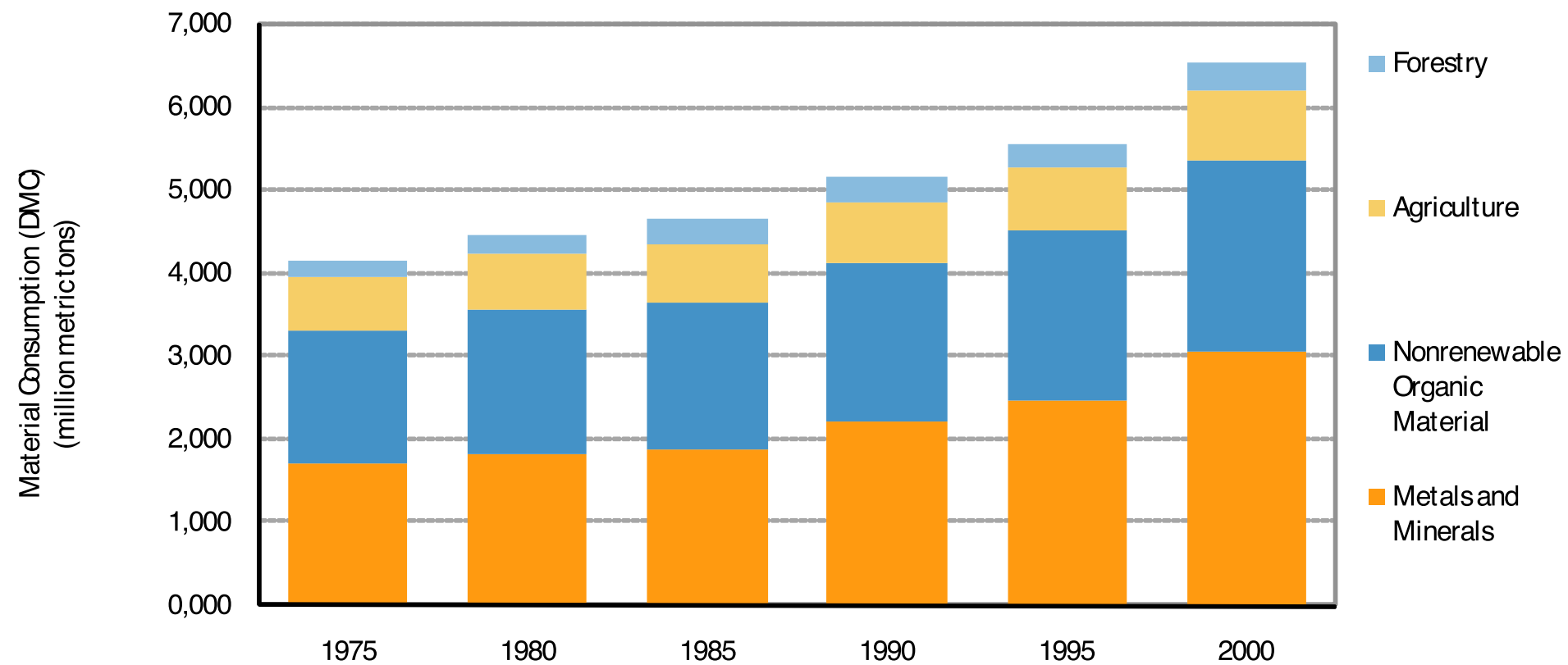


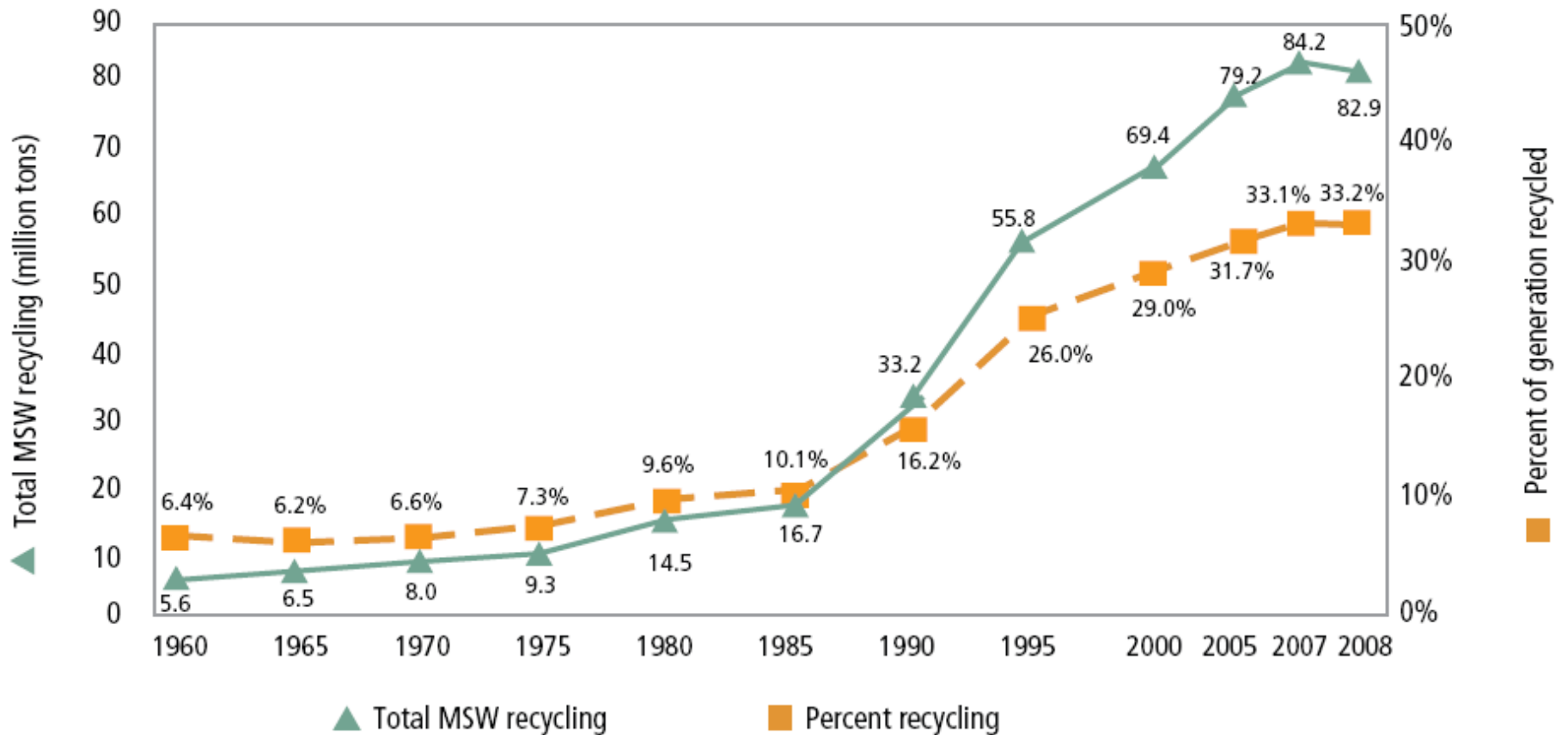
Climaterials



Materials Consumption in the United States by Sector of Origin, 1975–2000
Source: WRI Material Flows Database 2005

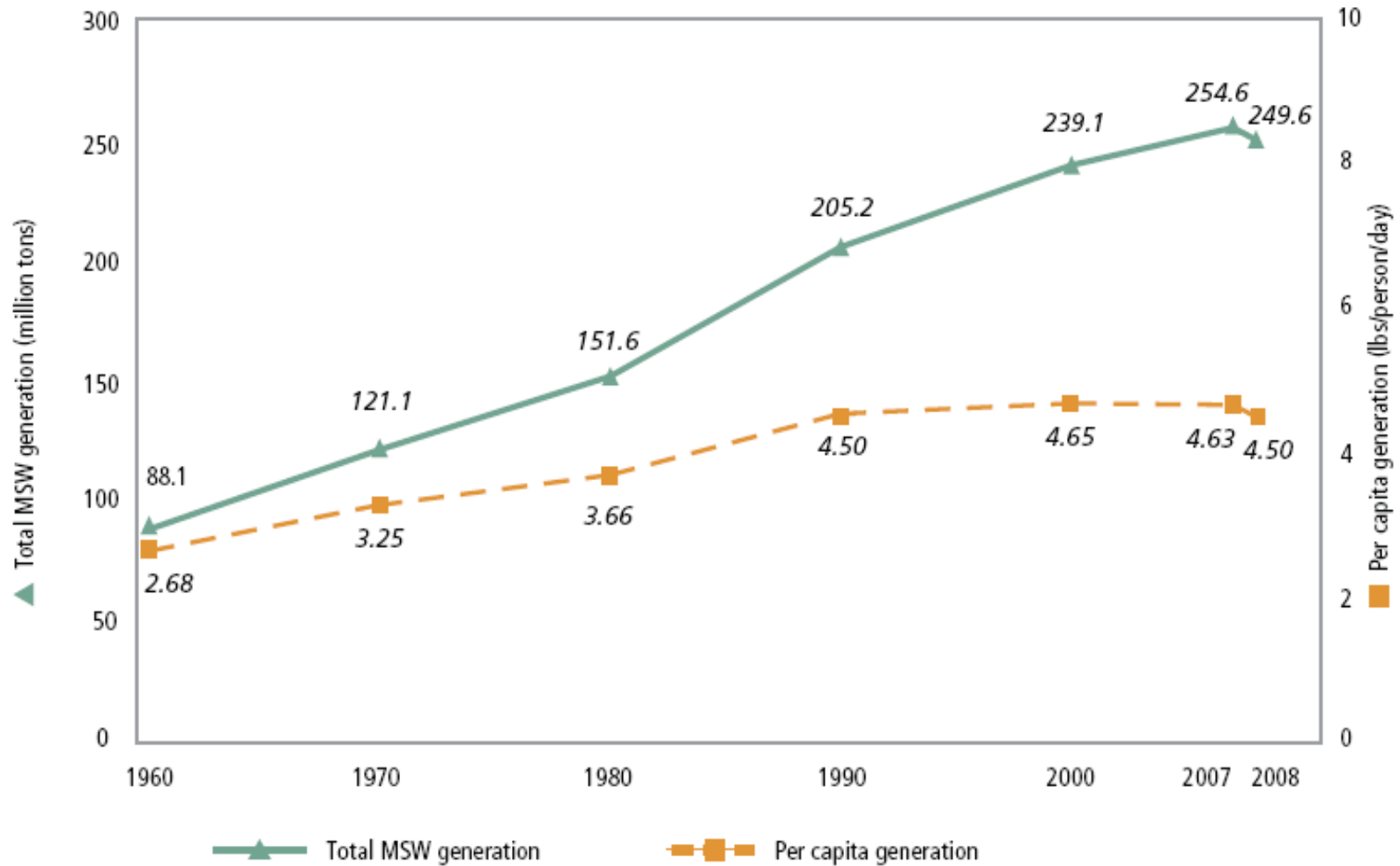
Materials Consumption

Figure 2. MSW Recycling Rates, 1960 to 2008



Recycling Rates

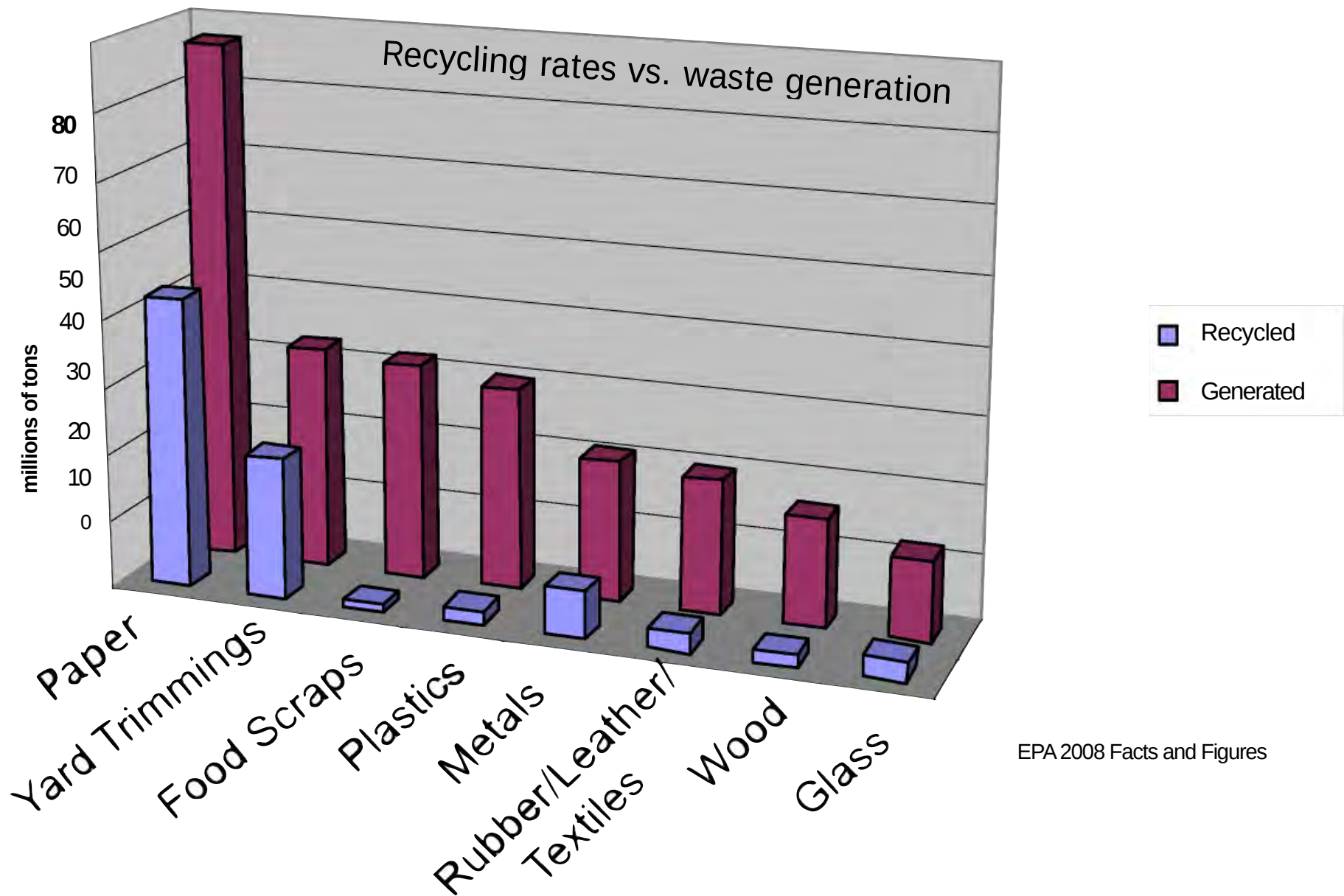
Figure 1. MSW Generation Rates, 1960 to 2008



Waste Generation Rates



One Man's Waste



EPA 2008 Facts and Figures

What's Being Recycled

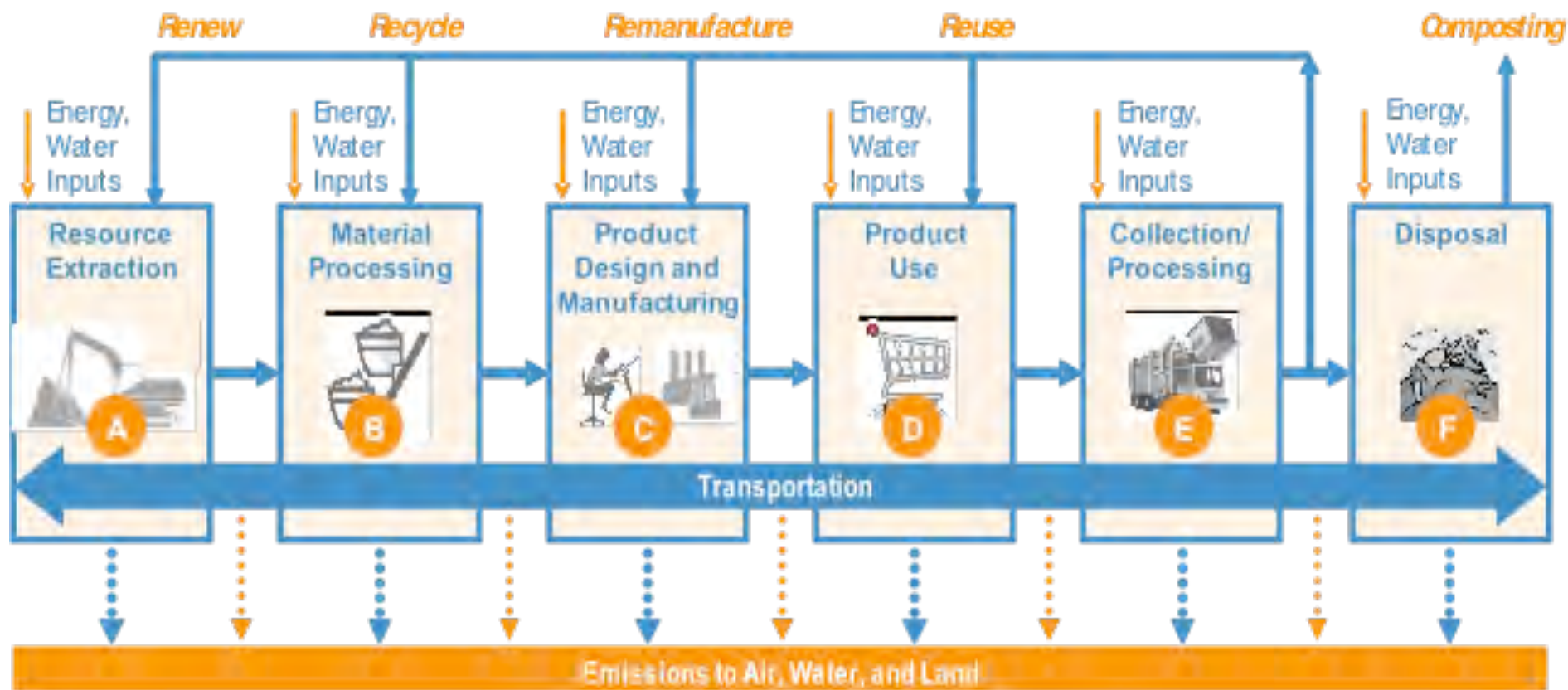
Beyond RCRA

Waste and Materials Management in the Year 2020



- "Landfills are becoming obsolete."
- "Manufacturing processes based on managing resources efficiently, closing the loop of material flow."
- "Product stewardship is standard operating procedure"
- "Landfills made obsolete, phased out"

Materials Management



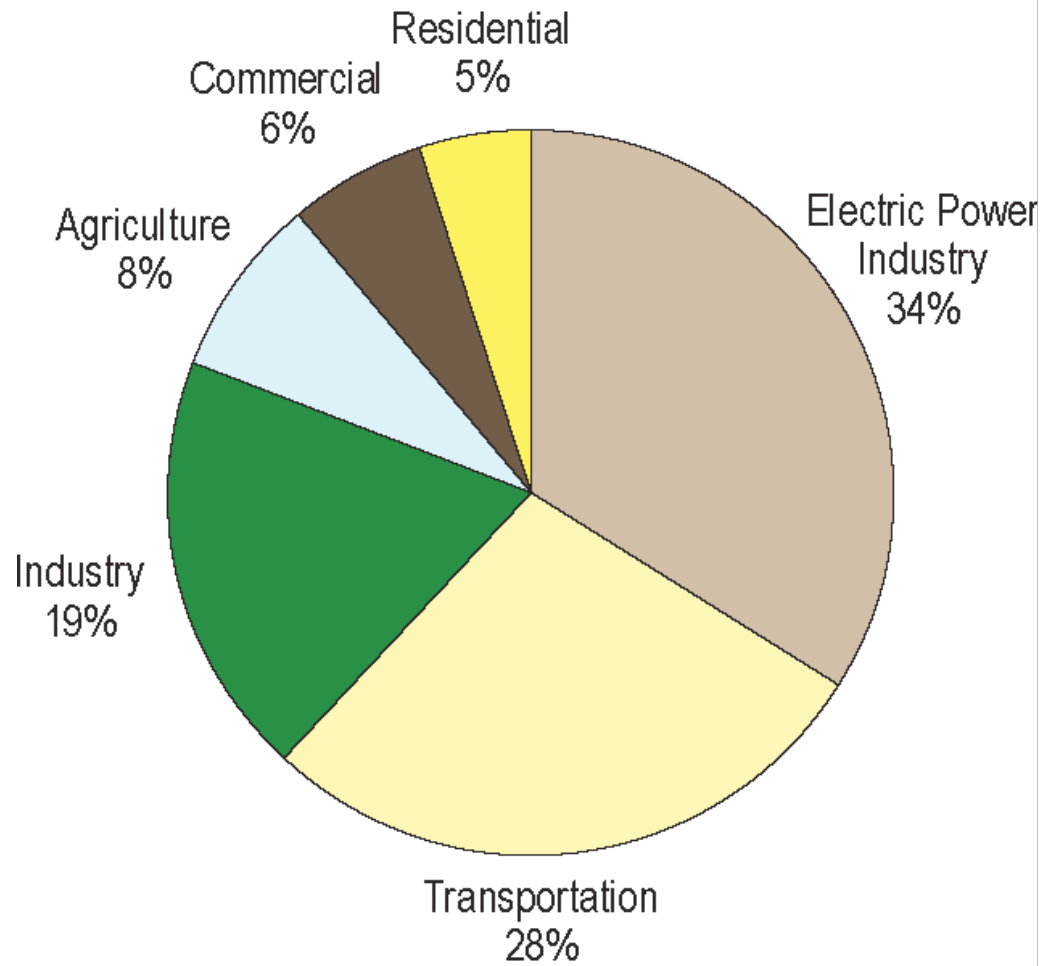
Lifecycle Thinking

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

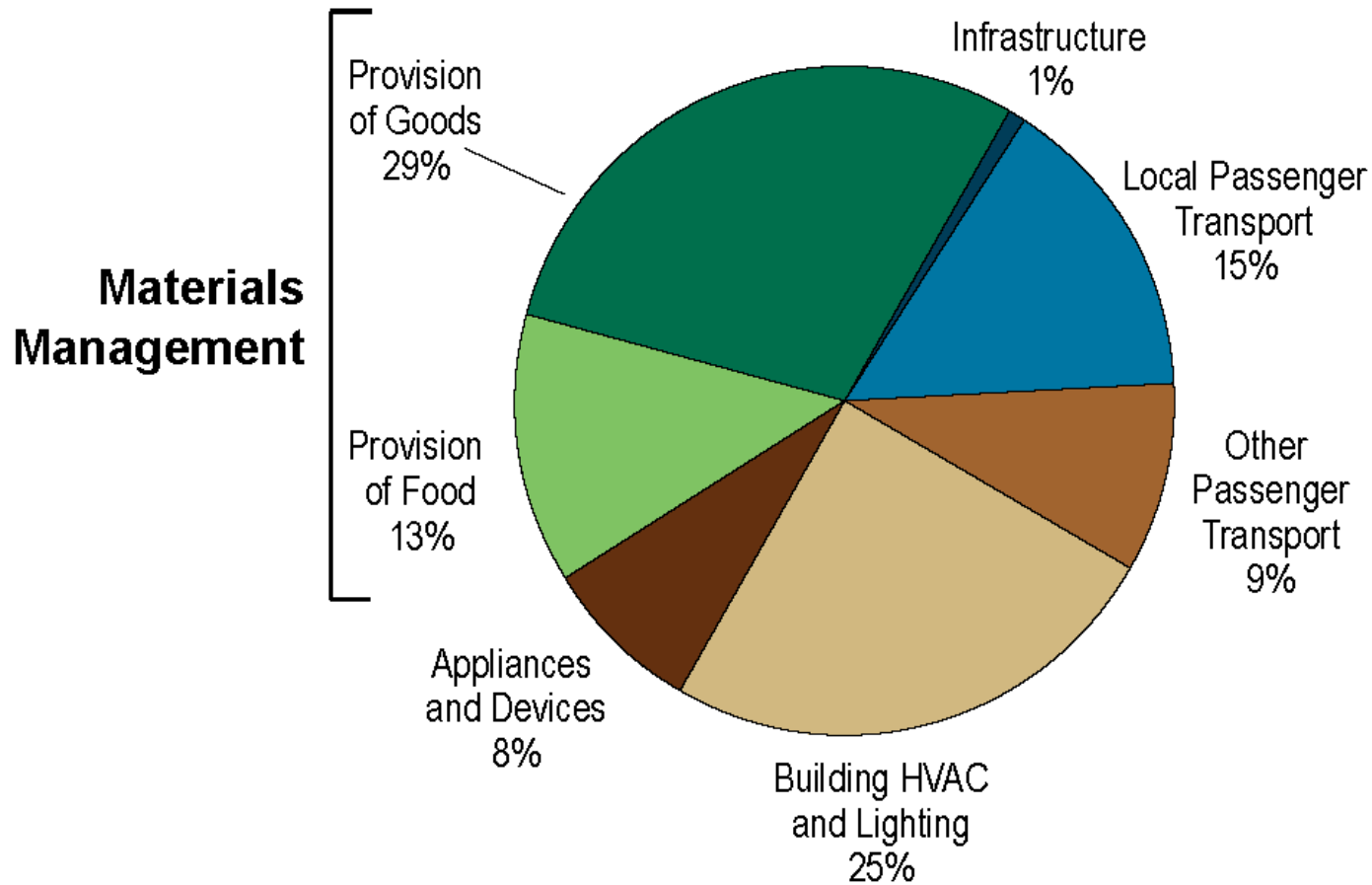
U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response

September 2009

The Foundation Paper



Sector Based Approach



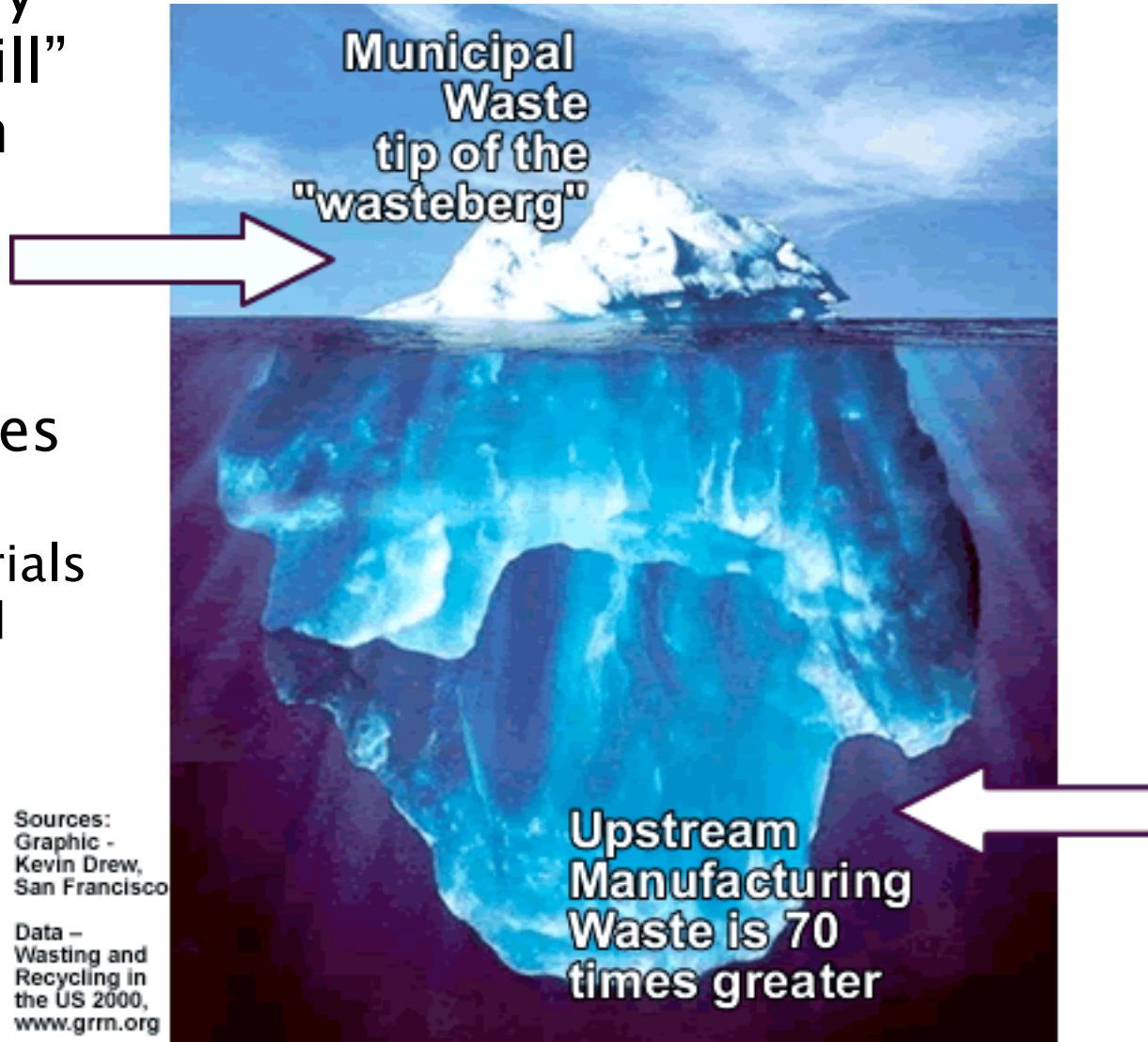
Systems Based Approach

Beyond Climate(rials)

Producing materials creates approximately 5 Billion tons of “Bevill” or special waste each year

Upstream waste comes from:

- Mining raw materials
- Extracting oil and natural gas
- Production



Wasteberg



June 6, 1987



May 22, 2002

NASA Satellite Images

Environmental Justice

WATER FOOTPRINT

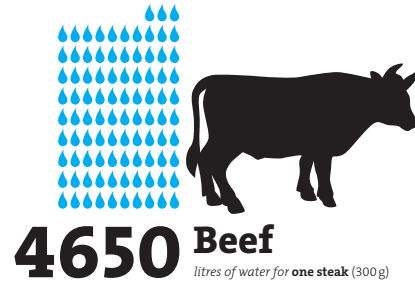
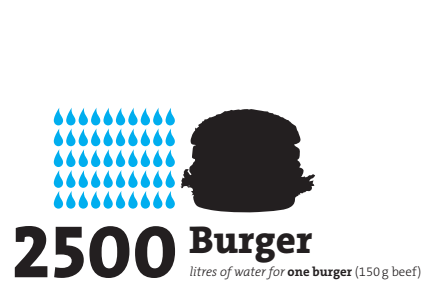
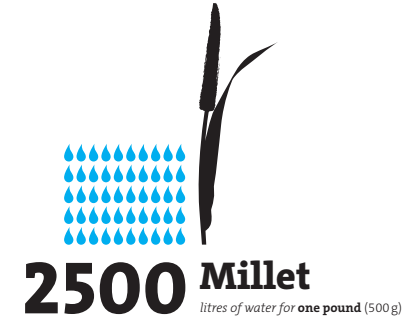
Virtual water embedded in products

→ For the full poster featuring many more products and in-depth information, visit: www.virtualwater.eu

ONE DROP (shown in the illustrations) is equivalent to **50 litres of virtual water** (production-site definition). All figures shown on this poster are based on **exemplary calculations** and may **vary** depending on the origin and production process of the product.

The **water footprint** of a product (a commodity, good or service) is the **volume of freshwater used to produce the product**, measured at the place where the product was actually made. It refers to the amount of the water used in the various steps of the production chain.

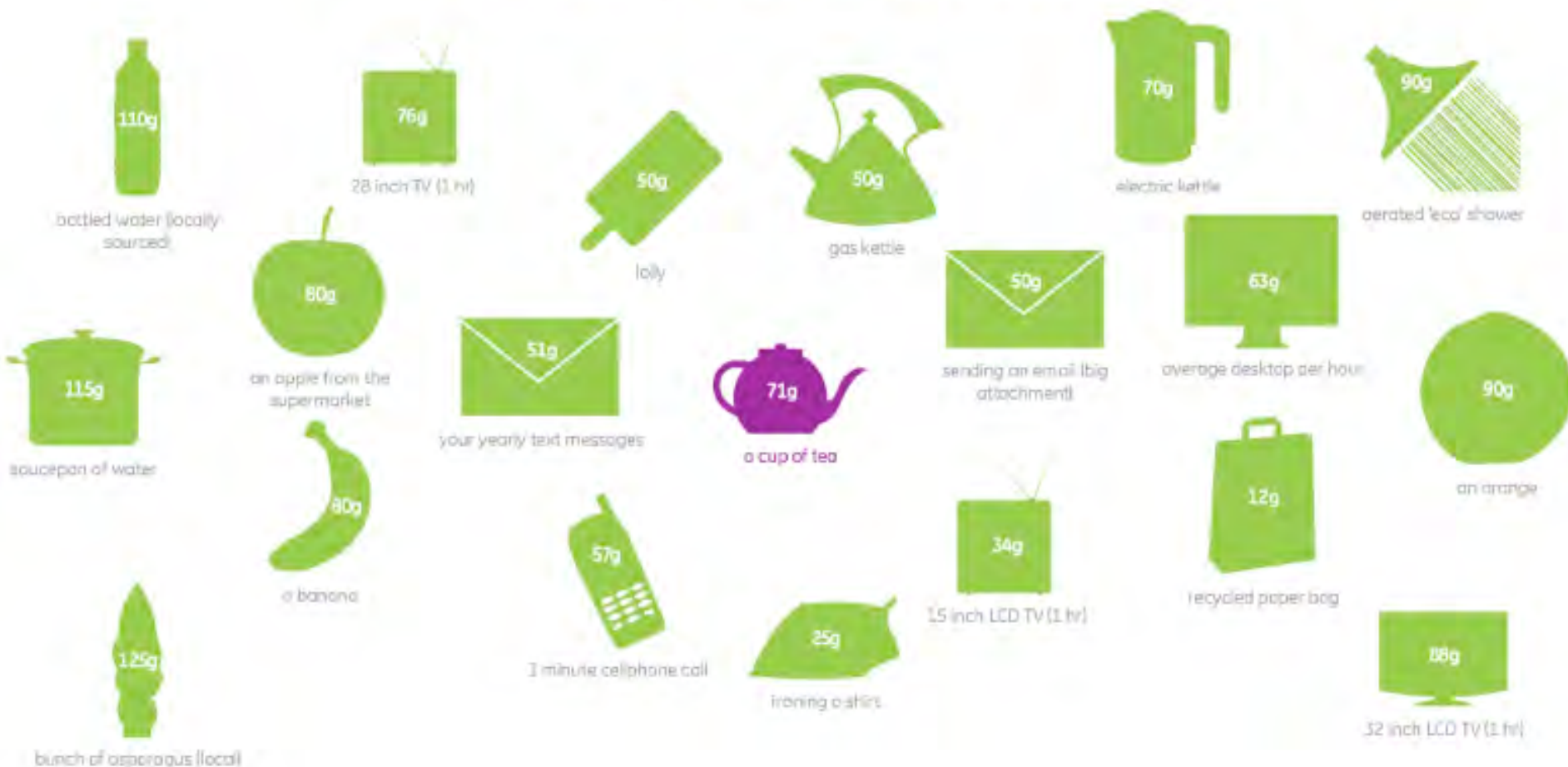
DATA: Hoekstra, A.Y.; Chapagain, A.K. (2008) *Globalization of water: Sharing the planet's freshwater resources* Blackwell Publishing, Oxford, UK www.waterfootprint.org
DESIGN: Timm Kekeritz, www.virtualwater.eu
TYPEFACE: TheSans and TheSerif, Luc(as) de Groot



Embodied Water

Illustration by design and layout: Timm Kekeritz, www.virtualwater.eu © 2010 Timm Kekeritz, www.virtualwater.eu

How much CO₂ is created by...



Embodied Oil



Doing the Math



Impacts from Recycling Rate (33%)

**39 million
cars off the road**



**22 million
homes heated/
year**



**50
power plants
avoided**

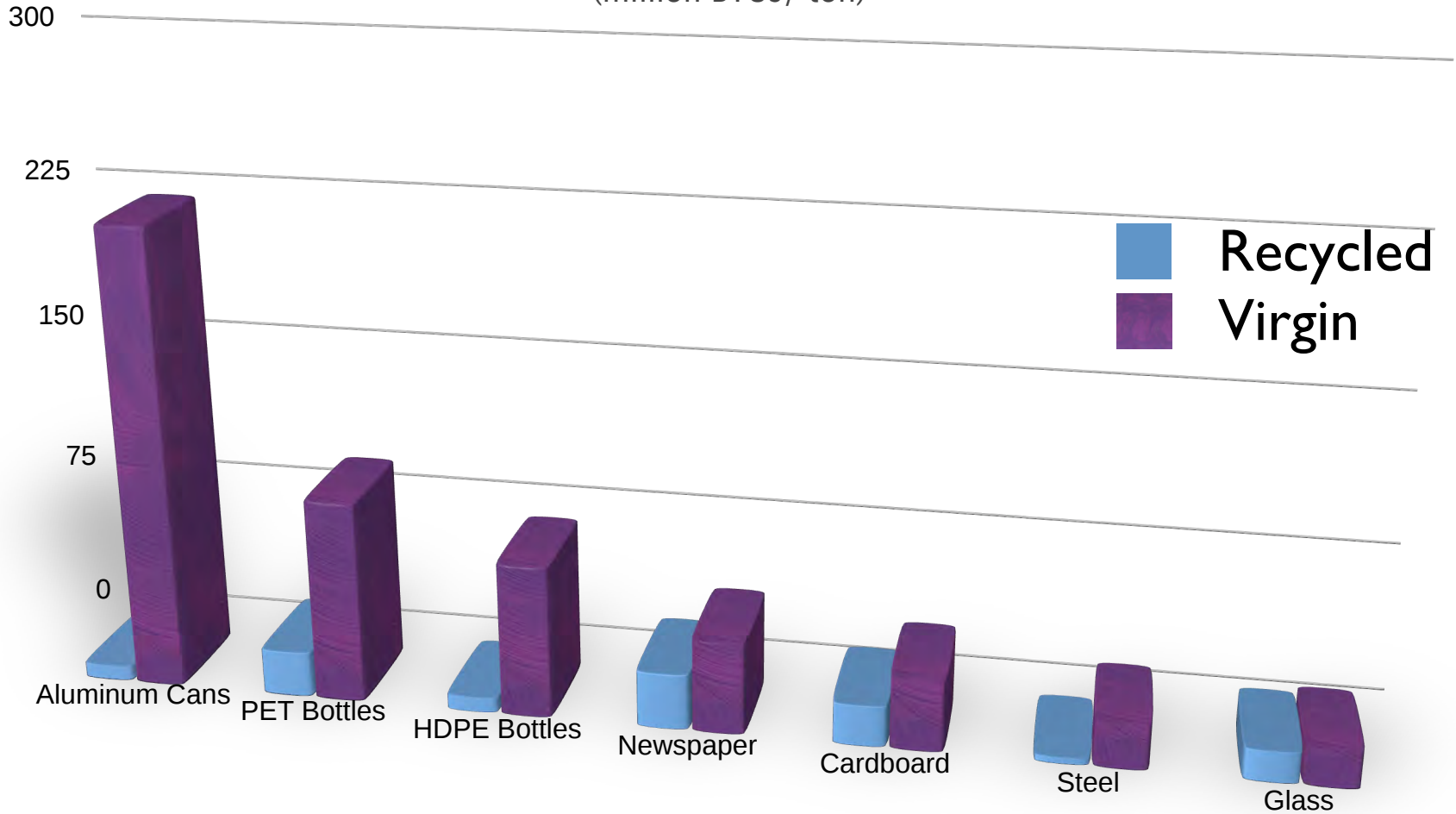


**400 million
barrels of oil
conserved**



Impacts from Recycling Rate (33%)

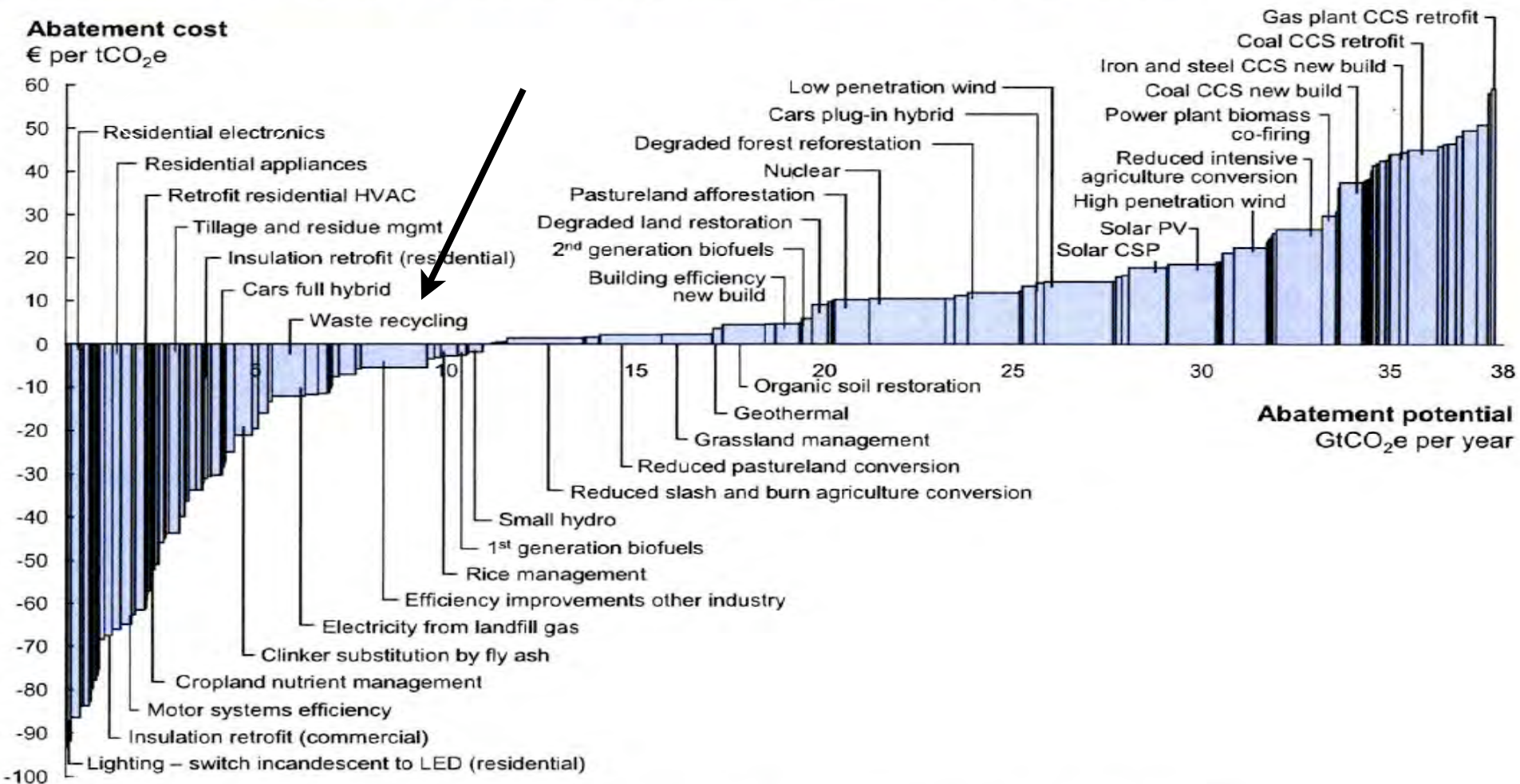
Energy Use: Recycled vs. Virgin Content Products
(million BTUs/ ton)



Recycling Conserves Energy

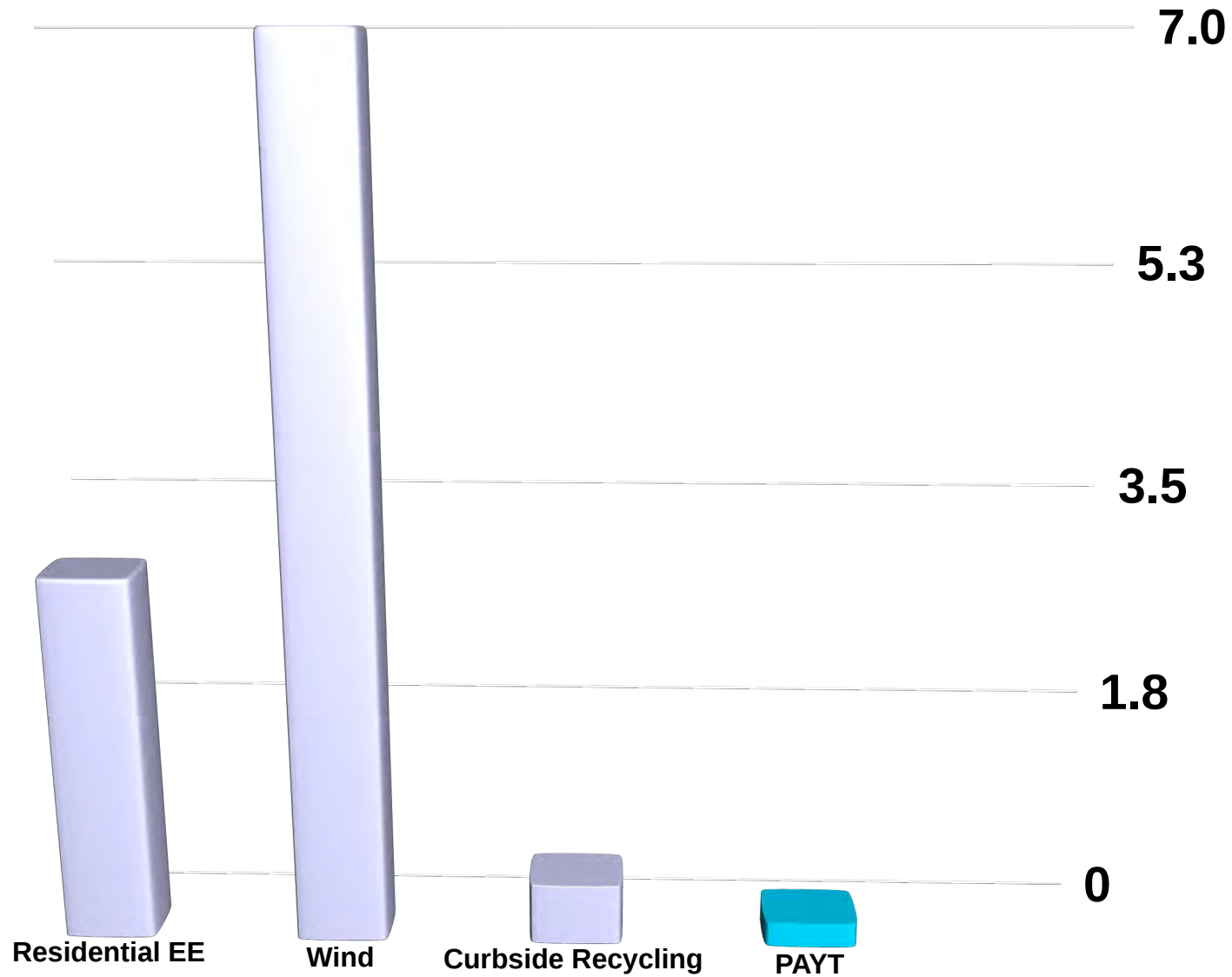
Exhibit 1

Global GHG abatement cost curve beyond business-as-usual – 2030



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO₂e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play. Source: McKinsey & Company, "Global GHG Abatement Potential 2030", 2009.

Cost Effective GHG Reductions



Relative Cost Per MTCO2e



Jobs

Recycling Avoids GHG Emissions

If we recycled 25% more PET, that would be equal to avoiding GHG emissions from 131 million gallons of gasoline.

Manufacturing

U. S. Annual PET Bottle Usage Generated: 2.54 Million Tons of material

Avoiding the production of these materials would avoid 5 million tons of CO2 equivalent.



Lifecycle of a PET Bottle

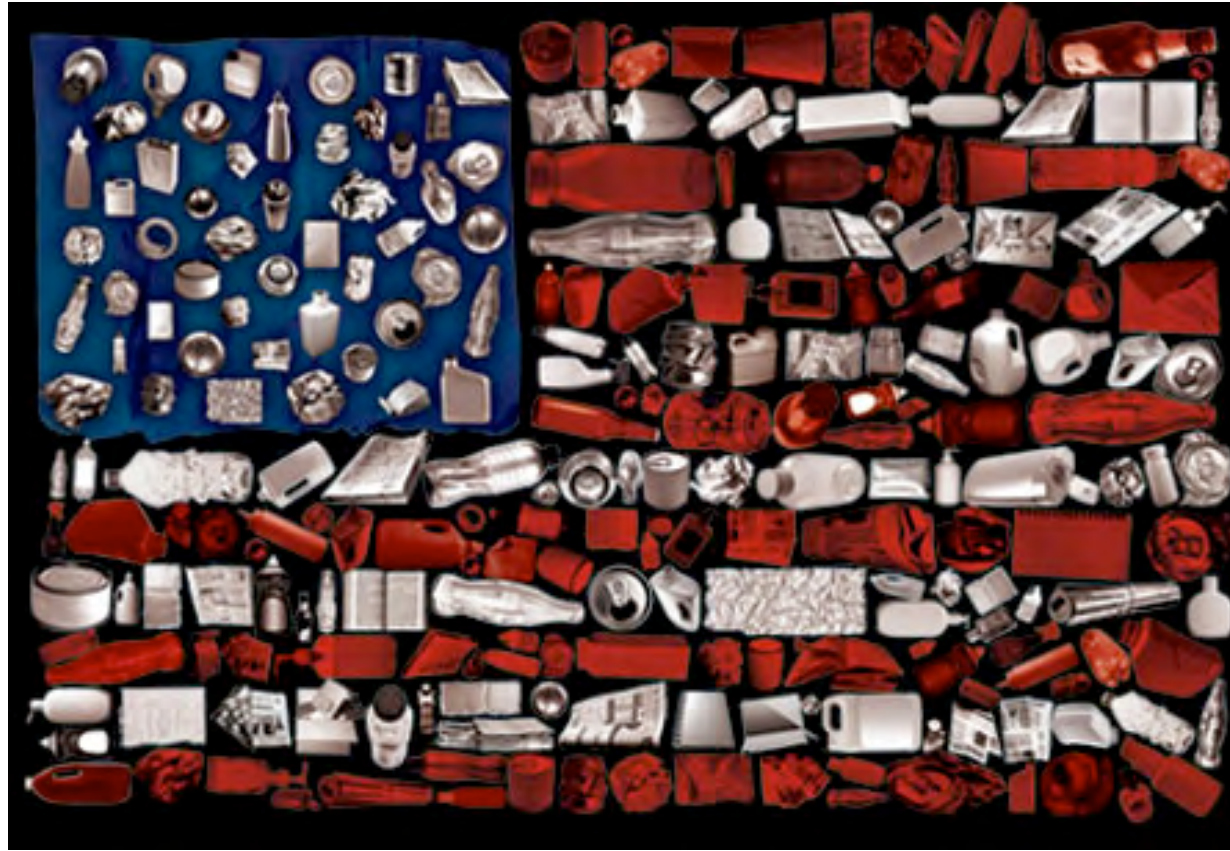
Actions

Increase to 50%
recycling
nationally

- 70–80
MMTCO₂E per
year potential
GHG reductions

Increase to 100%
recycling
nationally

- Up to 300
MMTCO₂E per
year potential
GHG reductions



GHG Reduction Potential

Recycling

<http://www.calrecycle.ca.gov/LGCentral/Library/localdocs/default.htm>

Composting

http://www.sfenvironment.org/downloads/library/sf_mandatory_recycling_composting_ordinance.pdf

Construction & Demolition Debris / Green Building

<http://www.calrecycle.ca.gov/LGCentral/Library/CandDModel/Instruction/>

Model Community Ordinances

Environmentally Preferable Purchasing

Procurement Guidelines:

[http://www.calrecycle.ca.gov/
LGCentral/Library/innovations/
procurement/](http://www.calrecycle.ca.gov/LGCentral/Library/innovations/procurement/)

Environmentally Preferable Purchasing



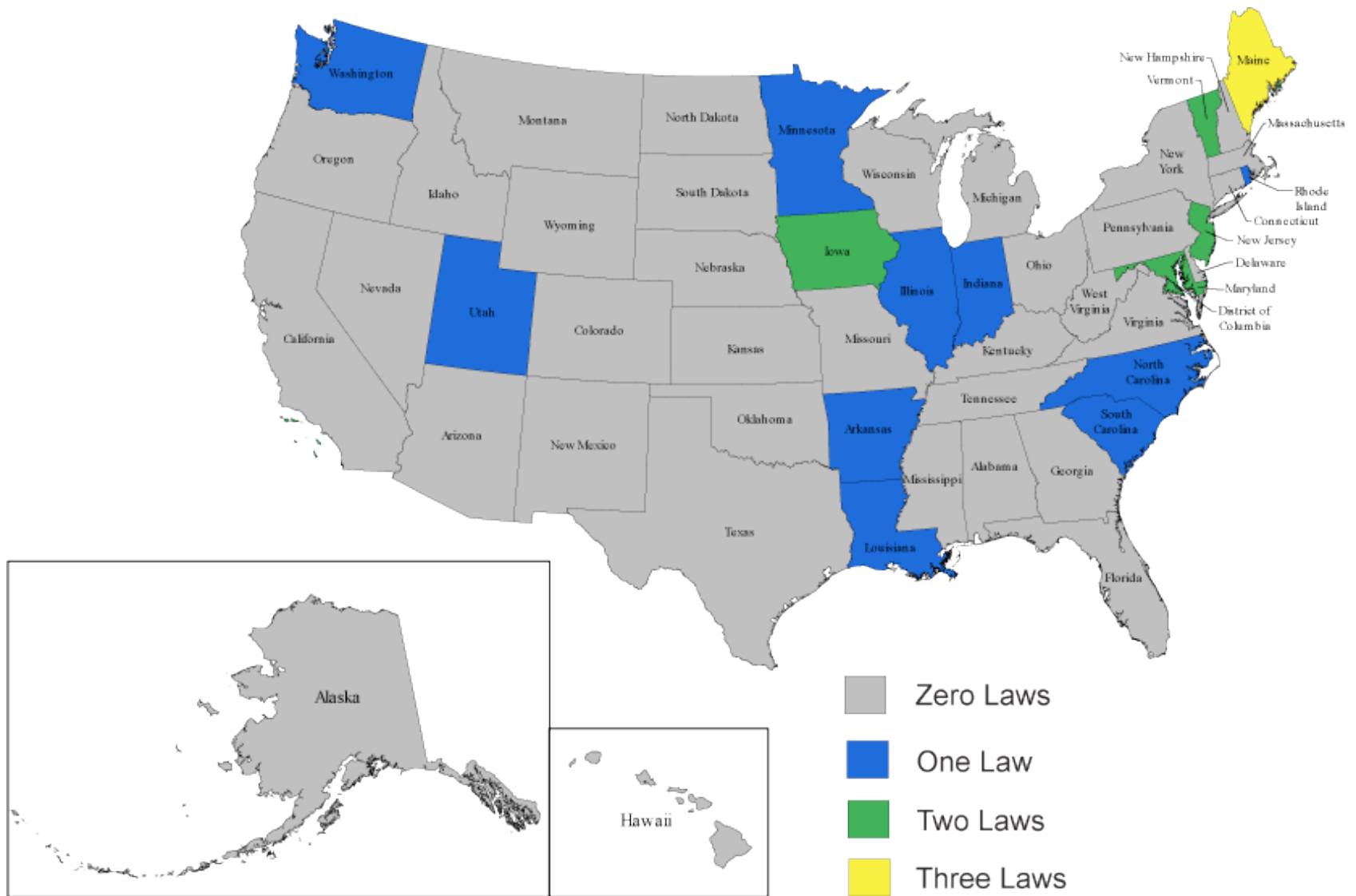
Product Stewardship



Dematerialization



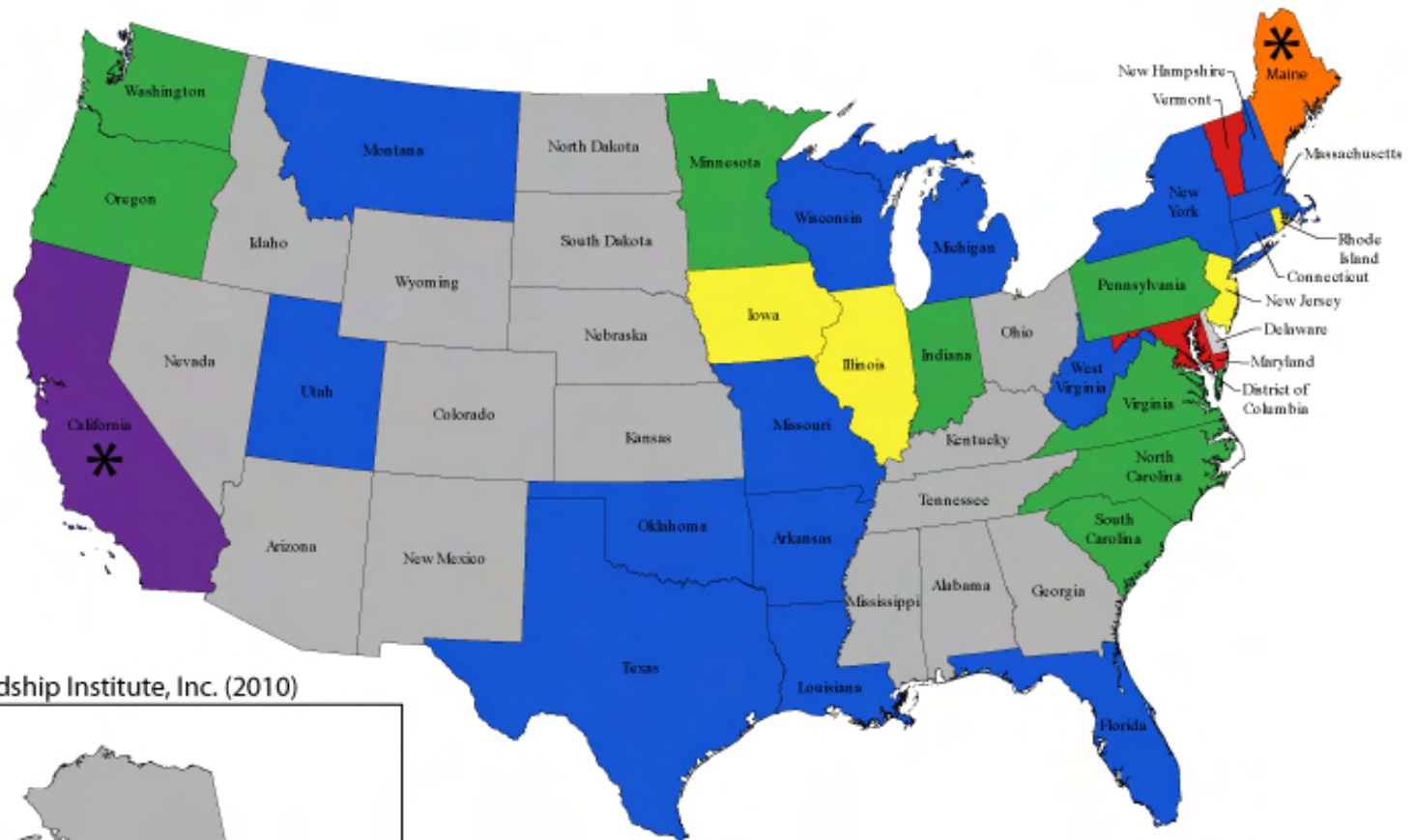
Extended Producer Responsibility



EPR Laws as of 2006

Product Categories

- Auto Switches
- Batteries
- Carpet
- Cell Phones
- Electronics
- Fluorescent Lighting
- Mercury Thermostats
- Paint
- Pesticide Containers



Source: Product Stewardship Institute, Inc. (2010)



Number of Product Categories Covered by EPR Law

- Zero
- One
- Two
- Three
- Four
- Five
- Six

* Other laws authorizing agencies to require EPR, including Framework laws.

EPR Laws as of November 2010



EPR: What Local Governments Can Do



Local governments working together to make producers responsible for reducing waste.

[Send to friend](#)[Printer-friendly version](#)

Disposable by design

Product Policy Institute (PPI) is a North American not-for-profit education and technical assistance organization. Our **mission** is to prevent waste and to promote sustainable production and consumption practices through good public policy and governance.

PPI **offers local governments** practical tools to navigate the transition from a Throw-Away to a Zero Waste Society. PPI

works with local governments and community organizations to build support for effective **Extended Producer Responsibility (EPR)**, or **Product Stewardship**, policies that hold producers responsible for ensuring that their products do not become public liabilities.

www.productpolicy.org

**CHANGING
THE RULES**



SHIFTING SUBSIDIES



**DESIGN FOR THE
ENVIRONMENT**



CLEAN PRODUCTION



DISTRIBUTION



**EMPOWERED
CONSUMER**



**JOBS FOR THE
ENVIRONMENT**



**PRODUCER
RESPONSIBILITY**



**RESOURCE RECOVERY
CENTERS**



Zero Waste

Hewlett Packard
reduced its waste by 95%
saved \$870,564



EPSON® Epson
reduced its waste to zero
saved \$300,000

Business Case for Zero Waste



Zero Waste Franchise Tools

Very high recycling and composting rates would only reduce 15% of GHG emissions due to goods and food (or 6% of the total US GHG inventory).

Prevention and reuse have the potential to address all of GHG emissions due to goods and food.

Source Reduction and Reuse

25 HOUSES

UNDER 3000 SQUARE FEET

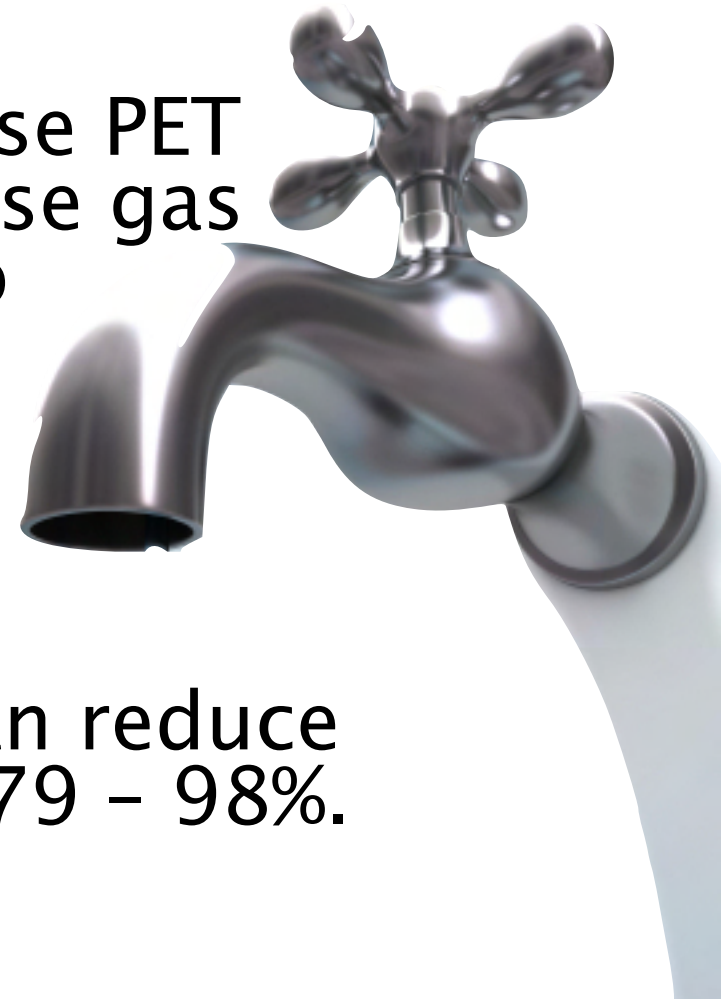


Source Reduction: Green Building

JAMES GRAYSON THILLOVE

From a LCA commissioned by the Oregon DEQ:

Recycling a half-liter, single-use PET water bottle reduces greenhouse gas emissions by 16% compared to disposing of it (in Oregon).



Drinking water from the tap can reduce greenhouse gas emissions by 79 - 98%.

Source Reduction: Water



From a study
commissioned by Oregon
DEQ, Metro, and the US
EPA:

Shipping bags – even if
made from virgin
resources and not
recycled – have lower
environmental burdens in
most categories than
cardboard boxes – even if
the boxes contain high
levels of recycled content.

Source Reduction: Packaging

Your DINE/OUT carton . . .

carries your reputation!



Material Bans

Food packaging ordinances

<http://www.stopwaste.org/home/index.asp?page=1147>

Plastic bag reduction ordinances

<http://plasticbagbanreport.com/>

Material Bans

- Prohibits designated types of waste from landfills and incinerators
- Feasible to ban disposal only when there are recycling and reuse options
- Massachusetts's Department of Environmental Protection
- Waste Disposal Ban Regulation
- www.mass.gov/dep/recycle/laws/bansreg.htm



Disposal Bans



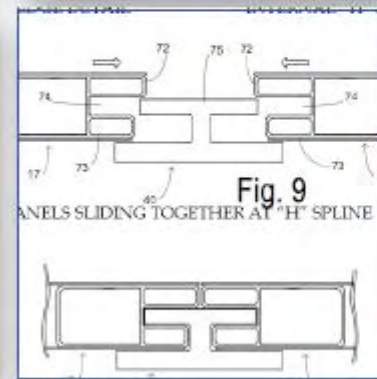
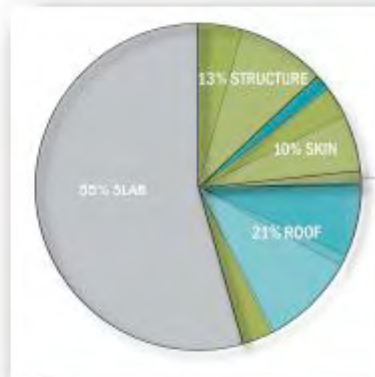
Durability





Projects

LIFECYCLE BUILDING CHALLENGE





Chartwell School



Deconstruction

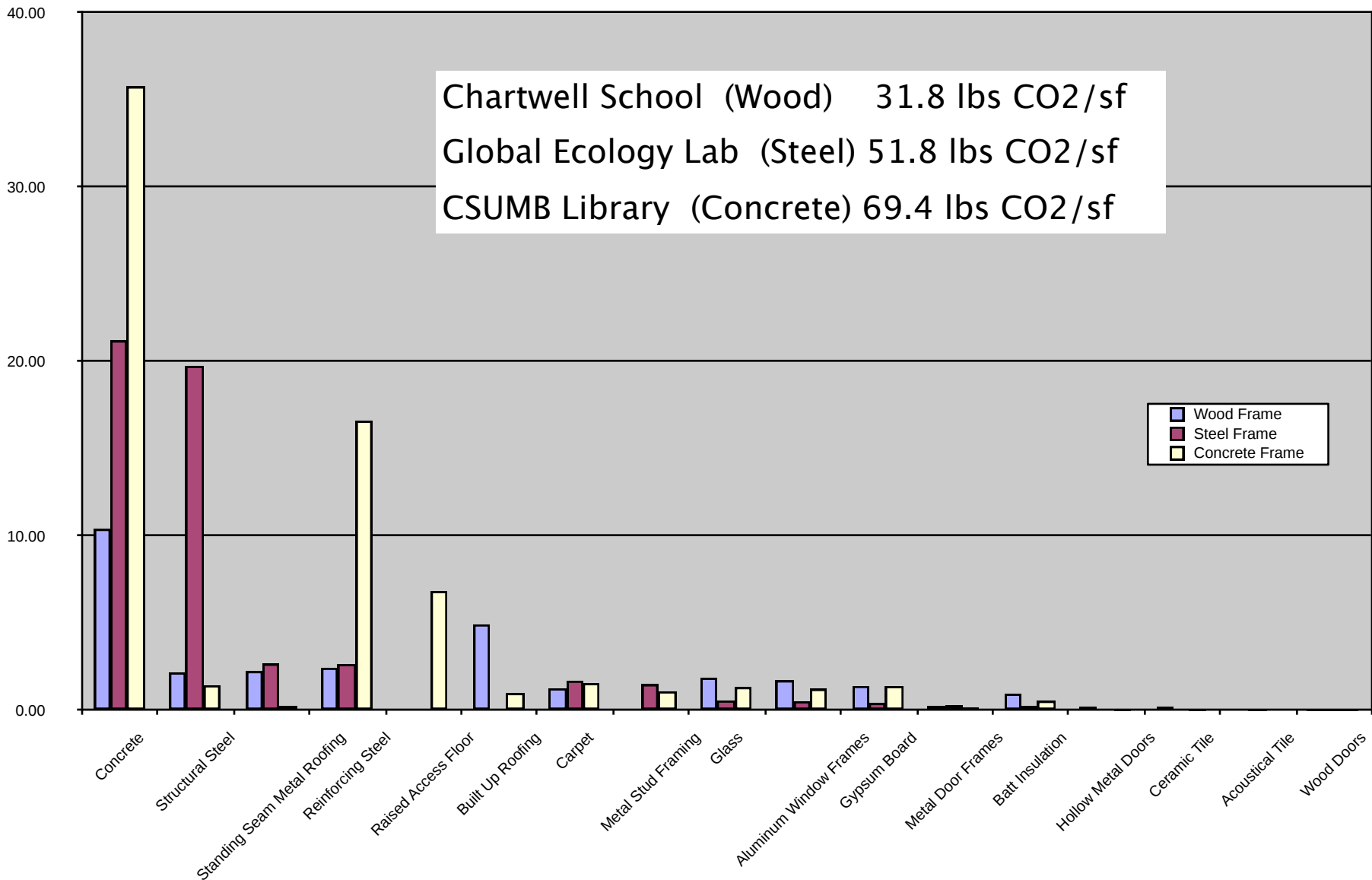


Design for Deconstruction



Design FOR Disassembly

Case Study and Guide



Pounds of CO2/ Square Feet

DISASSEMBLY MATRIX

The Matrix is a tool intended to help guide material specification and detailing throughout the design process. The salvage value of a material combines with the ease of recovery and the relative quantity to suggest, for example, that designing wood siding for disassembly is a priority. Similarly, the high embodied CO₂ content of concrete combined with overwhelming weight of material suggests that designing for ease of recycling is of high value.



SPEC SECTION	COMPONENT	EXPECTED LIFESPAN *	EASE OF RECOVERY AS DETAILED	SALVAGE OR RECYCLING?	VALUE AFTER RECOVERY	QUANTITY OF MATERIALS	WEIGHT PER UNIT	ACTUAL WEIGHT OF MATERIALS	EMBODIED CO ₂ /TON PER UNIT	TOTAL EMBODIED CO ₂	SALVAGED MATERIALS AVAILABLE?
3300	Concrete Slab on Grade	100	easy	recycling	low	536 cy	2.025 tons/cy	1085 tons	0.15	163 tons	yes (aggregate and fly ash)
3320	Concrete Site Paving	50	medium	salvage	low	413 cy	2.025 tons/ cy	836 tons	0.15	125 tons	yes (aggregate and fly ash)
5100	Reinforcing Steel	100	easy	recycling	medium	28,443 #	88 lbs/ sf of concrete	9.5 tons	1.05	10 tons	no
6120	Agriboard	100	easy	salvage	medium	16372 sf	13 lbs/sf (8" panel)	106 tons	0 **	0	no
6170	Wood - Wall Studs	100	medium	salvage	medium	21,000 LF (or Board Feet)	27 pcf (Fir)	23.6 tons	0	0	yes
6200	Exterior Wood Siding	50	easy	salvage	high	2900 board feet or 241.5 cf	26 pcf (Redwood)	3.14 tons	0	0	yes
6200	Interior wood T&G paneling	100	easy	salvage	high	1167 board feet = 63.6 cf	26 pcf (redwood)	0.83 tons	0	0	yes
6410	Plywood for Casework	50	medium	salvage	medium	892,069 cu. in	.022 lbs/cu in	9.8 tons	0	0	no
7210	Batt Insulation	50	medium	recycling	low	15,000 sf (wall) 4,500 sf (roof)	28 psf (R-19)	3.1 tons	1.5	4.7 tons	no
7412	Standing Seam Metal Roofing	25	easy	recycling	medium	11660 sf 8745 #	2.2 lbs / #	9.6 tons	1.05	10.1 tons	no
8212	Flush Wood Doors	50	easy	salvage	low	12 doors (3'x7') 252 sf	5.3 lbs/sf	.67 tons	0	0	yes
8800	Glass	50	medium	recycling	low	7870 sf	3.28 psf	12.9 tons	1.3	16.8	no
9220	Cement Plaster	50	hard	NA	NA	9800 sf	12 psf	58.8 tons	0.2	11.8 tons	no
9250	Gypsum Board	50	medium	recycling	low	38,500 sf	2 lbs/sf	38.5 tons	0.2	7.7 tons	no

Disassembly Matrix

CO₂ EMISSIONS



EMBODIED CO₂, LBS/SF

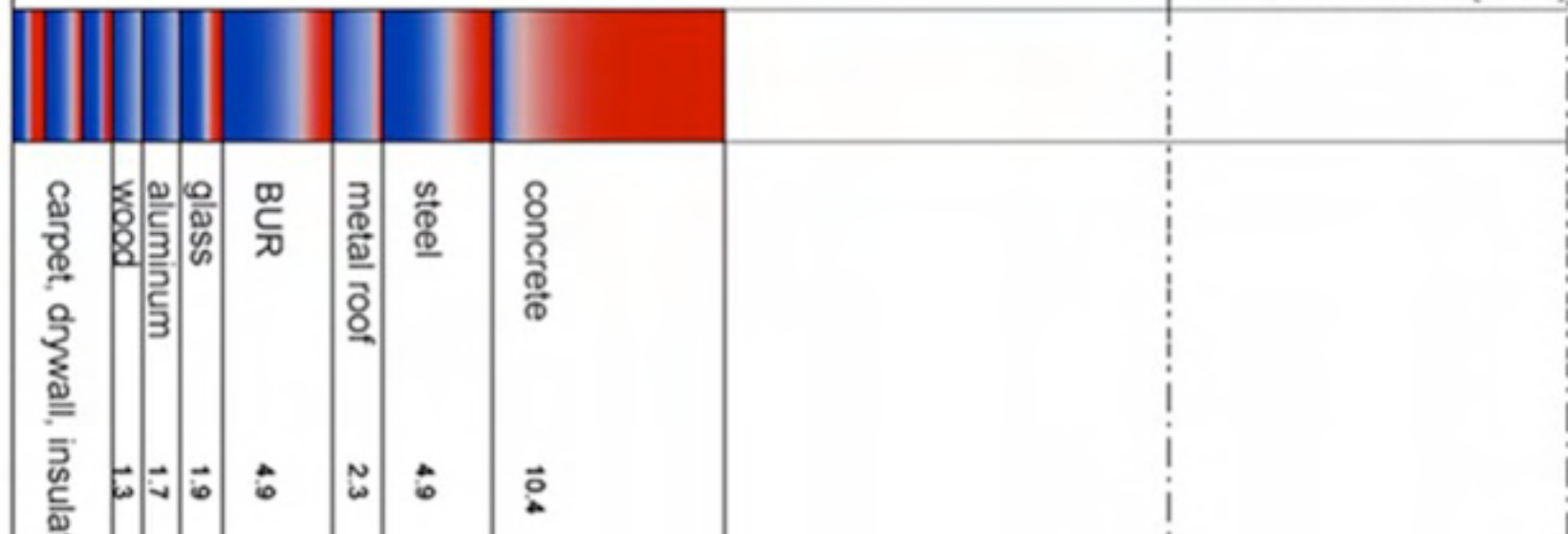
CSUMB LIBRARY [concrete]



GLOBAL ECOLOGY [steel]



CHARTWELL [wood]



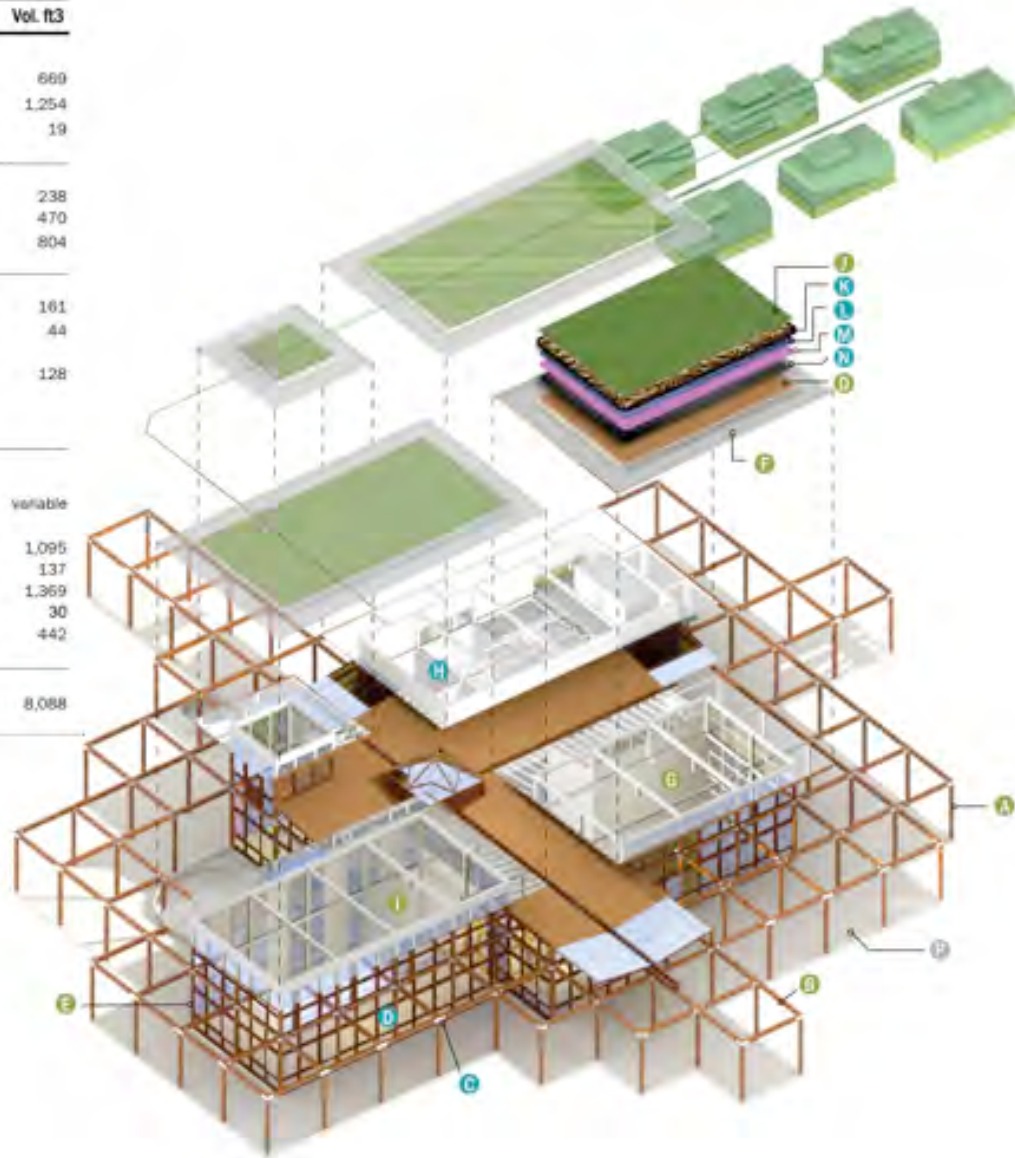
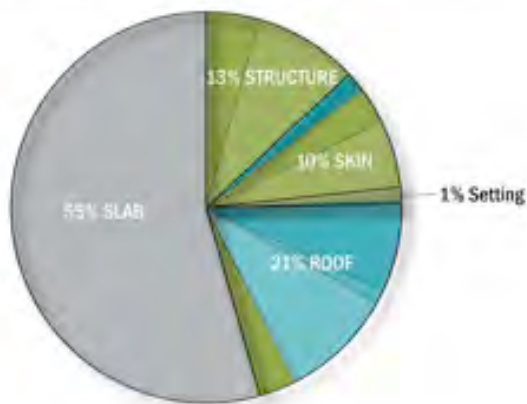
Embodied CO₂ Analysis



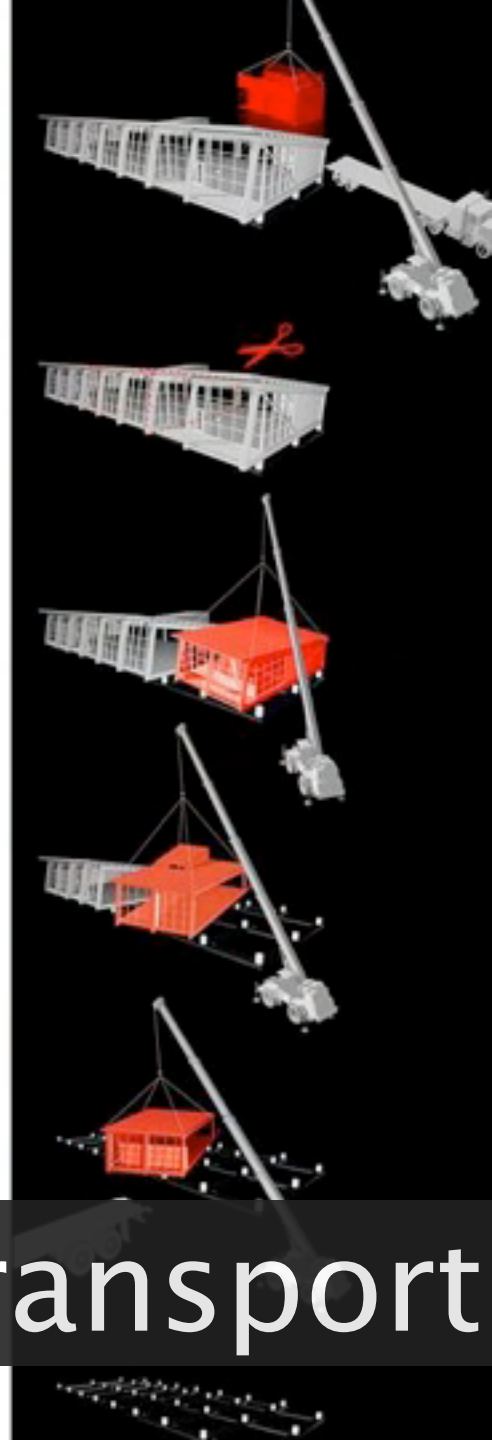
Factory Built Relief Housing

Material DNA Analysis

Element	Nutrient	Material	Previous lifecycle stage(s)	Next lifecycle stage	Vol. ft3
A Columns	Bio	Cypress	slats of pickle vats of local trees	unbolted and reused as columns	660
B Beams	Bio	Cypress	slats of pickle vats of local trees	unbolted and reused as beams	1,254
C Attachments	Tech	Galvanized steel	recycled steel content	remanufactured into steel products	19
D Glazing	Tech	Glass	new material	remanufactured into glazing	238
E Exterior Wall	Bio	Cypress	slats of pickle vats of local trees	demounted and reused as wall	470
F Insulation	Bio	Paper	cellulose from newspapers	composted and returned to soil	804
G Interior Wall	Bio	Cypress	panels from local warehouse	demounted and reused as wall	161
H Bathroom Partition	Tech	HDPE	recycled HDPE content	remanufactured into HDPE products	44
I Interior Surfaces	Bio	Local woods	Kentucky coffee tree, hickory, cherry, walnut, sassafras, hackberry, black locust	reused as interior finish materials	128
Roof					
J Vegetation	Bio	Foliage	native prickly pear, clover, grasses, wild petunias, stonecrops	composted and returned to soil	variable
K Soil mix	Tech	Engineered soil	new materials	soil amendment	1,095
L Root Barrier	Tech	Polyethylene	new material	remanufactured into PE products	137
M Insulation	Tech	EPS	new material	remanufactured into EPS products	1,369
N Membrane	Tech	TPO	new material	remanufactured into TPO products	30
O Substrate	Bio	Cypress	slats of pickle vats of local trees	demounted and reused as roofing	442
P Slab	Non	Concrete	1/2 fly ash, 1/2 crushed + recycled aggregate	crushed and reused as aggregate	8,088



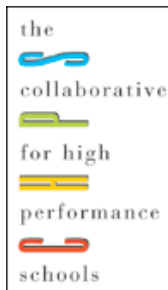
Disassembly and Reuse Plan



Modular Joints for Transport



Competition Partners

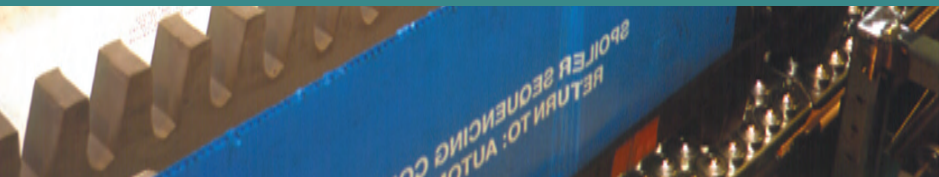


THE AMERICAN
INSTITUTE
OF ARCHITECTS





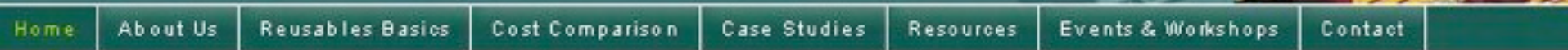
How Businesses Have Successfully Switched to Reusable Transport Packaging



StopWaste.Org Reusable Packaging

Use Reusables

Reusable Transport Packaging Saves Your Company Money and Resources



Reusables Basics

Reusable transport packaging offers environmental advantages while it adds to your bottom line.

Click here to find out how reusable transport packaging can benefit your company.

Cost Comparison

Hundreds of companies have already benefited from reusable transport packaging.

These companies found that switching to reusables brought increased product protection, improved worker safety and

efficiency throughout the distribution network. Read what other companies have to say for your company.

Case Studies

A viable alternative to one time or limited use shipping containers,

sturdy, long-lasting reusable transport packaging can save your company money, while reducing greenhouse gas emissions, preventing

waste and saving energy. Read what other companies have to say for your company.

Events/Workshops

Reusables 101: The Business Case for Reusables

February 10, 2011

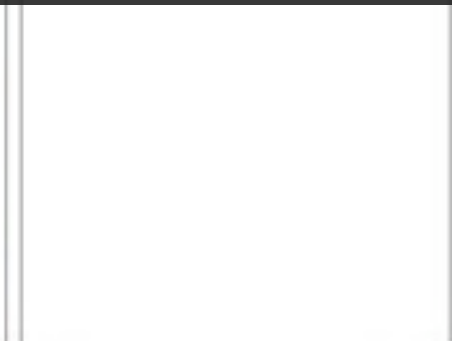
10AM -1PM

StopWaste.Org,

Oakland, CA

Click here to register.

www.usereusables.com



Reusables Cost Comparison Tool

This model compares basic cost differences of one way corrugated packaging and reusable plastic packaging. The model uses basic assumptions and requires you to input various cost components. While the model uses factual inputs from prospective users it is intended to offer guidance and not an absolute indication of exact cost benefits. More specific models are available to determine specific cost benefits once an overall feel for expected costs are understood.

Corrugated		Reusable Handheld Container	
Purchase Price		<i>* average values, your cost will vary</i>	
Enter your actual cost for a corrugated carton, and the cost of a comparably sized reusable container. Default values are provided.			
Corrugated carton	1.00	Container price	7.50
Enter the cost of tape or other materials used to seal each carton.			
Tape per carton	0.02		
Total purchase cost	\$1.02		

Dwell Time

Cost Comparison Calcul

Cost Comparison Calculator



Peerless Coffee

West Coast Forum on Materials Management and Climate Change

CITY OF PORTLAND AND MULTNOMAH COUNTY

CLIMATE ACTION PLAN 2009



City of Portland Bureau of
Planning and Sustainability
Sam Adams, Mayor | Susan Anderson, Director



Sustainability Program
Jeff Cogen, County Commissioner

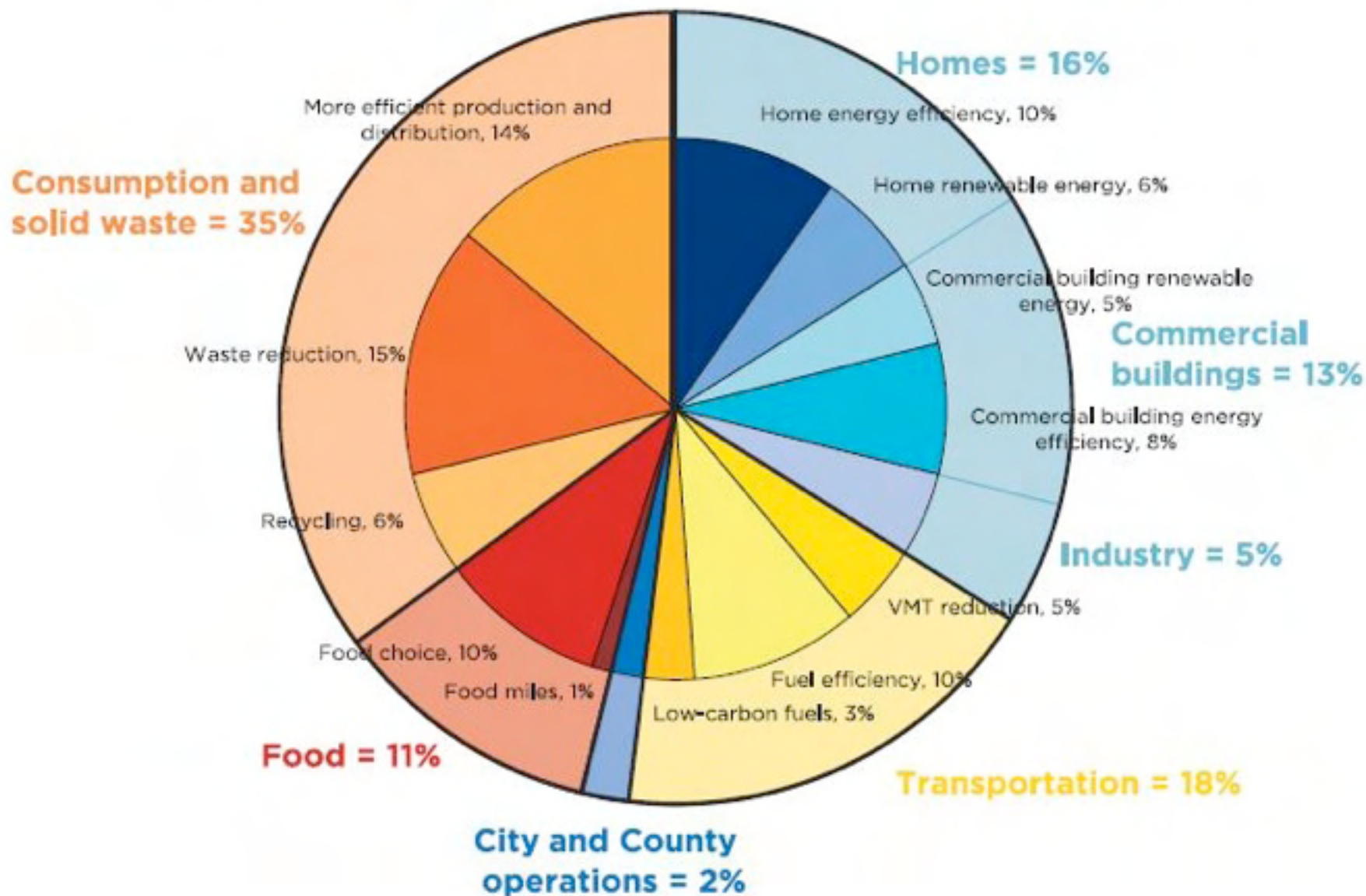
Changed its inventory method to include “upstream” emissions for the production of materials disposed of that are targeted for recovery in the City’s Climate Action Plan.



Ft. Collins, Colorado

CLIMATE ACTION PLAN

(APPROXIMATE CONTRIBUTION TO 2030 EMISSION-REDUCTION GOAL)



Oregon DEQ hired Stockholm Environment Institute to develop a consumption-based emissions inventory for Oregon. This project is currently underway and DEQ hopes to release draft results later in the year.

Oregon

Faster and cheaper progress in reducing GHG.

Includes all households or businesses.

More directly under the control of communities than are energy supplies and regional transportation.

Climaterials in GHG Strategies

Use national estimates

Narrative

Per capita estimate 10 metric tons
(10 tons x community population)

Inventory Approaches



King County and Seattle

The first webinar is Tuesday, February 1st at 9 AM.

Register at <https://www1.gotomeeting.com/register/928518465>

TOPICS include:

- Intro: Unsustainable Consumption
- The Connection to Climate Change
- Your Eco Footprint & Downsizing Your Consumption
- Psychology Of Overconsumption
- Influencing Behavior Change
- Reducing Consumption to Improve Quality of Life and Happiness
- The Economics of Consumption
- Consumption, Advertising and the Creation of Desire
- Food: Why we eat too much and waste too much.
- Designing Communities and transportation to Reduce Our Carbon Footprint and Recreate Community
- Changing Industry & the Morality of Editing Consumer Choice

For more information go to
www.epa.gov/region10/westcoastclimate.html
or contact Vicky Salazar at
salazar.vicky@epa.gov



Webinar Series on Consumption

Materials Management Approaches for State and Local Climate Protection

★ home

PAGE ▾

HISTORY

NOTIFY ME



Our Purpose - Reducing Greenhouse Gases through Materials Management

Materials Management strategies reduce greenhouse gas (GHG) emissions associated with waste, materials and energy through a lifecycle and systems approach.

This wiki 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

[We want to hear from you.](#) This beta version toolkit was launched on 9/8/10. Help us improve it with your feedback. Let us know what materials management approaches you are adding to your Climate Action Plan.

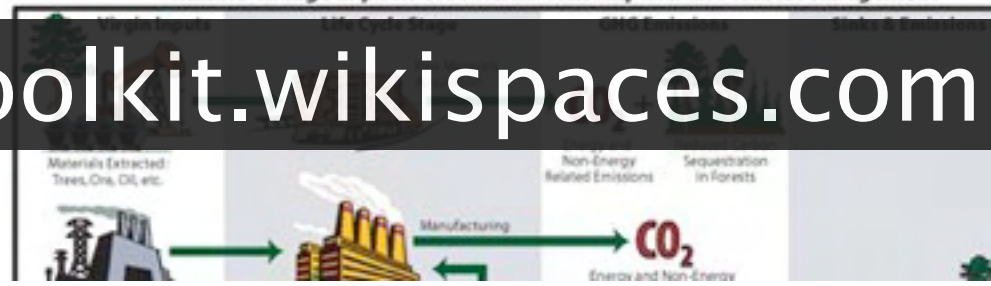
Who Should Use This

Toolkit

Climate Change Staff

- Recycling, Composting and Solid Waste Professionals

Climate Change Impacts of Material Consumption and Waste Management



<http://captoolkit.wikispaces.com>

Climaterials Tools

Recycled Content (ReCon) Tool

(Version 5, 10/10)

This tool is designed to assist companies and individuals with evaluating the greenhouse gas (GHG) benefits associated with increasing the recycled content of materials they may purchase or manufacture. ReCon Online was last updated October 2010.

Related Links

[ReCon Home](#)

[ReCon User's Guide](#)

www.epa.gov/climatechange/wycd.waste/calculators/ReCon_home.html

Step 1. Amount of Materials Purchased or Manufactured

First, you can enter a brief description of the "material purchased" in the far left column (not required for the tool to function). Please note that the EPA has not evaluated all material types; if the material of interest is not listed, enter your data in the row of a "surrogate" material similar to the materials you purchase or manufacture.¹

Second, enter the amount of each material that is purchased in pounds. The "tons" column will be calculated automatically. Please note that different materials of the same basic material type (e.g., steel drums and steel rods) should be included in the same row. If you do not have weight information for certain materials, the [Unit Converter Sheet](#) provides some conversion factors for each material type.

Material Purchased	Corresponding Material (or Surrogate) ¹	Amount Purchased (pounds)	Amount Purchased (tons)	Example Materials for Which This Material can be Used as a Surrogate
	Aluminum Cans			Any type of aluminum product
	Steel Cans			Ferrous and non-ferrous metals, iron
	Copper Wire			Electrical copper wire of varying gauges
	Glass			Glass-based products
	HDPE			HDPE



ATHENA®
EcoCalculator
for assemblies

	F	G	H	I	J
TOTAL IMPACTS BY BUILDING COMPONENT	Primary Energy (MJ) TOTAL	GWP (tonnes) TOTAL	Weighted Resource Use (tonnes) TOTAL	Air Pollution Index TOTAL	H2O Pollut Index TOTAL
COLUMNS & BEAMS	0	0	0	0	0
INTERMEDIATE FLOORS	0	0	0	0	0
EXTERIOR WALLS	0	0	0	0	0
WINDOWS	0	0	0	0	0
INTERIOR WALLS	0	0	0	0	0
ROOF	0	0	0	0	0
WHOLE BUILDING	0	0	0	0	0

C. EXTERIOR WALLS

ATHENA ASSEMBLY EVALUATION TOOL v2.3—Toronto Low-Rise Building

IN THE YELLOW CELLS BELOW, ENTER THE AREA (in m²) THAT EACH ASSEMBLY IS USED IN YOUR BUILDING

		Assembly R-value	m ²	Percentage of total	Primary Energy per m ² (MJ)	GWP per m ² (kg)	Weighted Resource Use per m ² (kg)	Air Pollution Index per m ²	H2O Pollut Index per m ²
Average:					1421.11	88.76	319.71	18.36	7
8" CONCRETE BLOCK									
1	Concrete block, brick cladding rigid insulation, vapor barrier	21.80	0		2254.83	113.76	256.98	27.99	0.01
2	Concrete block, steel cladding, rigid insulation, vapor barrier	21.61	0		2519.28	208.41	190.63	37.45	47.32
3	Concrete block, stucco cladding rigid insulation, vapor barrier	21.11	0		1530.64	88.82	213.63	16.79	0.03
4	Concrete Block, EIFS, vapor barrier	16.51	0		1227.71	72.38	136.73	14.51	0.01
5	Concrete Block, precast cladding, rigid insulation, vapor barrier	21.00	0		1464.18	93.18	301.72	16.58	0.05
6	Concrete block, brick cladding rigid insulation, vapor barrier gypsum board, latex paint	22.36	0		2394.08	118.17	275.66	29.89	0.01
7	Concrete block, steel cladding rigid insulation, vapor barrier gypsum board, latex paint	22.17	0		2658.52	212.82	209.30	39.35	47.32
8	Concrete block, stucco cladding rigid insulation, vapor barrier gypsum board, latex paint								
9	Concrete block, EIFS, vapor barrier, gypsum board, latex paint								
	Concrete block, precast cladding, rigid								

www.athenasmi.org

Waste Reduction Model (WARM)

NEW VERSION: Updated November 2009

(Version 10, 11/09)

EPA created WARM to help solid waste planners and organizations track and voluntarily report greenhouse gas emissions reductions and energy savings from several different waste management practices. WARM Online was last updated November 2009.

Use this worksheet to describe the baseline and alternative MSW management scenarios that you want to compare. Please follow the steps below to enter your material tonnage information in the input boxes in the table, and select appropriate landfill and waste transport characteristics.

www.epa.gov/warm

Tips:

- If the listed material is not generated in your community/organization or you do not want to analyze it, leave it blank or enter 0.
- Make sure that the total quantity generated equals the total quantity managed.
- If you have any questions, consult the [WARM User's Guide](#).

Steps 1 and 2. Baseline and Alternative Scenarios

Material	Baseline Scenario					Alternative Scenario				
	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Generated	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted
Aluminum Cans				N/A	0					N/A
Steel Cans				N/A	0					N/A
Copper Wire				N/A	0					N/A



**A third of the food
we buy in the UK
ends up being
thrown away**

Sad, isn't it?

Food Source Reduction Tool

Calculate, compare and reduce your complete carbon footprint

<<All Tools

COOLCLIMATE CALCULATOR



INTRODUCTION



TRANSPORTATION



HOUSING



SHOPPING



SUMMARY



TAKE ACTION

Start with a quick footprint estimate



Select State:

US Average

Select City/Area:

Average



How Many people live in your household?

Average

CoolClimate.Berkeley.edu



What is your gross annual household income?



Environment
Canada

Environnement
Canada

Canada



Environment Canada

www.ec.gc.ca

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[Home](#) > [Pollution and Waste](#) > [Managing and Reducing Waste](#) > [Municipal Solid Waste](#) > [Municipal Solid Waste and Greenhouse Gases](#) > GHG Calculator

Pollution and
Waste

Greenhouse Gases (GHG) Calculator for Waste Management

Canada's GHG Waste Calculator

For a copy, email TMB@ec.gc.ca

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Join ICLEI

Climate and Air Pollution Planning Assistant (CAPPA)

An Excel-based tool to help local governments
choose emissions reductions measures
and develop climate action plans

ICLEI is pleased to offer the Climate and Air Pollution Planning Assistant, or CAPPA Version 1.5 -- a decision support tool designed to help U.S. local governments explore, identify, and analyze potential climate and air

Action Center

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[Planning Assistant \(C](#)

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www.icleiusa.org/action-center/tools/cappa-decision-support-tool/



Fact Sheet **Cutting-Edge Software To Cut Emissions**

“Today’s software tools empower waste planners with the ability to design the most effective waste management strategies for achieving their environment goals.”

Eugene Lee

U.S. Environmental Protection Agency

In 1998, the United States generated 220 million tons of municipal solid waste (MSW). The landfilling and combustion of waste resulted in greenhouse gas (GHG) emissions of 65 million metric tons of carbon equivalent (MMTCE). Today, a variety of software programs and models are available to help waste managers reduce emissions at state, local, business, and international levels. These tools can enable them to determine the impact of their practices on climate change and the environment, as well as strategies to reduce those impacts.

Comparison of Three Waste Management Tools

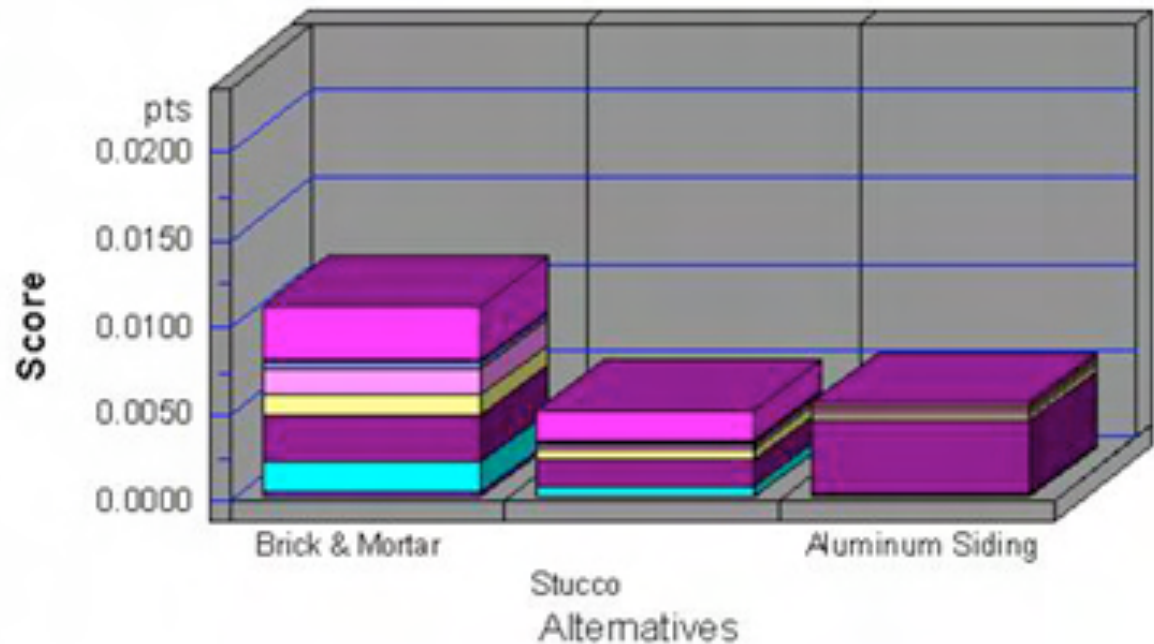
The Waste Reduction Model (WARM) was developed by ICF Consulting

EPA’s MSW Decision Support Tool

For a copy email Research Triangle Institute, Keith Weitz: Kaw@rti.org

Environmental Performance

Acidification
Crit. Air Pollutants
Ecological Toxicity
Eutrophication
Fossil Fuel Depletion
Global Warming
Habitat Alteration
Human Health
Indoor Air
Ozone Depletion
Smog
Water Intake



Note: www.nist.gov/el/economics/BEESSoftware.cfm

Category	Brick	Stucco	Aluminum
Acidification--9%	0.0000	0.0000	0.0000
Crit. Air Pollutants--8%	0.0031	0.0018	0.0001
Ecolog. Toxicity--8%	0.0001	0.0001	0.0002
Eutrophication--9%	0.0004	0.0001	0.0001
Fossil Fuel Depl.--9%	0.0015	0.0003	0.0002
Global Warming--9%	0.0011	0.0006	0.0003
Habitat Alteration--8%	0.0000	0.0000	0.0000



THE HAPPY PLANET INDEX

An index of human well-being and environmental impact

Introduction

The questions on the following pages will ask you about where you live, your health, lifestyle, and how you feel about life. The answers you give are used to calculate your own personal score on the Happy Planet Index. How happy are you... and at what price to the environment?!

Data on individuals will not be shared with any third parties. You are not obliged to provide any data which can identify you personally.

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www.happyplanetindex.org

Collaborative Consumption

Access is better than ownership.

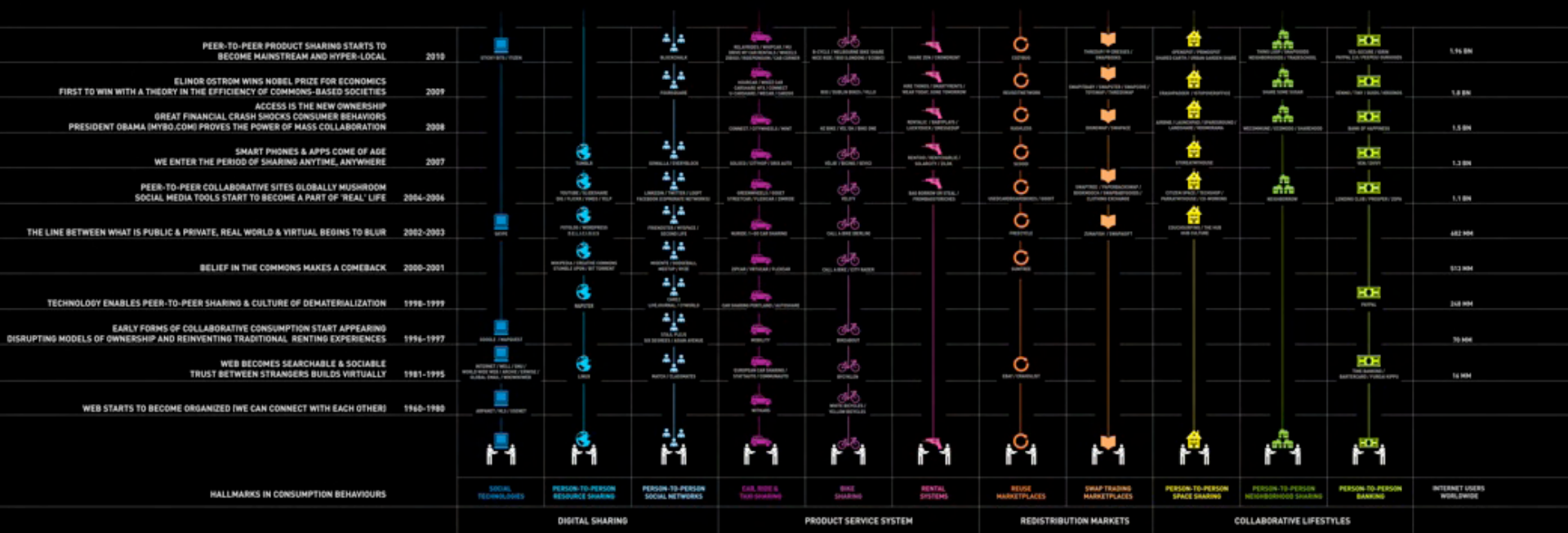


SHARING IS CONTAGIOUS

THIS INFOGRAPHIC CHARTS THE RISE OF COLLABORATIVE CONSUMPTION, THE RAPID EXPLOSION IN TRADITIONAL SHARING, BARTERING, LENDING, TRADING, RENTING, GIFTING, AND SWAPPING REDEFINED THROUGH TECHNOLOGY AND PEER COMMUNITIES.

WWW.COLLABORATIVECONSUMPTION.COM

1960-2010



THIS GRAPH REPRESENTS JUST A FEW EXAMPLES OF COLLABORATIVE CONSUMPTION





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Now

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Sign up

Learn
More

Blog

100% Swapping
No Selling =)

^{beta}
Dig N Swap

Swap, Fashionably!

dig now



way to

le Clothing

es with people who

assion for fashion.

Step 1. too much clothes or accessories?
take a picture and upload!!



Step 2. dig for stuff you want



Step 3. found something you love
let's swap!



Dig N Swap



BookMooch

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Give books away. Get books you want.

HOW IT WORKS

1. Sign up

2.

Receive requests

3.

Mail your books

4.

Ask for books

[Not a Member?](#)

Book Mooch

Meet your neighbours, share with -



SHAREHOOD

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THE SHAREHOOD

The Sharehood is all about sharing resources within your neighbourhood and helps you to meet and make friends with people in your local area. All sorts of things can be shared, such as sewing machines, vegetables, wheelbarrows, tools, cars and books. Skills can be shared too: gardening help, bike fixing, language skills, childminding, how to make wine or dance the tango.

[...read more](#)

TOOLS
RESOURCES



COMMUNITY

The Sharehood

username:

JOIN



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Sign In

It's just a little **give** and **take**



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Enter keywords



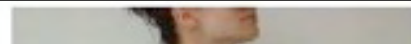
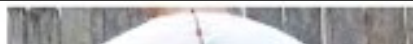
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Rent!



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[get started - join!](#)



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WANTS

HOW IT WORKS



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\$10/day



Popcorn Cart - Movietime
Popcorn Maker

\$20/day



Loaded Tan Tien -
Longboard

\$12/day

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What's Happening



Mike G. may
Soldering I

Me Too



Po-Ching S.
friend for a
1 other per

Me Too

Snap Goods

It's good for you and great for the environment.

Jim L. is right
and access

Ryan P. Des

sunday for

5D MarkII



*thing*Loop^{beta}

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\$54,246.90 of items in the loop already ...

Imagine a world in which you could share things easily, a world in which your virtual shared bookcase, DVD collection, toolbox, ... contained hundreds or even thousands of items.

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2 LIST

3 SEND

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Swap It Baby



contribute things you don't need and find things you do, all within your local community.

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Give throw-away culture the toss!

- Keep good stuff out of landfill
- Act locally and trade with your local community
- Give stuff and find stuff
- Buy stuff and sell stuff
- Setup email or RSS alerts for new stuff

Search Now



Read about the [Scoodi ethos](#) and why reuse is cool, why Scoodi is [FREE](#) and how to [get started](#).



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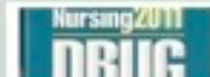


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Roswell (30076)

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+ 2gb fla.
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individuals

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Solar Calculator

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Homeowner

SolarLease

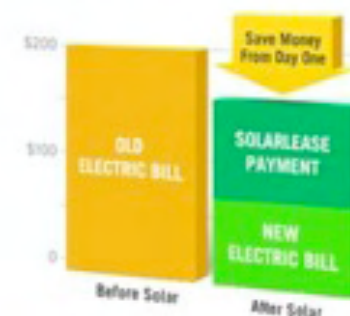
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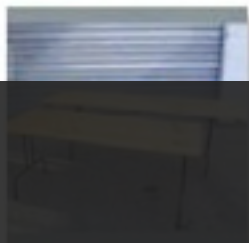
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- 2 Save mo
- 3 Save the

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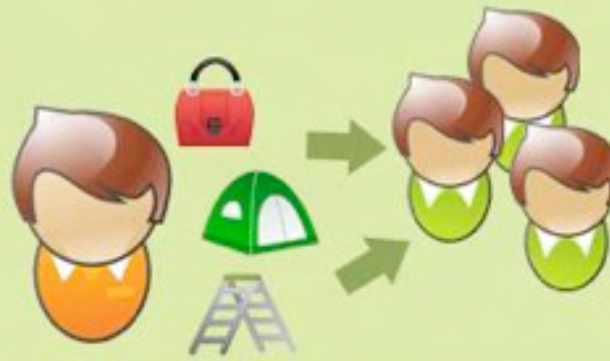
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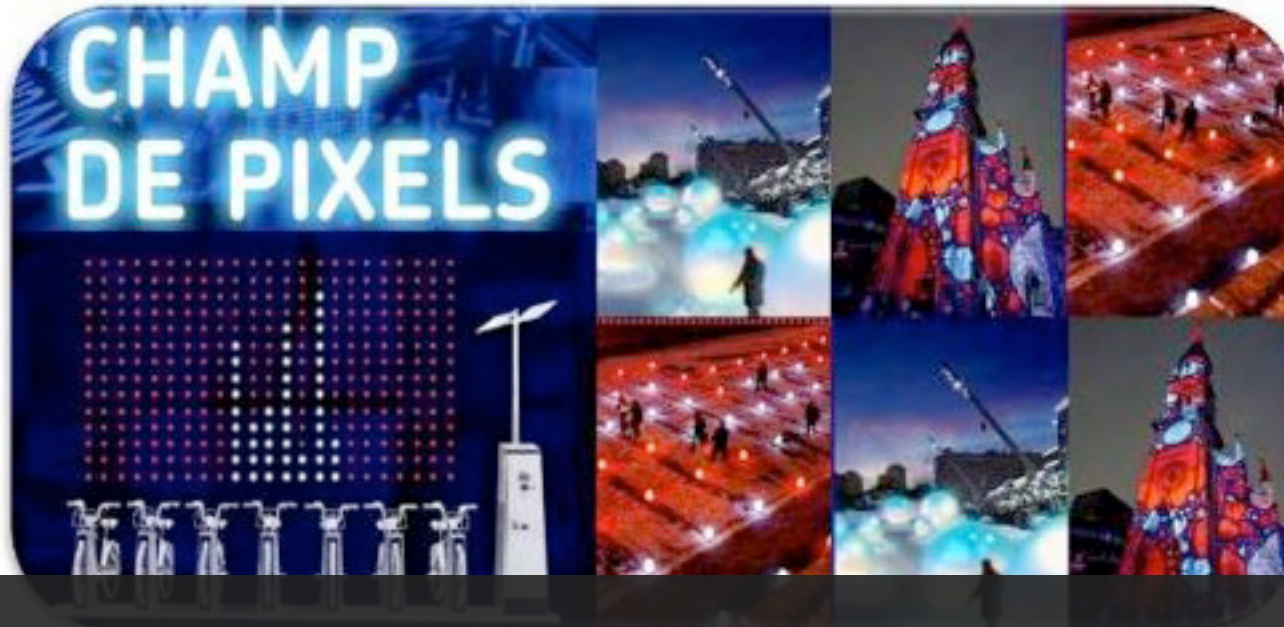
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B-cycle is a next-gen bike-sharing system. In layman's terms, the bike is there when you want one and gone when you don't. Just get on, ride, and get to where you're going.

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Choose a bike



Ride

Grab your



Return

Park your

Who Wants It More?



B cycle



HOW IT WORKS

RATES

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STATIONS

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Welcome

With Vélo'v, Grand Lyon offers you an innovative new bike service that is simple and practical for short journeys.

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Vélo'v provides solid, comfortable bikes, available for anyone to use, 24 hours a day, 7 days a week. You can find them at strategic locations all over Lyon and Villeurbanne, thanks to a dense network of stations located at intervals of 300 m on average.

Hiring a bike is quick and simple

- Go to a Vélo'v station
- Swipe your Vélo'v card
- Take a bike
- Go wherever you want
- Return the bike to any Vélo'v station

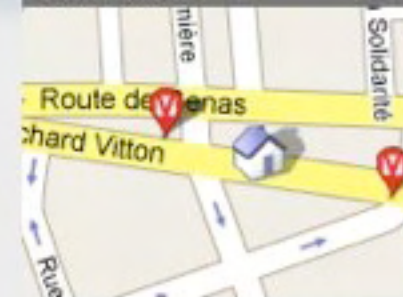
STATIONS IN OPERATION



See the list of stations in operation. The Vélo'v stations all accept international bank cards. The rent a bike system provides you 340 stations spread across the city.

>> [340 citybike stations](#)

VELO'V MAP



Use the map to find the nearest station to you.

Velov



Save Time



Commute Faster



Reduced

Zebigo is Redefining Ride Sharing

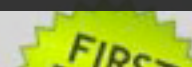
- › Drivers and Riders are matched for commuting, going to events and for one-way trips
- › Get matched just minutes before you want to leave
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What is Zebigo
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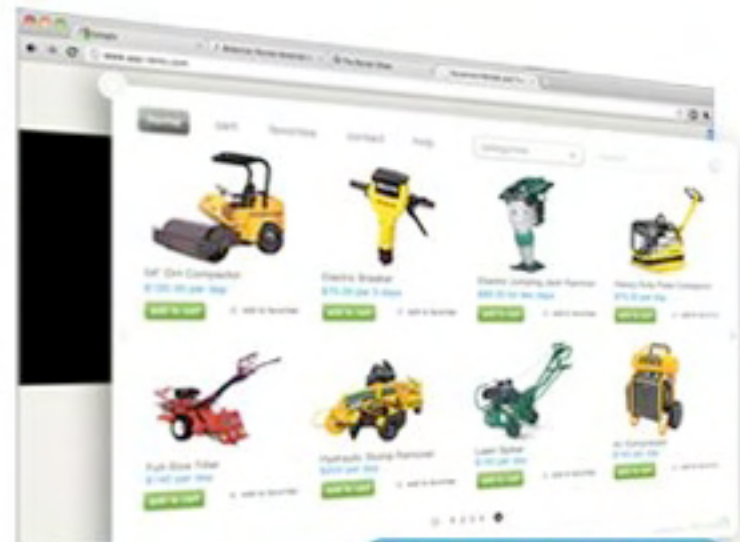
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Rent Cycle

rentcycle is the online rental solution where you can discover, compare and reserve goods for

we help people save money and protect the



WANNA START A COMMUNE?

- ☒ **YES**
- ☐ **NO**
- ☐ **NOT SURE**
(TELL ME MORE)

We Commune

TRADE



SCHOOL

BARTER FOR INSTRUCTION

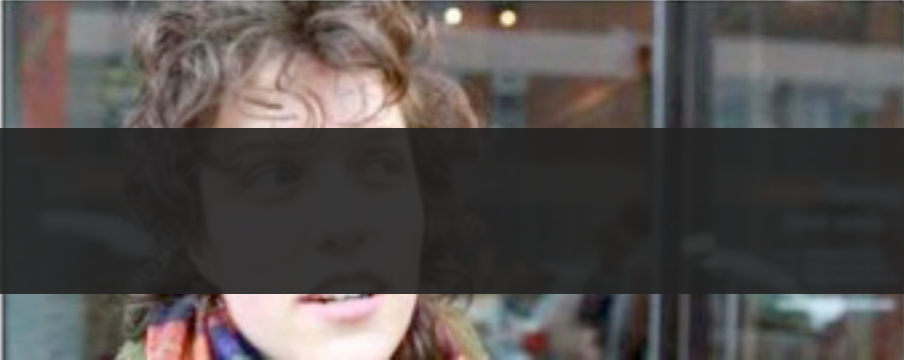
Trade School is an non-traditional learning environment where students barter with teachers for instruction. Anyone can teach or take a class. On the day of class, teachers and students meet at Trade School, barter items are given to the teacher, and the class occurs.

If you'd like to teach a class, **check back by January 16** when we'll start taking class descriptions.

Trade School begins **February 2nd at 32 Prince Street, NYC.**

Join our mailing list:

We'll let you know about special events, when we start taking teacher class descriptions and when student sign up for classes begins.

A photograph of a woman with curly brown hair, wearing a colorful patterned scarf, looking slightly to the side. The image is partially obscured by a dark grey banner at the bottom.

Trade School



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Malcom Gladwell:

Shared Earth the Largest Community Garden on the Planet!

Portions of our website are currently down for maintenance and feature building, we'll have it back up and running just as soon as possible. Sorry for any inconvenience we've caused.

Welcome to Shared Earth, a free website that connects **land owners** with **gardeners** and **farmers**

Land Owners

Share your land with only someone you trust and get **free** fruits, vegetables or flowers. No piece of land is too big or too small!

Gardeners and Farmers

Shared Earth

DIGITAL NOTES FOR YOUR PHYSICAL WORLD.

Attach text, audio, video, and photos to things that connect you to others.

[SIGN UP FOR FREE](#)

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Saskia van Gendt
vangendt.saskia@epa.gov
415-947-4103