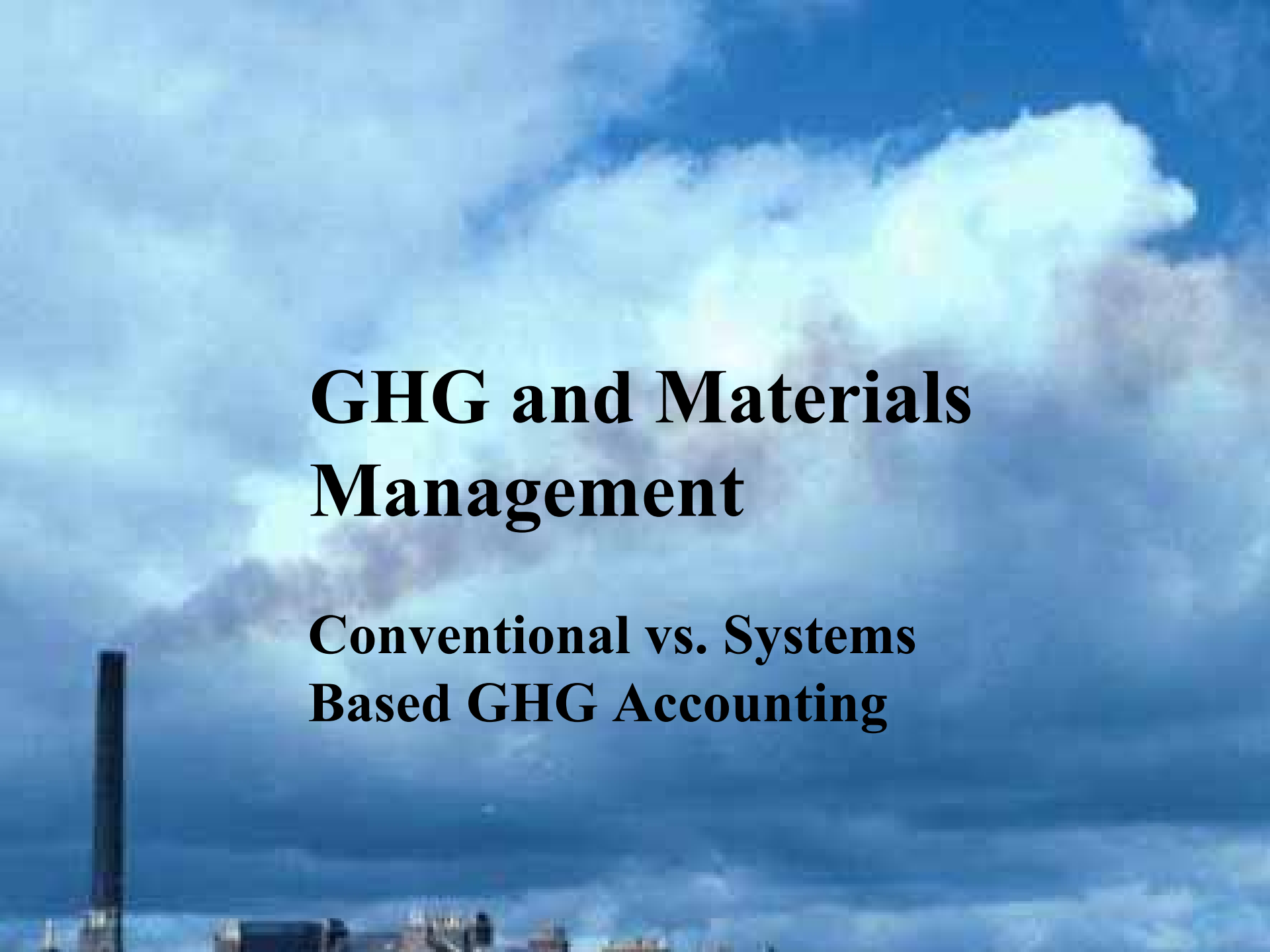
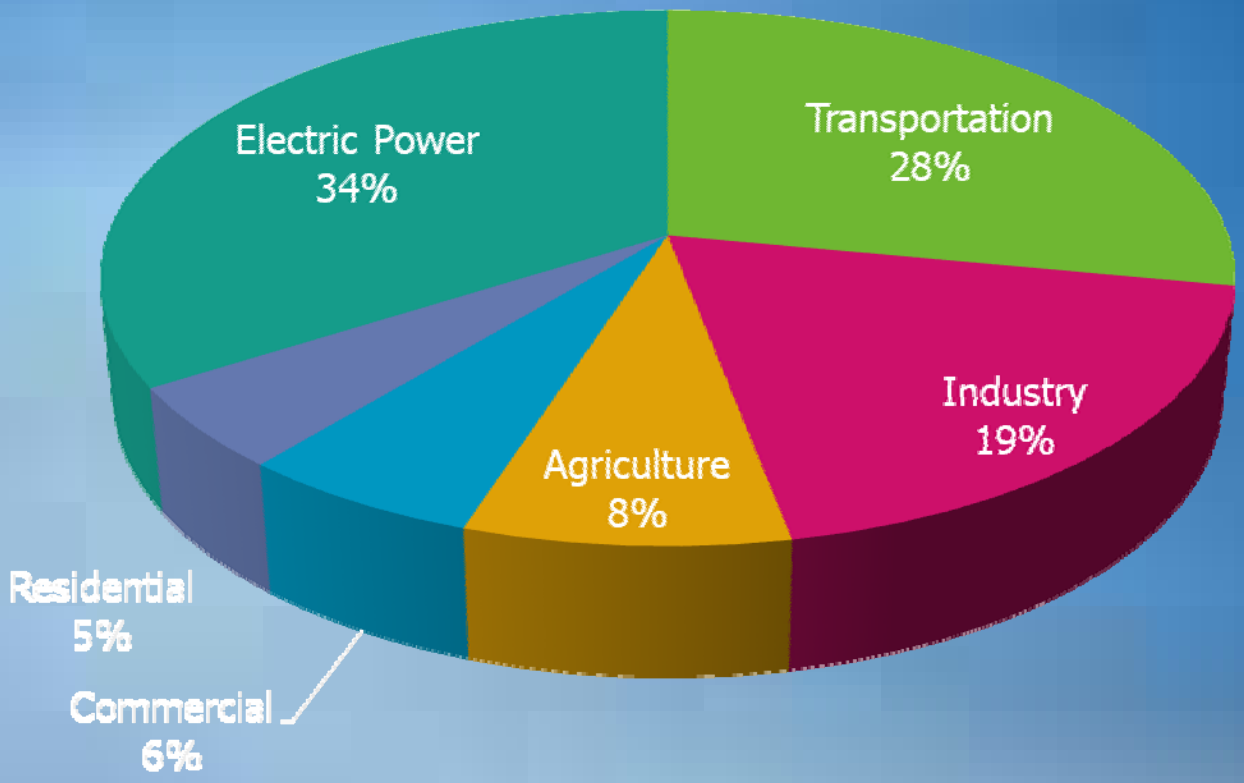


GHG and Materials Management

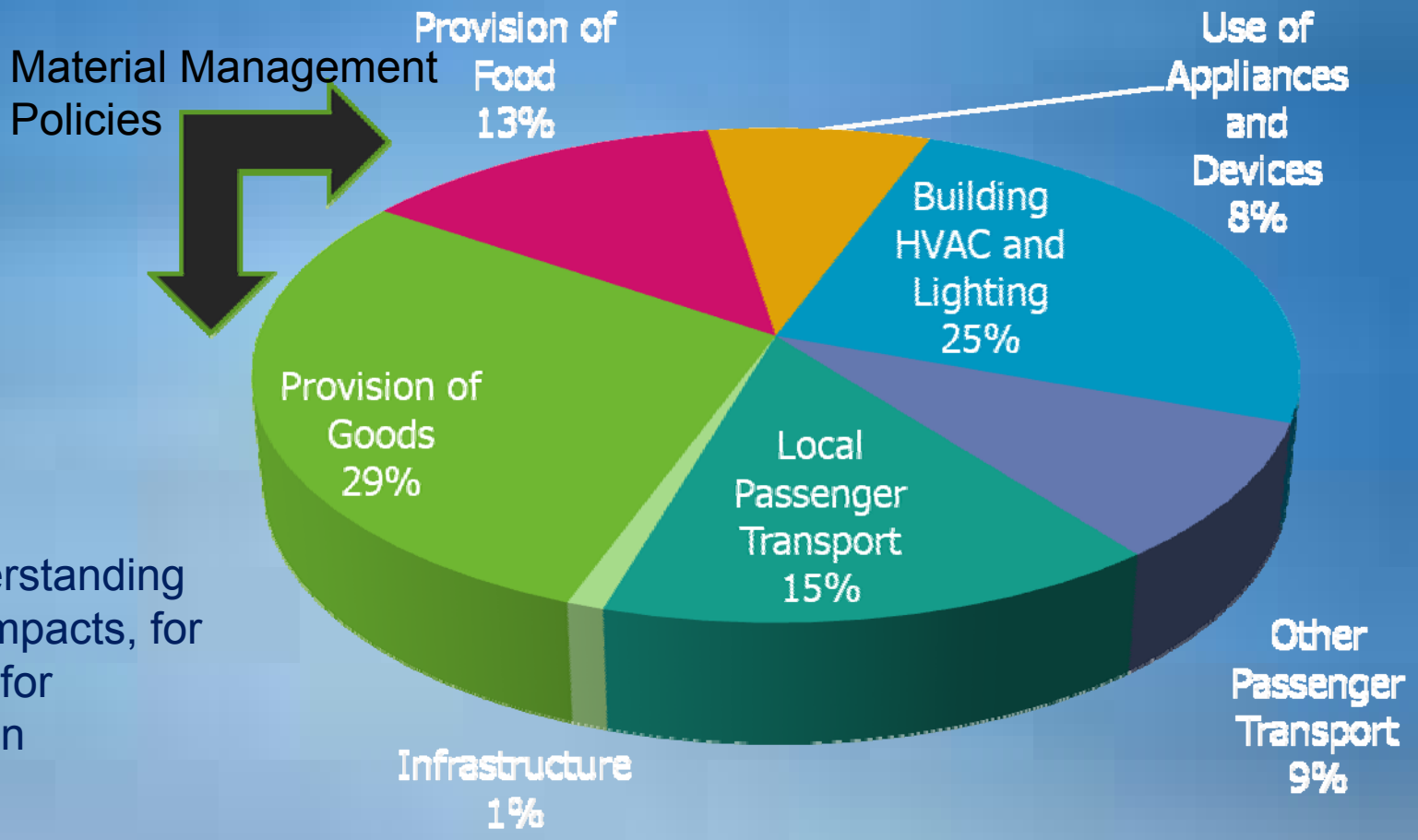
Conventional vs. Systems Based GHG Accounting

Conventional GHG Accounting

- Good for showing end-of-pipe opportunities.
- Consumer activities are invisible, “embedded”.



Systems Based Accounting of GHG



Better for understanding consumption impacts, for education and for individual action

+ ~3-21% "Embodied Emissions of Trade"(Net)
(Weber and Matthews, 2007)

Life cycle

Get Raw Materials

Prepare Materials

Manufacture Product

Use Product

Dispose of Product

Life cycle -- Recycling

Get Raw Materials

Prepare Materials

Manufacture Product

Use Product

Dispose of Product

Life cycle -- Reuse

Get Raw Materials

Prepare Materials

Manufacture Product

Use Product

Dispose of Product

Life cycle -- Reduce

Get Raw Materials

Prepare Materials

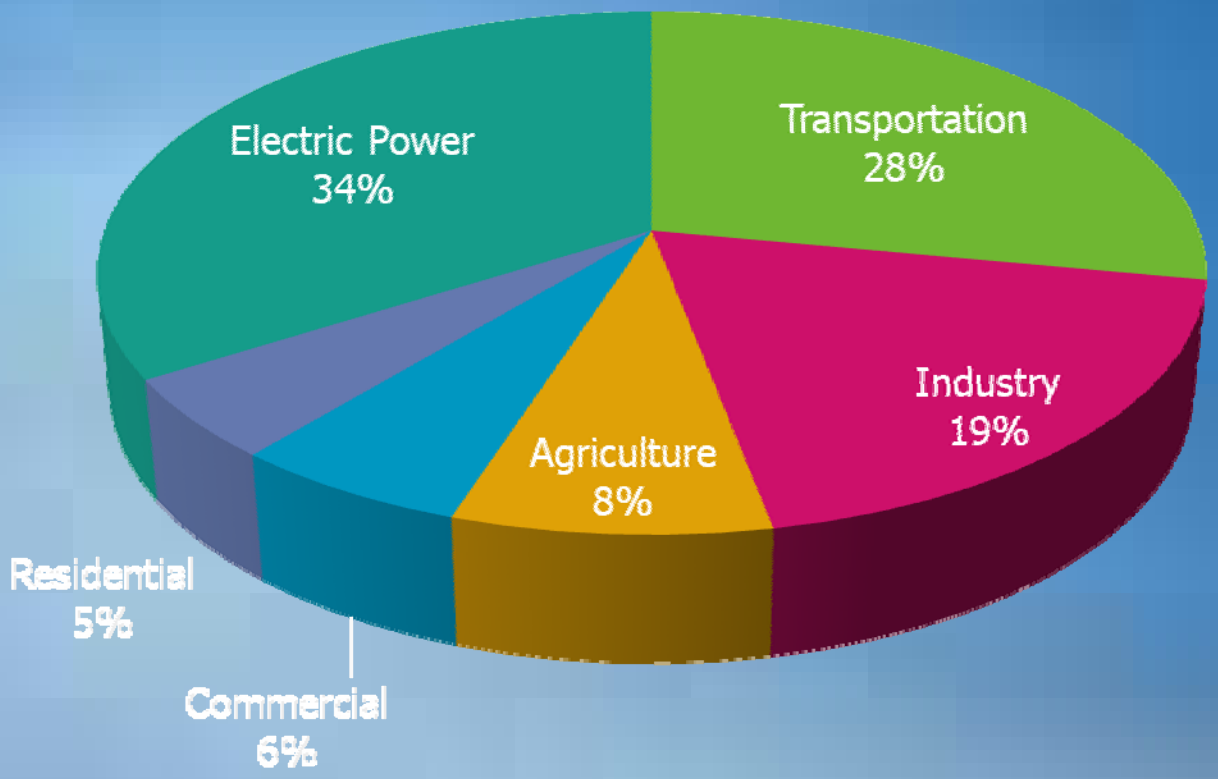
Manufacture Product

Use Product

Dispose of Product

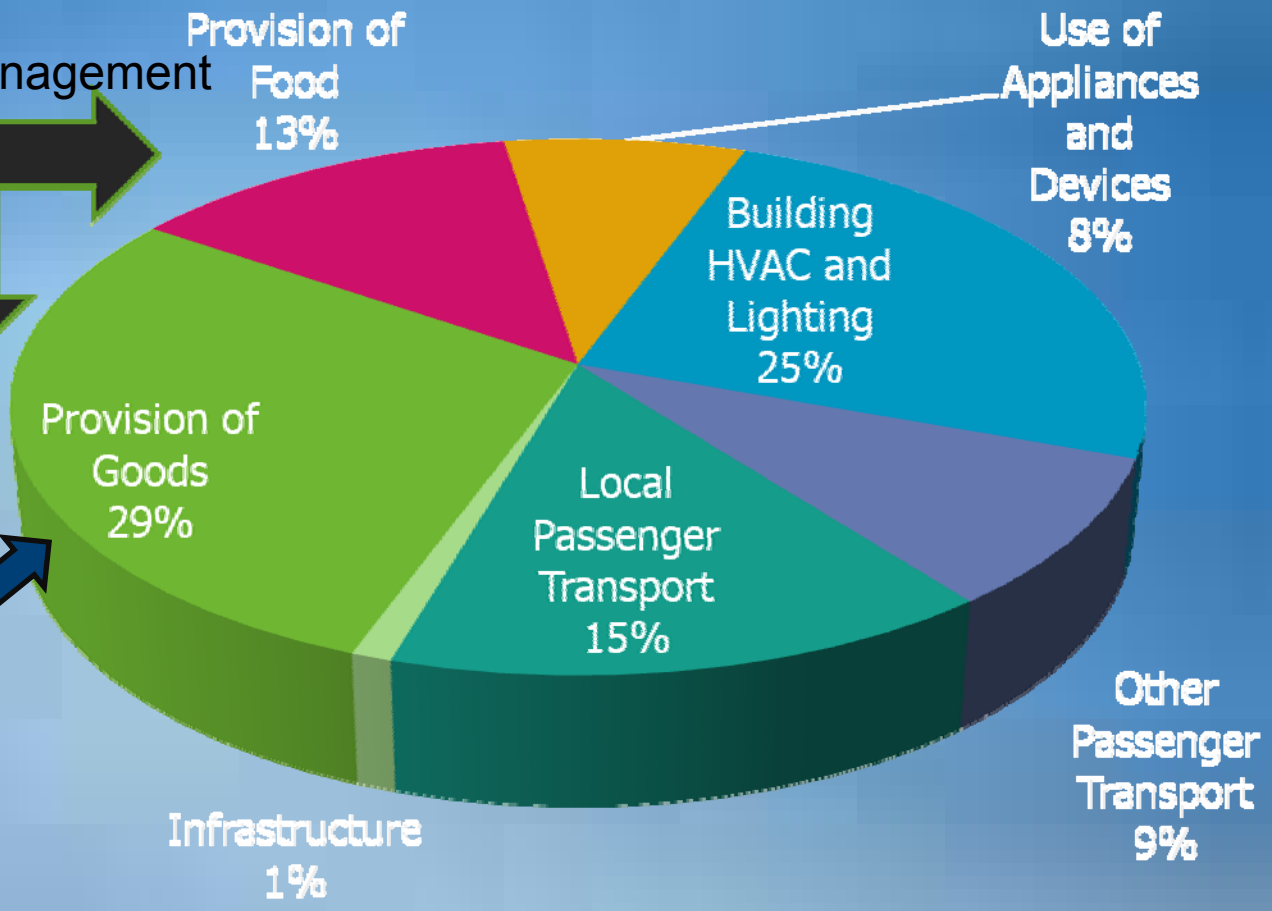
Accounting for the Plastic Pitcher

Where do embodied GHG from this go?



Accounting for the Plastic Pitcher

Material Management Policies



GHG Benefits: MM Strategies

Box ES-1: Summary of Total Technical Potential Scenarios		
Source Reduction		**Estimated GHG Emission Benefit***
Reduce packaging use by:	50%	40—105 $MMTCO_2E/yr$
	25%	20—50 $MMTCO_2E/yr$
Reduce use of non-packaging paper products by:[10]	50%	20—70 $MMTCO_2E/yr$
	25%	10—35 $MMTCO_2E/yr$
Extend the life of personal computers by:	50%	25 $MMTCO_2E/yr$
	25%	15 $MMTCO_2E/yr$
Reuse/Recycling		
Increase recycling of construction and demolition debris to:	100%	150 $MMTCO_2E/yr$
	50%	75 $MMTCO_2E/yr$
	25%	40 $MMTCO_2E/yr$
Increase national municipal solid waste (MSW) recycling and composting rate from 2006 rate (32.5%) to:	100%	300 $MMTCO_2E/yr$
	50%	70—80 $MMTCO_2E/yr$
Increase composting of food scraps from 2006 rate (2%) to:	100%	20 $MMTCO_2E/yr$
	50%	10 $MMTCO_2E/yr$
	25%	5 $MMTCO_2E/yr$
Energy Recovery / Disposal		
Combust percentage of currently landfilled MSW:	100%	70—120 $MMTCO_2E/yr$
	50%	35—60 $MMTCO_2E/yr$
	25%	20—30 $MMTCO_2E/yr$
Combust MSW remaining if national recycling rate is increased to 50%:		65—110 $MMTCO_2E/yr$
Capture percentage of currently emitted methane at U.S. landfills for electricity generation:	100%	150 $MMTCO_2E/yr$
	50%	70 $MMTCO_2E/yr$
	25%	35 $MMTCO_2E/yr$

EPA Report Available Online

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

www.epa.gov/oswer/docs/ghg_land_and_materials_management.pdf

How does Reduce, Reuse, Recycle relate to this?

- Highlights connection between GHG and resource consumption via Provision of Goods and Provision of Food categories.

- Puts focus upstream. "Materials management" rather than "waste management."

Implications and Impacts of System Based Accounting

- Federal money is available for reduction & recycling.
- Makes visible the connection between products and embedded GHG.
- A new way to engage citizens
- Provides additional measure/environmental impact of our work

West Coast Forum on Climate Change, Waste Prevention, Recovery and Disposal

- A series of webinars/meetings intended to discuss climate change and waste prevention/recycling/disposal
- Presentations and more info are available at:

http://yosemite.epa.gov/r10/ECOCOMM.NSF/Programs/wcf

Energy Efficiency & Conservation Block Grants

- **$6.3 Million Available in Minnesota through the General Innovation Fund for Ineligible Entities.**
- **Focus on strategies which:**
  1) are highly leveraged
  2) are broadly replicable and scalable
  3) can be self-sustaining beyond the 3-yr funding period.

Funds available from DOE and MN Dept of Commerce

- DOE is now accepting applications for up to $454 million in EECBG competitive grants.
- The competitive grants Funding Opportunity Announcement was issued on October 19, 2009 and applications will be accepted through grants.gov until December 14 2009.

Eligible Projects Include

Material Conservation Programs including source reduction, recycling, and recycled content procurement programs.

For More information. . .

- www.eecbg.energy.gov

- Minnesota Department of Commerce Webpage – search "Energy Efficiency and Conservation Block Grants"

Tim Farnan
Minnesota Pollution Control Agency
520 Lafayette Road North
St Paul MN 55155
651.757.2348
timothy.farnan@state.mn.us

Minnesota Pollution Control Agency