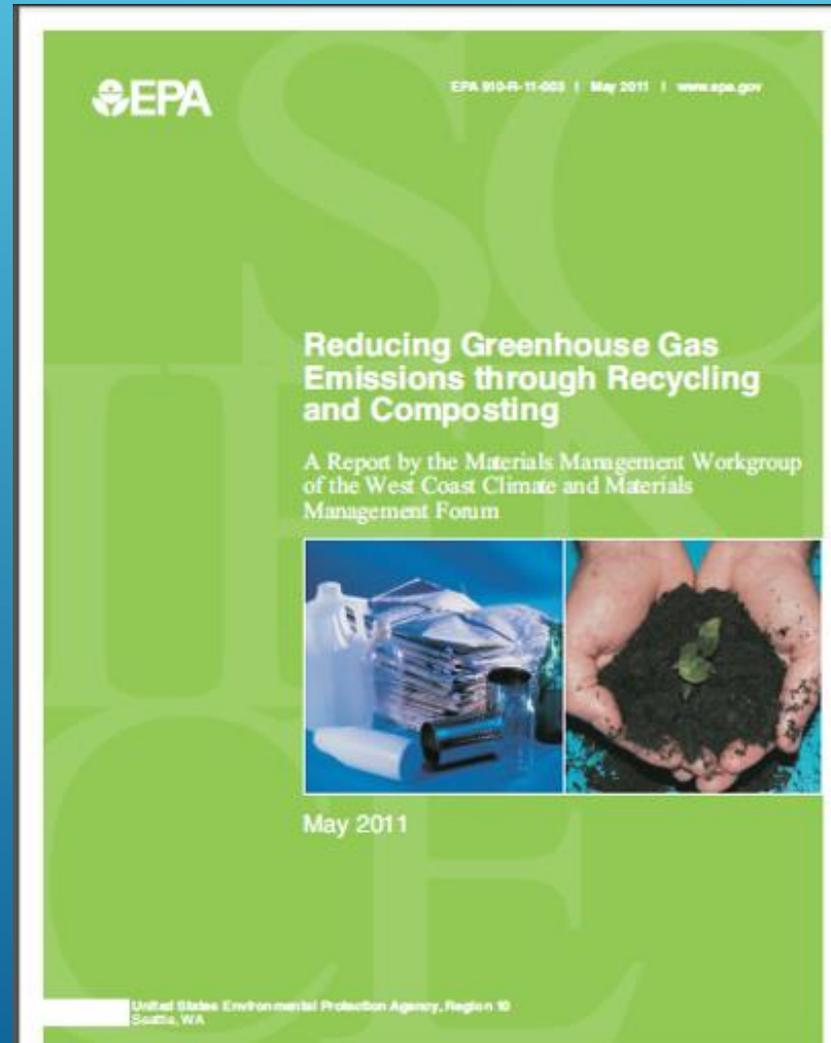
Forum Resources





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Identified
high impact
materials
using a
carbon lens.





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Four High Impact Materials Identified in Report

1. Carpet
2. Food Scraps
3. Core Recyclables
4. Dimensional Lumber (finished lumber)



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Climate Action Toolkit *Applying Materials Management*

- Climate Action Toolkit
- Background
- Greenhouse Gas Inventories
- **Setting Targets**
- Climate Protection Actions
- Climate Action Plans
- Measuring Results
- Resources
- Acknowledgements
- We Want to Hear From You!



Our Purpose is to Reduce Greenhouse Gases Through Materials Management

Materials Management strategies reduce greenhouse gas (GHG) emissions associated with waste, materials, and products through a lifecycle and systems approach. These emissions contributed 42% to the U.S. greenhouse gas inventory in 2006.

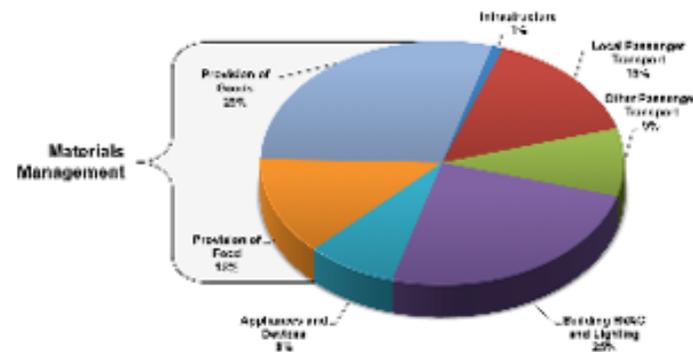
This resource is a materials management toolkit of:

- Climate Protection Actions
- Example Climate Action Plans
- New Approaches to GHG Inventories
- Measurement Tools
- Links to resources
- And more...see links at left!

Who should use this toolkit:

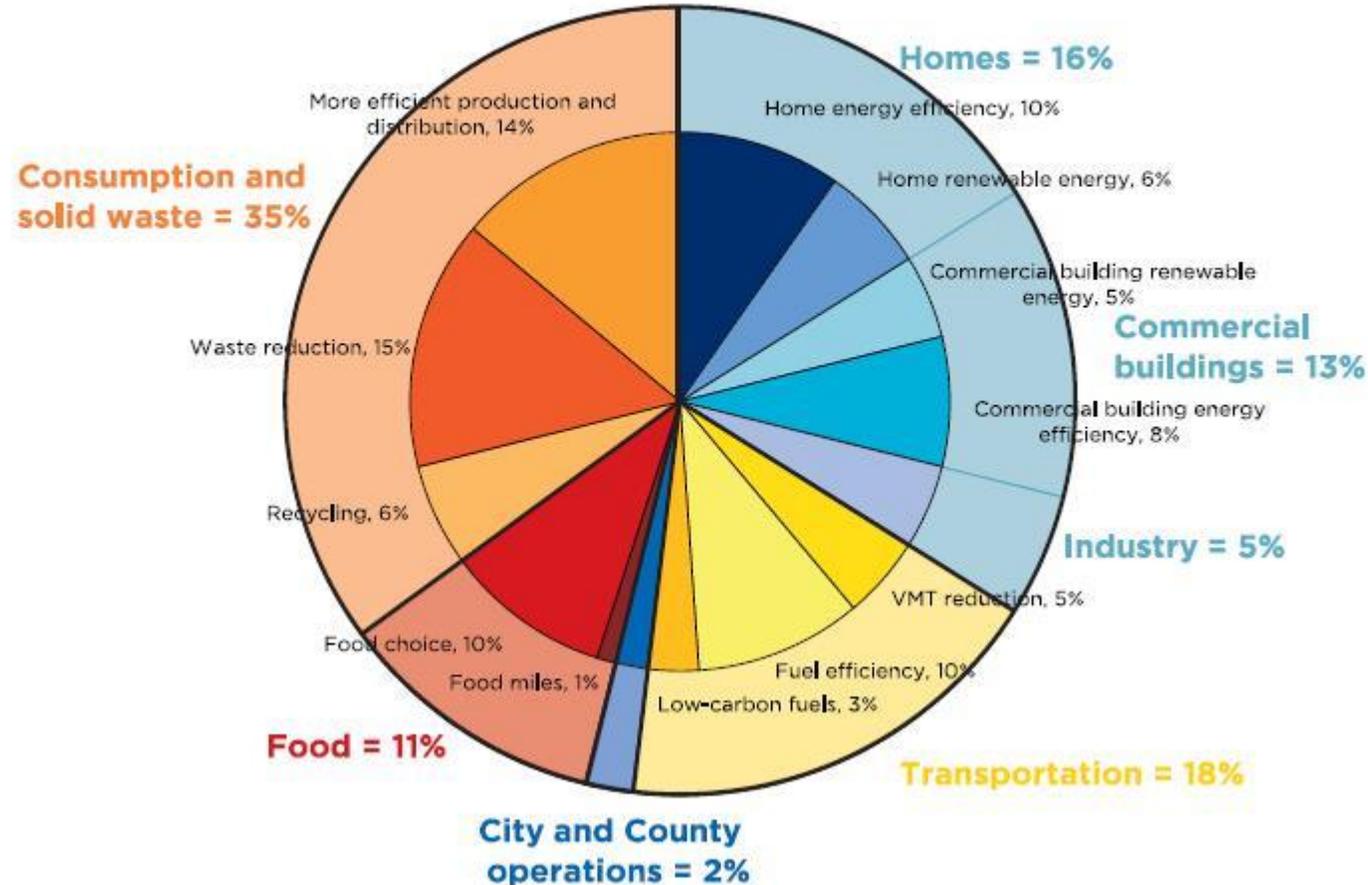
- State and Local Government Climate Change Staff
- Recycling, Composting, and Solid Waste Professionals
- Sustainability and Pollution Prevention Coordinators
- Climate Action Plan Coordinators
- Greenhouse Gas Inventory Staff

Systems-Based GHG Inventory US (Domestic) Emissions, 2006



CLIMATE ACTION PLAN

(APPROXIMATE CONTRIBUTION TO 2030 EMISSION-REDUCTION GOAL)



Reducing Wasted Food In the Home

Food: Too Good To Waste *Keep your food and money out of the trash!*

- [Food: Too Good to Waste](#)
- [Learn About Wasted Food](#)
- [Waste Less Food at Home](#)
- [Get Your Community Started](#)
- [See What Other Communities are Doing](#)
- [Acknowledgements](#)
- [Background Resources](#)



A Toolkit to Reduce Household Food Waste

Why it Matters

Whether it's moldy cheese, limp celery, or long lost leftovers in the back of the fridge, chances are you've wasted food this week. And you're not alone. Currently, Americans waste about 25% of all food purchases, but communities, families and individuals are working to toss less by making small shifts in how they shop, prepare, and store food.

The average family could save over \$30/week (\$1600 a year) by using this toolkit. When we throw away food, we're also wasting all the water, energy and other resources used to produce, package and transport food to our plates.



Food is wasted when we:

- Buy more than we need
- Store it incorrectly
- Throw away leftovers
- Cook too much

This toolkit includes **strategies and tools** that have been linked to a **25% reduction** in household wasted food among pilot participants. The best results come when a group or community of households use it together.

Who can use the Toolkit?

- This toolkit is designed for families and individuals to reduce wasted food at home.
- You can increase your impact by joining with your community or a group of households.
- Cities, schools, and parent groups are just some of the groups who've used it.
- Government or community groups interested in hosting a campaign, can find resources on our [Get Your Community Started](#) page.



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Sustainable consumption approaches that can help to reduce environmental impacts include :

- ▶ Reduce Overall Consumption---buy less and delay purchases
- ▶ Shift from higher-impact categories to lower-impact ones, e.g., from goods to services
- ▶ Shifting to better options

Climate Friendly Purchasing Toolkit



Purchasing is 35-55% of a public agency's GHG emissions

MORE UPSTREAM ACTIONS

Green building

- Space efficient housing projects
- Deconstruction
- LEED Rating System



Product Environmental Footprinting

- Concrete
- Insulation
- Carpet

EPD "Nutrition" Label

Your Building Product

Amount per Unit	
LCA IMPACT MEASURES	TOTAL
Primary Energy (MJ)	12.4
Global Warming Potential (kg CO ₂ eq)	0.96
Ozone Depletion (kg CFC-11 eq)	1.80E-08
Acidification Potential (mol H ⁺ eq)	0.93
Eutrophication Potential (kg N eq)	6.43E-04
Photo-Oxidant Creation Potential (kg O ₃ eq)	0.121

Your Product's Ingredients: Listed Here



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