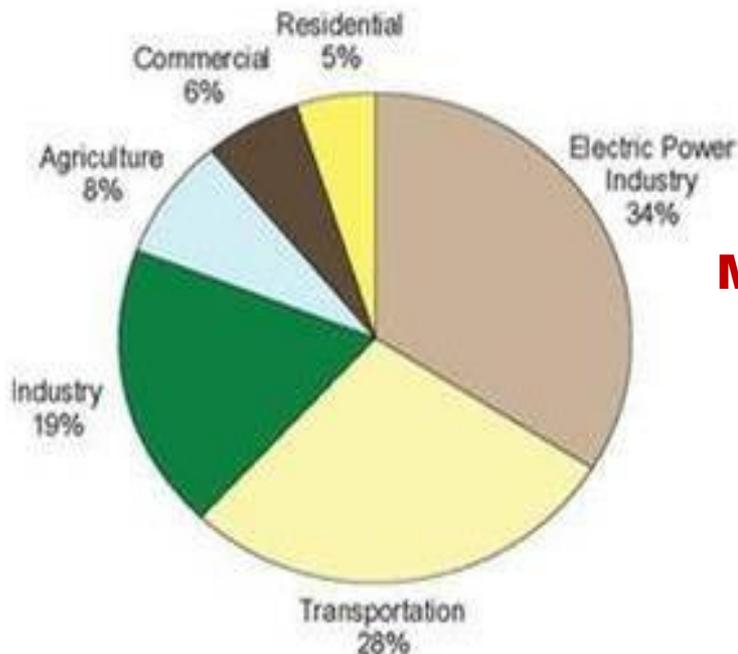


# Creation of Greenhouse Gasses

## Source versus Use

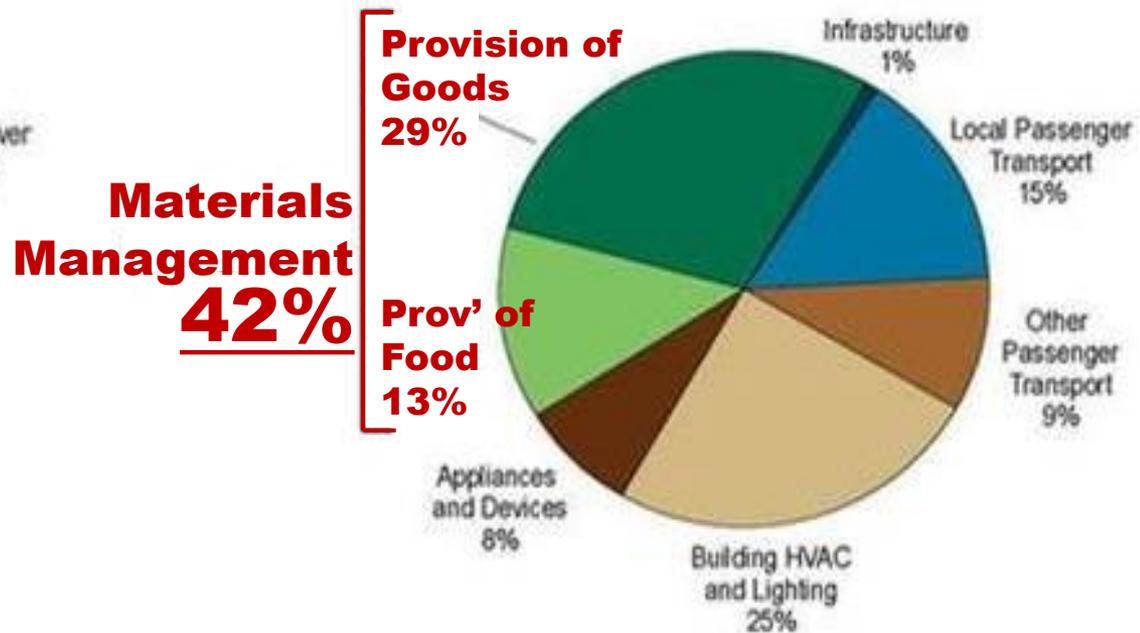
### By Source

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



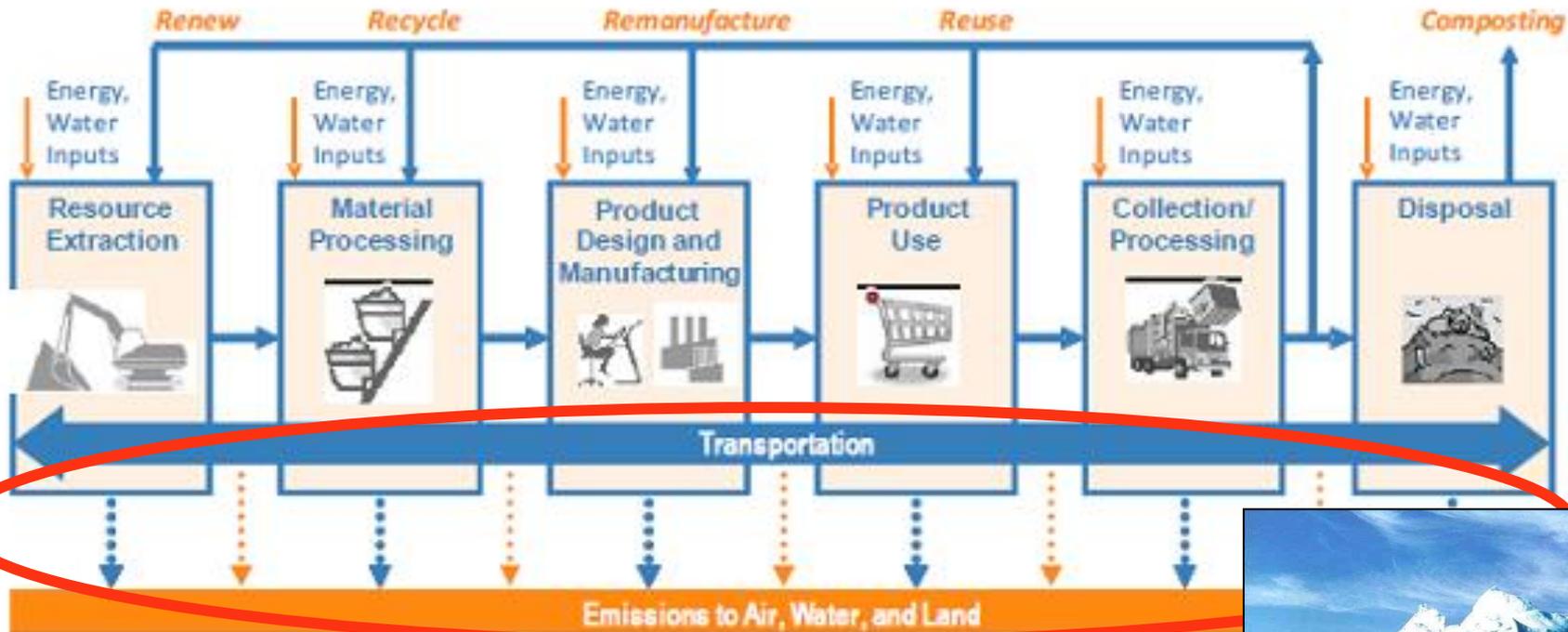
### By Use

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



# Flow of Materials Management

Each stage takes in material, energy, water and expels waste

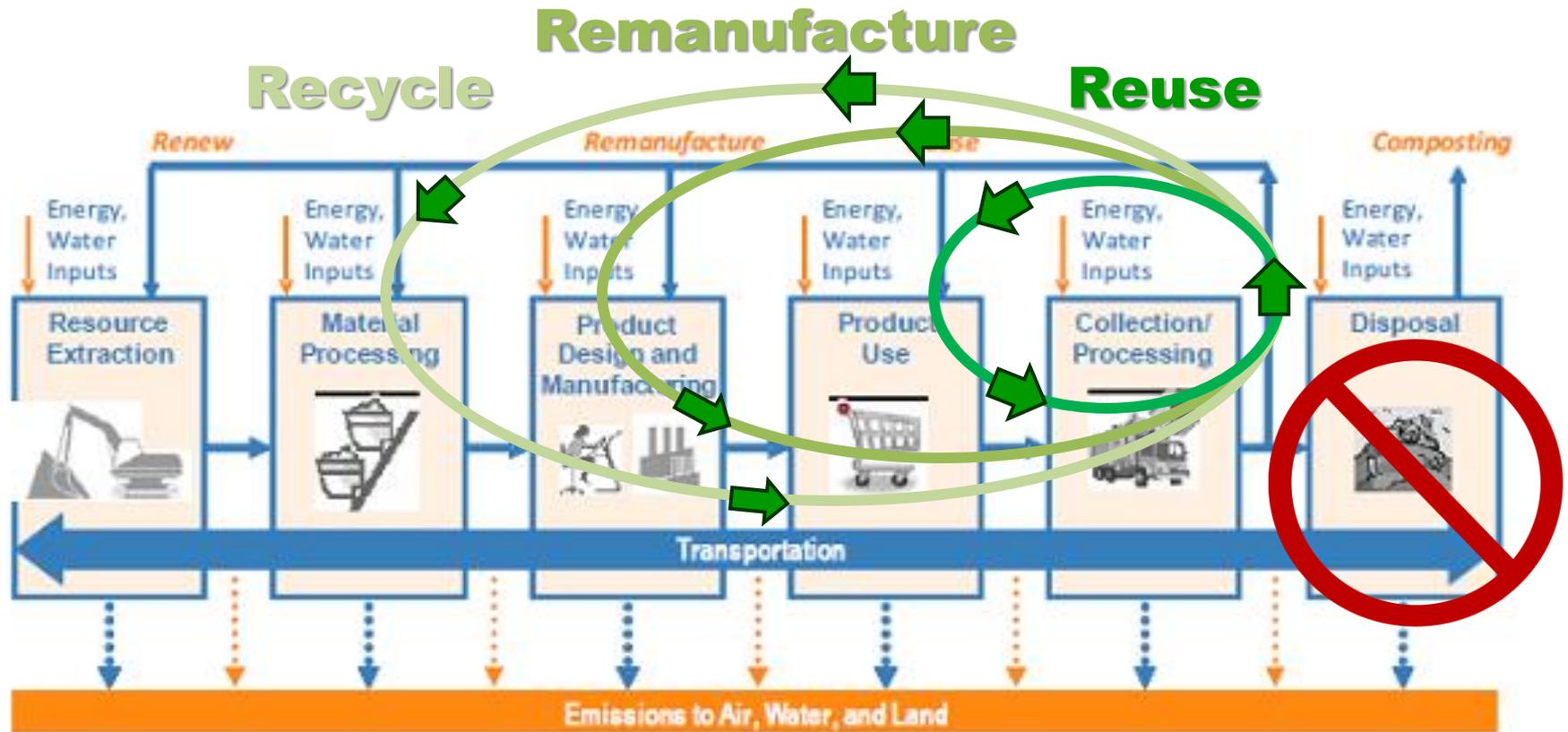


**Wasteberg is made up of greenhouse gas emissions as well as scrap solid waste.**



# Sustainable Materials Management

Shorter loops avoid more upstream emissions and waste



*The Flow of Materials*  
Source: State/EPA 2020 Vision Workgroup

# **RELATIVE COST (PER MTCO2E) AND COVERAGE – “RECYCLING” VS ENERGY EFFICIENCY**

	<b>Relative Cost</b>	<b>Implement Time</b>
	Normalized Multiplier for Cost per MTCO2E (SERA)	Speed to implement and full scale implementation coverage
Commercial Energy Efficiency	<b>1.0</b> – the baseline	<b>1-3</b> years; fraction of customer base
Residential Energy Efficiency	<b>3</b> times as expensive as com'l EE	<b>1-3</b> years; fraction of customer households
Wind	<b>7-8</b> times as expensive as com'l EE	TBD, Phase 2
PhotoVoltaic (PV)	<b>18-25</b> times com'l EE	TBD, Phase 2
Curbside Recycling	<b>0.6-0.7</b> times the cost of com'l EE	<b>0.5- 2</b> years; covers all households (HH) in area
Pay As You Throw (PAYT)	<b>0.2-0.3</b> times cost of com'l EE	<b>3-9</b> months after political approval; covers all single family HH
Prevention & reuse	<b>0</b> cost	No lag; education
Yard Waste program	<b>0.5 +/-</b> times cost of com'l EE (Phase 2)	<b>1-2</b> years, Phase 2

*NOTE: Conservative estimates (Source: Skumatz Economic Research Associates SERA 2007-2008; DRAFT); may be used with permission of author*

# Austin Zero Waste Master Plan Goes Beyond Recycling

- New Material Management Policies:
  - ❑ Extended Producer Responsibility
    - Take-back
    - Redesign for easier, higher reuse, or recycling
  - ❑ Reduce single-use non-recyclable products & packaging
- Reuse Recovery Centers
- Composting facilities for Organics
- Eco-Industrial Park – help create markets for recyclables