



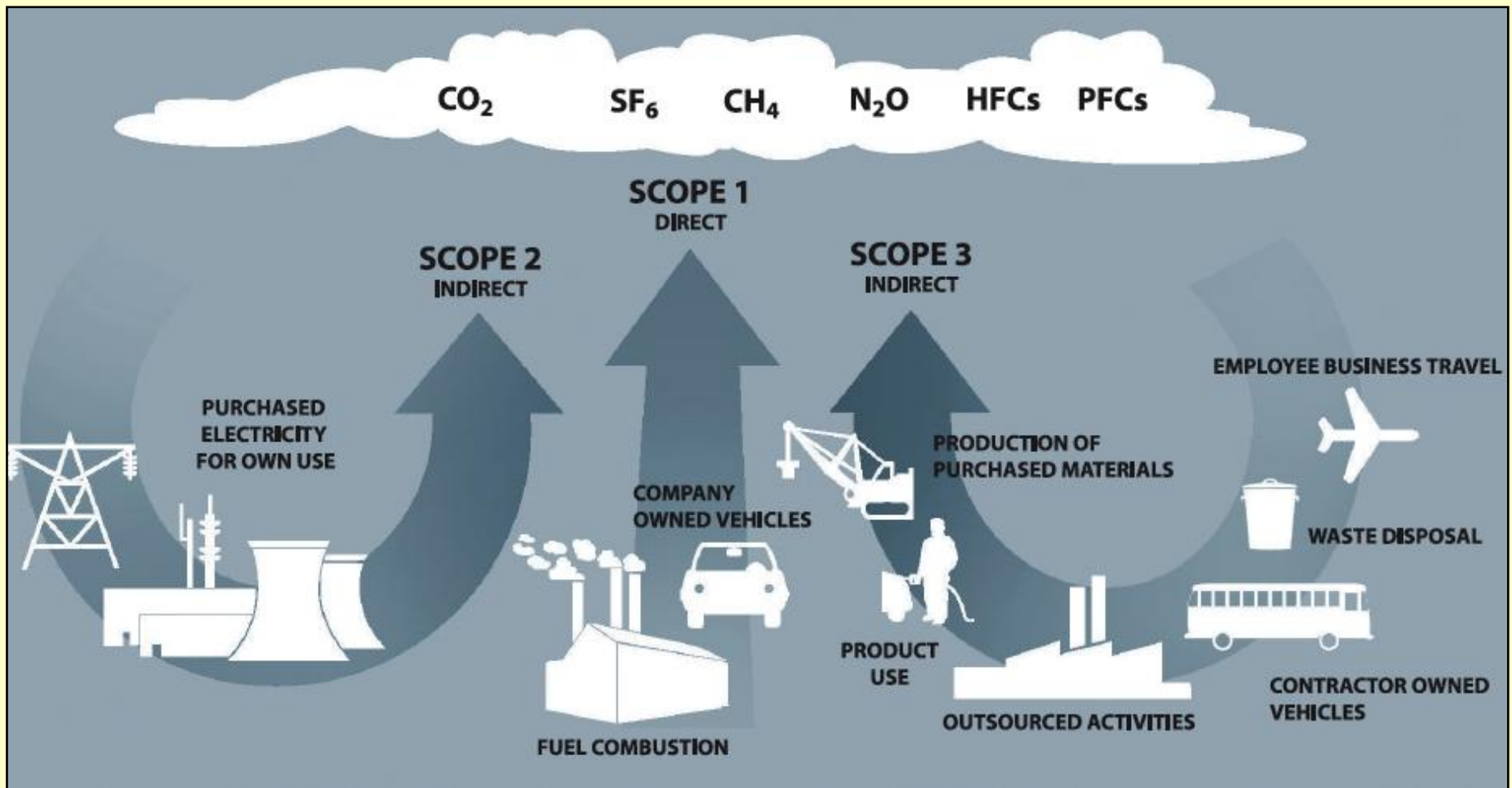
Pacific Northwest P2 Roundtable

Greenhouse Gas Emissions in the Supply Chain

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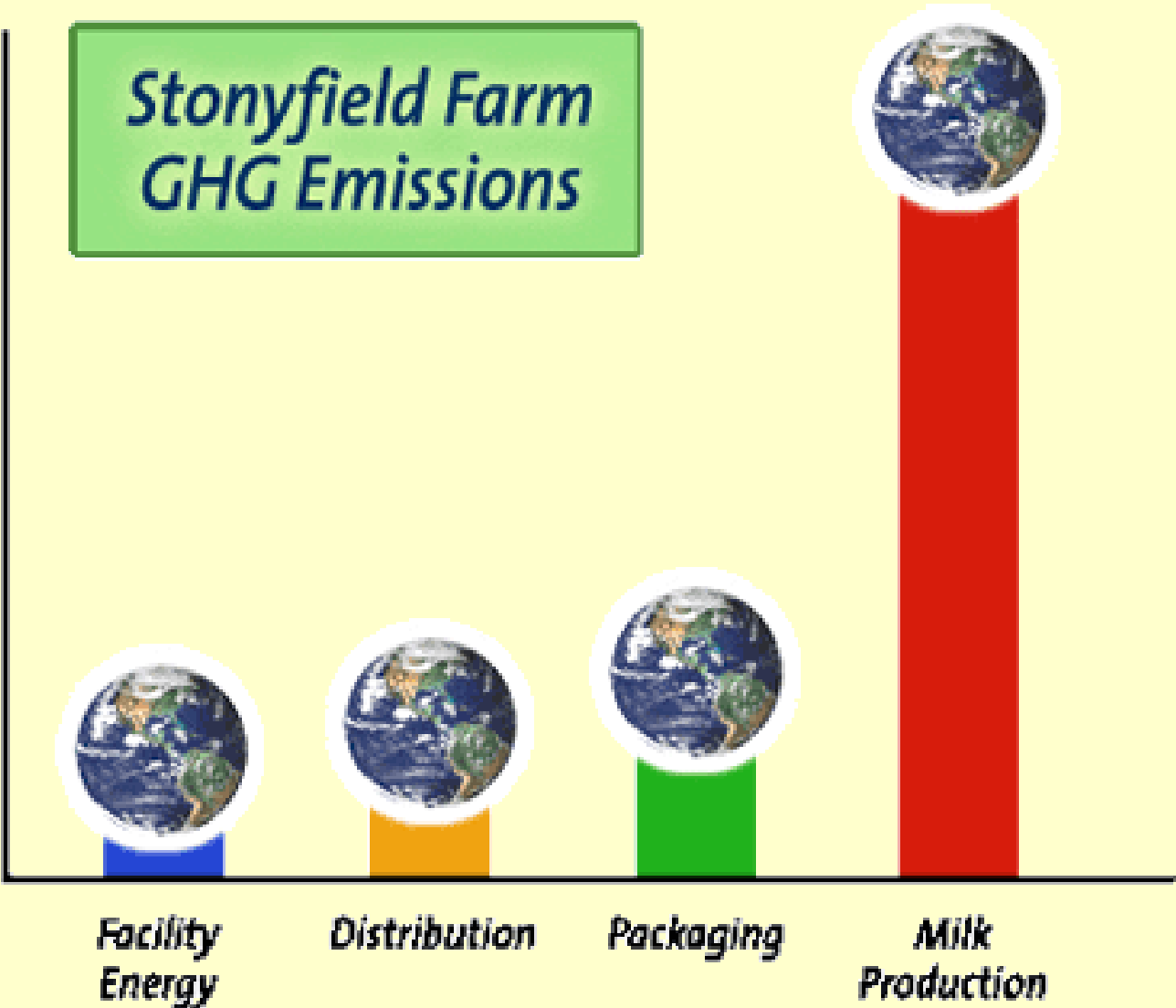
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Greenhouse Gas Emissions: 3 Scopes



Stonyfield Farm GHG Emissions

Metric Tons CO₂ eq

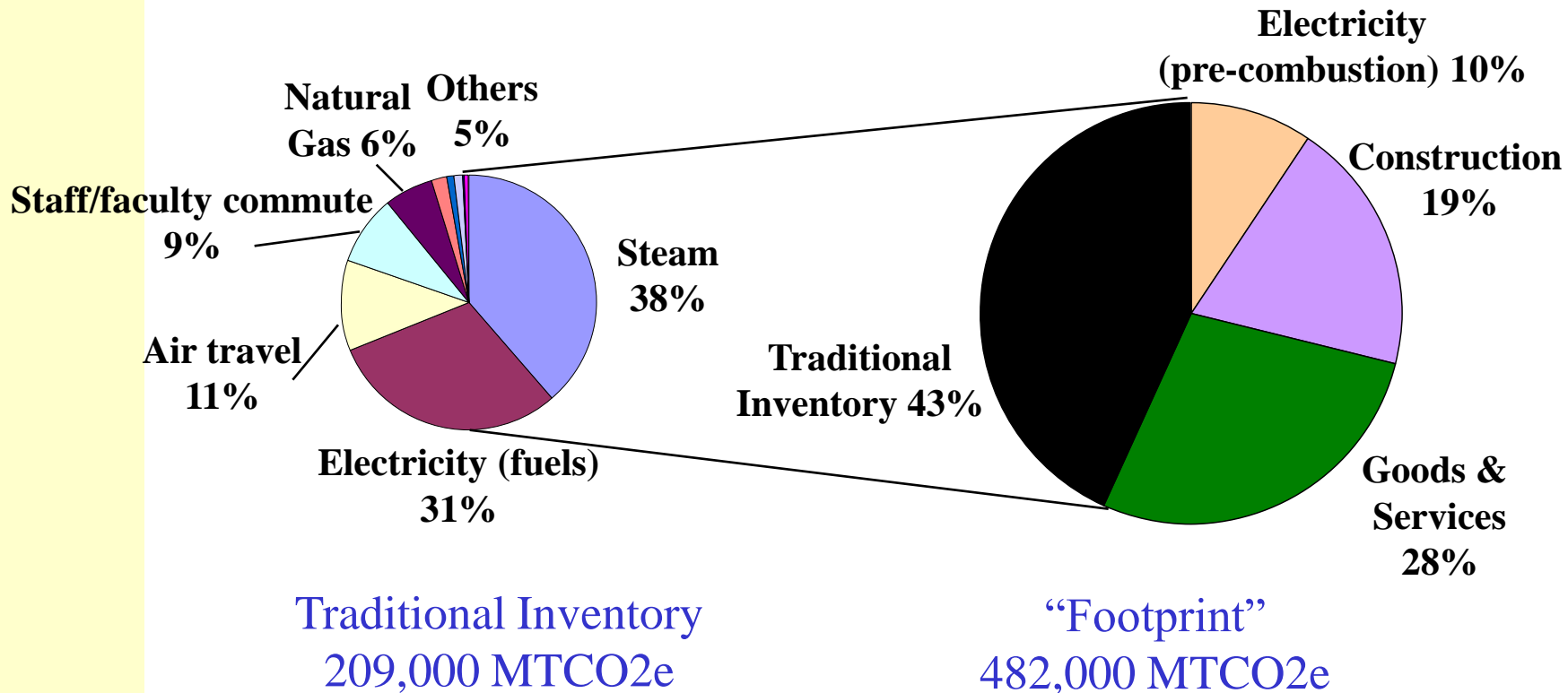




Greenhouse Gas Inventory

Example: UC Berkeley (2006)

<http://sustainability.berkeley.edu/calcap/inventory-footprint.html>





Sector Analysis

	Scope 1	Scope 2	Scope 3
Power generation	92%	1%	7%
Book publishers	5%	1%	94%
Average sector (491)	14%	12%	74%

Only 10% of sectors have 80%+ of footprint represented by Tiers 1 and 2!



EIO-LCA



- Economic Input Output – Life Cycle Assessment
- Designed by Carnegie Mellon University’s Green Design Institute
- Free for non-commercial use
- Relates changes in expenditures (“final demand”) to changes in supplier outputs; relates changes in supplier outputs to GHG emissions (and other env. metrics)



EIO-LCA: Limitations

- Models are fairly old (1997, but being updated)
- Models use industry averages (e.g. “electricity”)
- Model input is expenditures (\$), not quantities or mass (e.g. “conventional” vs. organic food)
- Model currently assumes all production is either domestic or comparable to domestic

A valuable screening tool, but of limited usefulness for proactive supply chain management.



Supply Chain Emissions: Why Not Inventory?

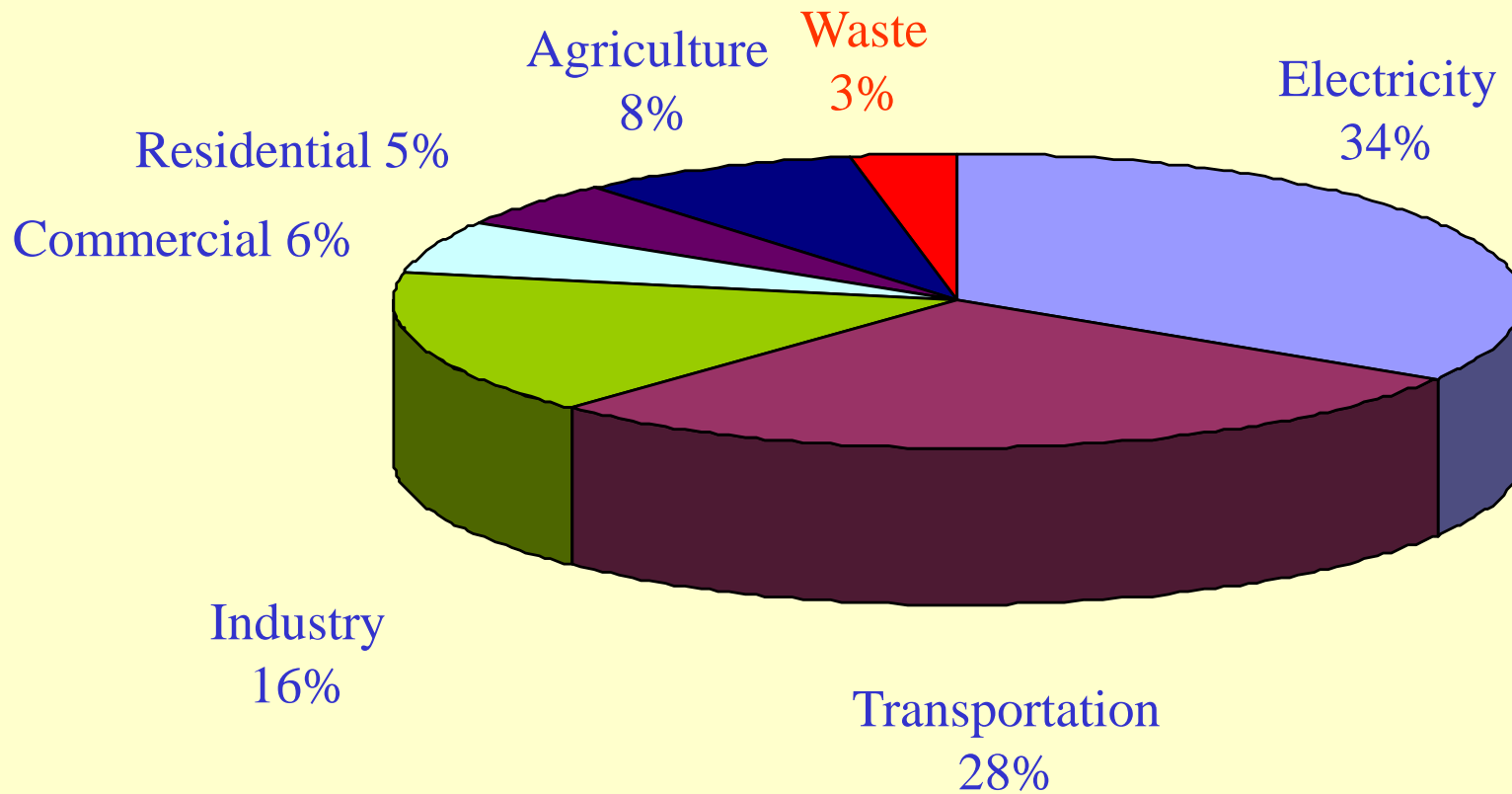
- Not included in reporting requirements, standards
- Sometimes not even encouraged – few models to work from
- Perceived to be small
- Concern that inventory might imply ownership
- Difficult (and won't be as precise as Scopes 1 and 2)
- No standards, protocols (yet)
 - WRI/WBCSD are developing a protocol
 - ISO also plans to develop a standard for “carbon footprinting”



Supply Chain Emissions: Why Inventory?

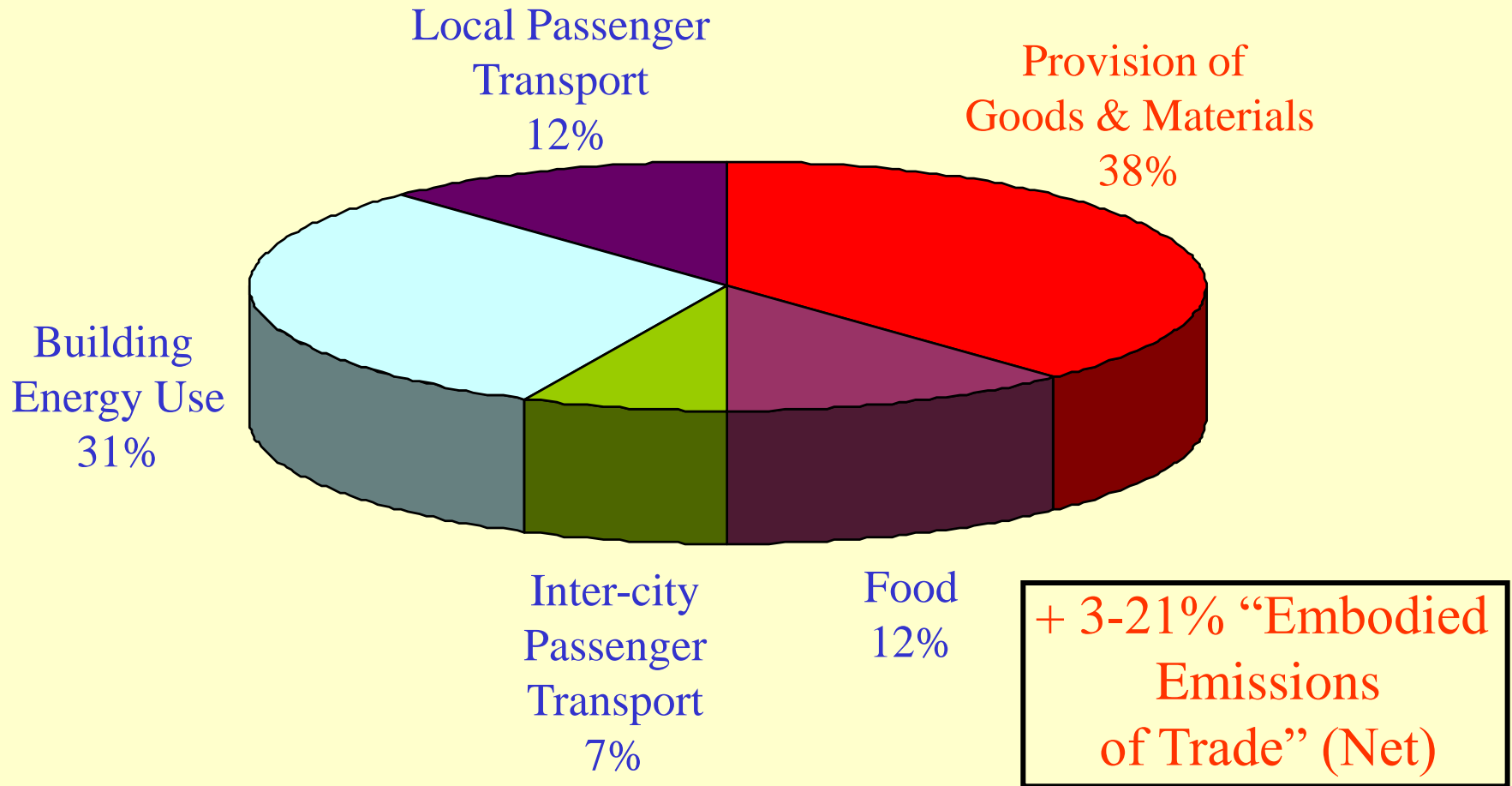
- Knowledge is power . . .
 - . . . to reduce emissions
 - . . . to anticipate, control and reduce supply chain costs associated with carbon (and energy) price increases
- Reducing supply chain carbon may be more cost-effective than reducing direct (Scope 1) or electricity-related (Scope 2) emissions

US Greenhouse Gas Emissions (2005): Conventional View



Source: US EPA

US Greenhouse Gas Emissions (2005): Alternative View



Source: US EPA (Preliminary); Weber & Matthews (2007)



Oregon's Consumption-Based Inventory: Why?

- Statutory goal to reduce GHG emissions 75% by 2050.
- Current inventory convention: a hybrid approach
- Community inventories are used to:
 - Identify sources of emissions
 - Track change (reductions, we hope) over time
 - Communicate to the public how their community contributes to emissions



Oregon's Consumption-Based Inventory: Why? (continued)

- Limitations of the conventional inventory:
 - Mixes consumption- and production-related emissions together
 - Treats energy and materials conservation inconsistently
 - Leads to missed opportunities
 - Rewards leakage
 - Potential undermines credibility



Oregon's Consumption-Based Inventory: Objectives

- Estimate GHGs resulting from all production and all consumption activities; compare them.
- Disaggregate consumption emissions by type (energy, goods, services; production, transport, use, disposal) and geography.
- Identify categories of goods and materials that contribute the most to GHG emissions.
- Develop a robust, ongoing evaluation methodology.
- Communicate the impacts of materials, and potential benefits of “sustainable consumption”.
- Answer some common questions.