Climate Friendly Purchasing Toolkit; An Introduction

www.westcoastclimateforum.com

Tuesday, May 3, 2016

West Coast Climate
& Materials Management Forum

West Coast Climate and Materials Management Forum

The West Coast Climate and Materials Management Forum is an EPA-convened collaboration of state, local, and tribal government

- Develop ways to institutionalize sustainable materials management practices.
- Develop tools to help jurisdictions reduce the GHGs associated with materials

West Coast Climate & Materials Management Forum

Check out the Forum's Resources

- Original Report Connecting MatIs/Climate
- Research Summaries
- Turnkey Materials Management Presentation
- Climate Action Toolkit
- Food Too Good to Waste Toolkit
- Climate Friendly Purchasing Toolkit
- www.westcoastclimateforum.com

West Coast Climate
& Materials Management Forum

West Coast Climate Forum
Webinar Series Disclaimer

This webinar is being provided as part of the West Coast Climate and Materials Management Forum Webinar Series. The Forum is convened by EPA Regions 9 and 10 and operates under statutory authority in the Pollution Prevention Act, the Resource Conservation and Recovery Act (RCRA), and the Clean Air Act. We invite guest speakers to share their views on climate change topics to get participants thinking and talking about new strategies for achieving our environmental goals. Mention of trade names or commercial products does not constitute endorsement or recommendation for use. **Please note the opinions, ideas, or data presented by non-EPA speakers in this series do not represent EPA policy or constitute endorsement by EPA.**

West Coast Climate
& Materials Management Forum

Climate Friendly Purchasing Toolkit; An Introduction

Moderator

Shannon Davis
West Coast Climate
Co-lead, EPA Region 9

Speakers

Karen Cook
Sustainability Project Mgr
Alameda County

Aaron Toneys
Senior Associate
Good Company

West Coast Climate
& Materials Management Forum

Climate Friendly Purchasing Toolkit

Shannon Davis
US EPA, Region 9
davis.shannon@epa.gov

Tuesday, May 3, 2016

West Coast Climate & Materials Management Forum

www.westcoastclimateforum.com

Celebration Time

West Coast Climate
& Materials Management Forum

Toolkit Goals

Toolkit Goals:

- Reduce carbon footprint from purchases
- Identify the most carbon-intensive products and services
- Provide how-to guide for purchasing professionals

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Toolkit Modules

- Construction
- Asphalt
- Concrete
- Carpet & Flooring
- Food
- Fuels
- Information & Communications Technology
- Professional Services

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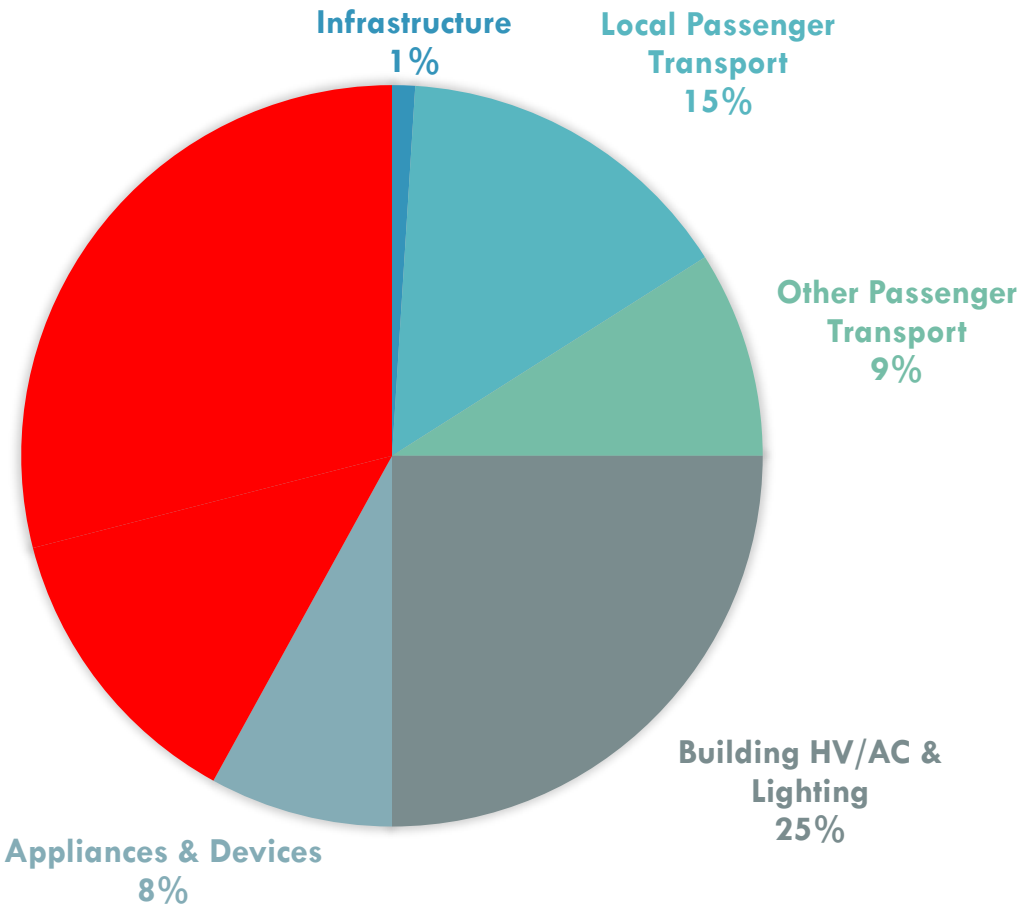
Systems Based GHG Emissions



West Coast Climate
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Life Cycle of Products and Services (materials)

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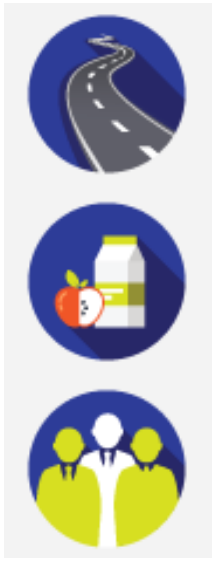
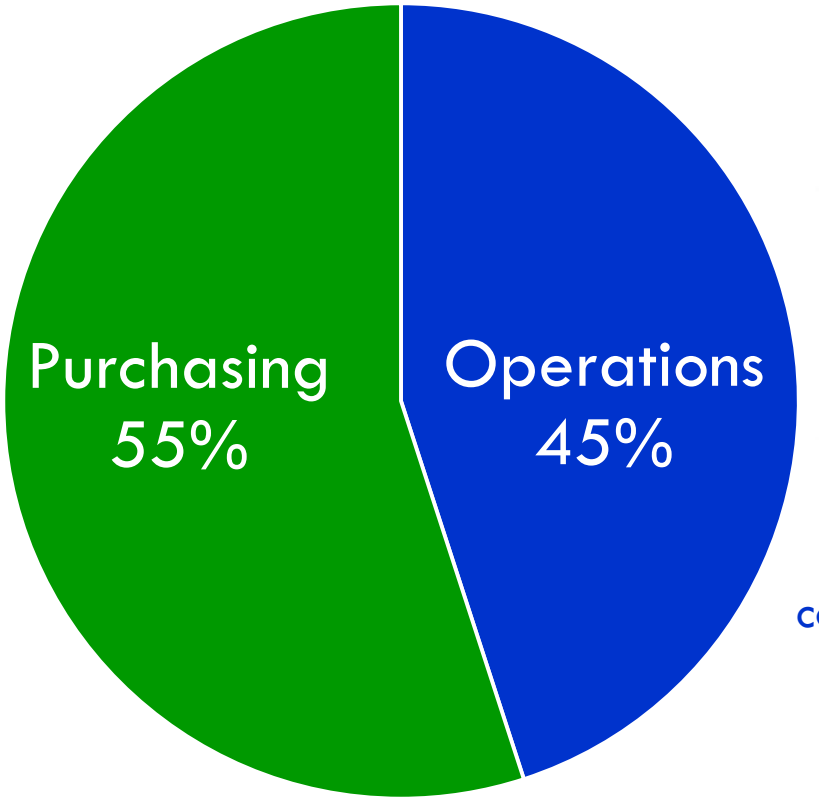
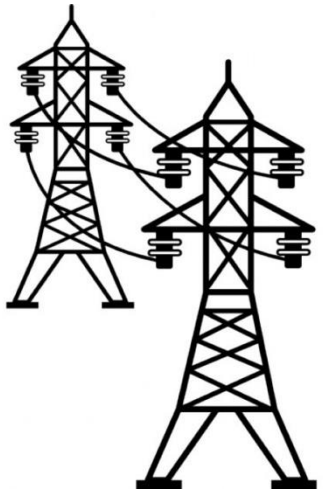
Public Institution Purchasing Power

Governments, collectively, spend over ***1.6 trillion dollars year***

GHG Emissions from Public Institutions







Examples:
Use of electricity,
company owned cars, etc.

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Scope of Toolkit

- Cities, counties, public utilities, higher education
- Carbon lens
- Modular

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Toolkit Modules

Sector-specific strategies

Each module includes background on how the sector contributes to GHG emissions, and guidance on specific purchasing strategies to reduce GHG emissions.

Carpeting & Flooring

Construction
Asphalt, Concrete and More

Diesel Fuels

Food

Information and Communication Technology (ICT)

Professional Services

Sector Specific Reduction Strategies

- Reducing the amount of goods and services purchased
  - Food: menu planning
  - Carpet: replacing only worn areas
- Shifting the way that goods and services are purchased
  - ICT: buying services of the cloud instead of servers
- Identifying and purchasing less carbon intensive products that still provide performance
  - Warm Mix Asphalt

Sector Specific Reduction Strategies, cont

- Build in incentives for vendors to use different/less
  - Carpet and Concrete Environmental Product Declarations (EPDs)
- Shift the way that goods and services are used
  - Diesel: no-idling policy
  - Carpet: maintenance
- Utilize alternative end of life strategies
  - Food: Recovery

Targeting Tools

Targeting Tools

To help government target their efforts on the most significant GHG emissions in the supply chain.

How to complete a supply chain GHG inventory

This detailed primer shows how to combine purchasing data and available LCA tools to get a complete picture of the GHG emissions in your organization's specific supply chain.

Trends Analysis

Instructions are provided on how to use the data from trends analysis to target GHG reductions. It is a compilation of more than 40 supply chain GHG inventories, sortable by organization type, size, and total supply chain budget.

More Toolkit Resources

Purchasing Resources

Including model and sample specifications, evaluation criteria, contract language, and vendor qualifications.

Case Studies

Real world experiences from organizations of all sizes.

Measurement Tools

Approaches for measuring and tracking GHG reductions in the supply chain and results from puchasing changes.

Pilot Organizations Wanted!

Be an CFPT Pilot Organization!

- Get expert and peer-to-peer assistance in implementing any part of the Toolkit.
- Get $10-15K in contractor assistance and access to peer-to-peer assistance from Forum members
- Help improve the Toolkit

What's it involve?

- Commitment to implementing at least one of the strategies in the Toolkit
- Report results and lessons learned

Contact John Katz, EPA Region 9: katz.john@epa.gov

Upcoming Webinars

- Tuesday, May 17
  - ICT & Diesel Fuel
- Tuesday, June 7
  - Concrete & Asphalt
- Tuesday, June 20
  - Food

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THANK YOU

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  - Watch you email for registration
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West Coast Climate & Materials Management Forum

MAKING SUSTAINABILITY WORK

Calculating Supply Chain Greenhouse Gas Emissions for Institutional Purchasing
A How To Guide

West Coast Climate Forum
May 3, 2016

Aaron Toneys
Good Company
Eugene, OR

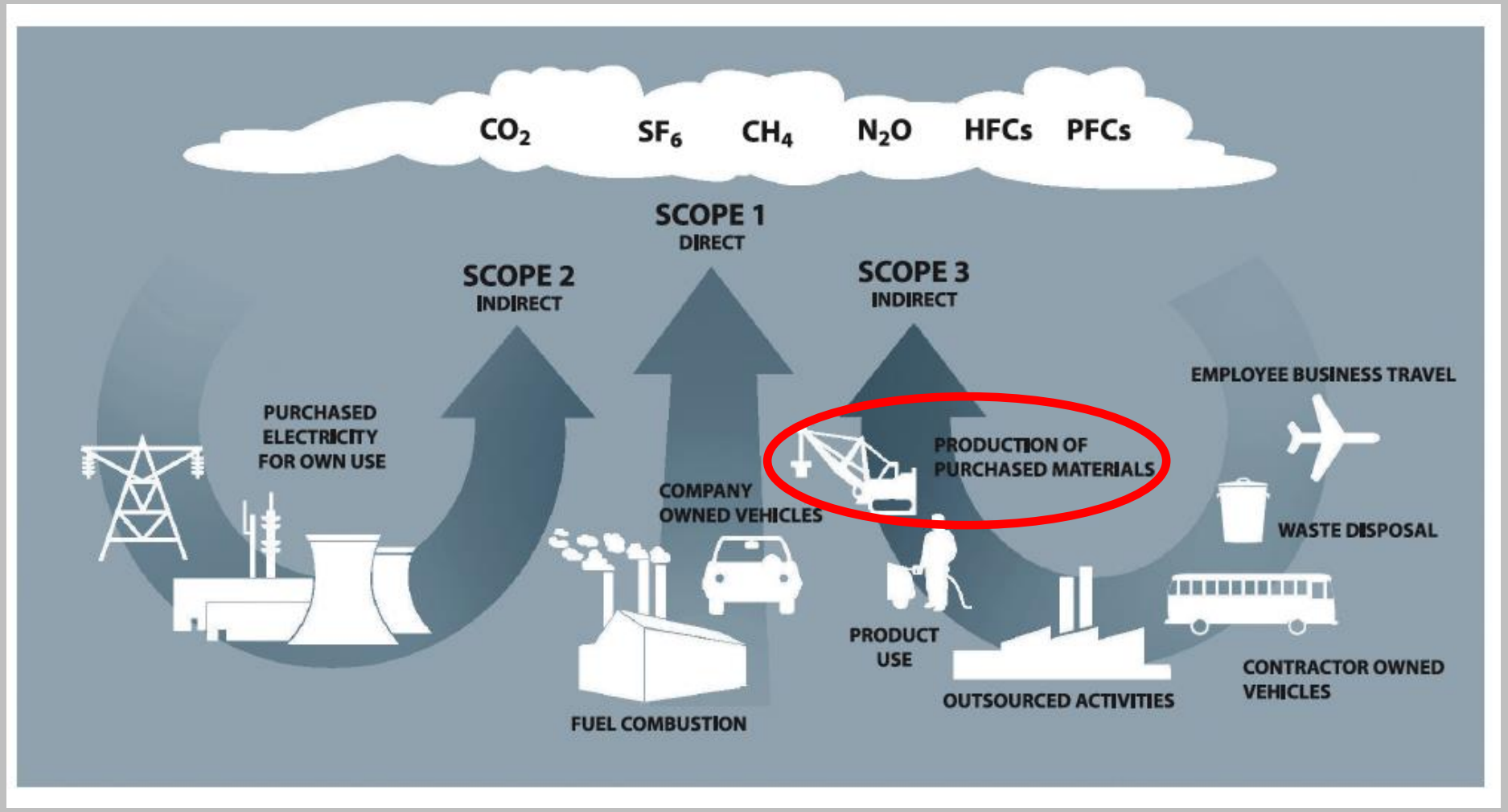
West Coast Climate & Materials Management Forum

Good Company

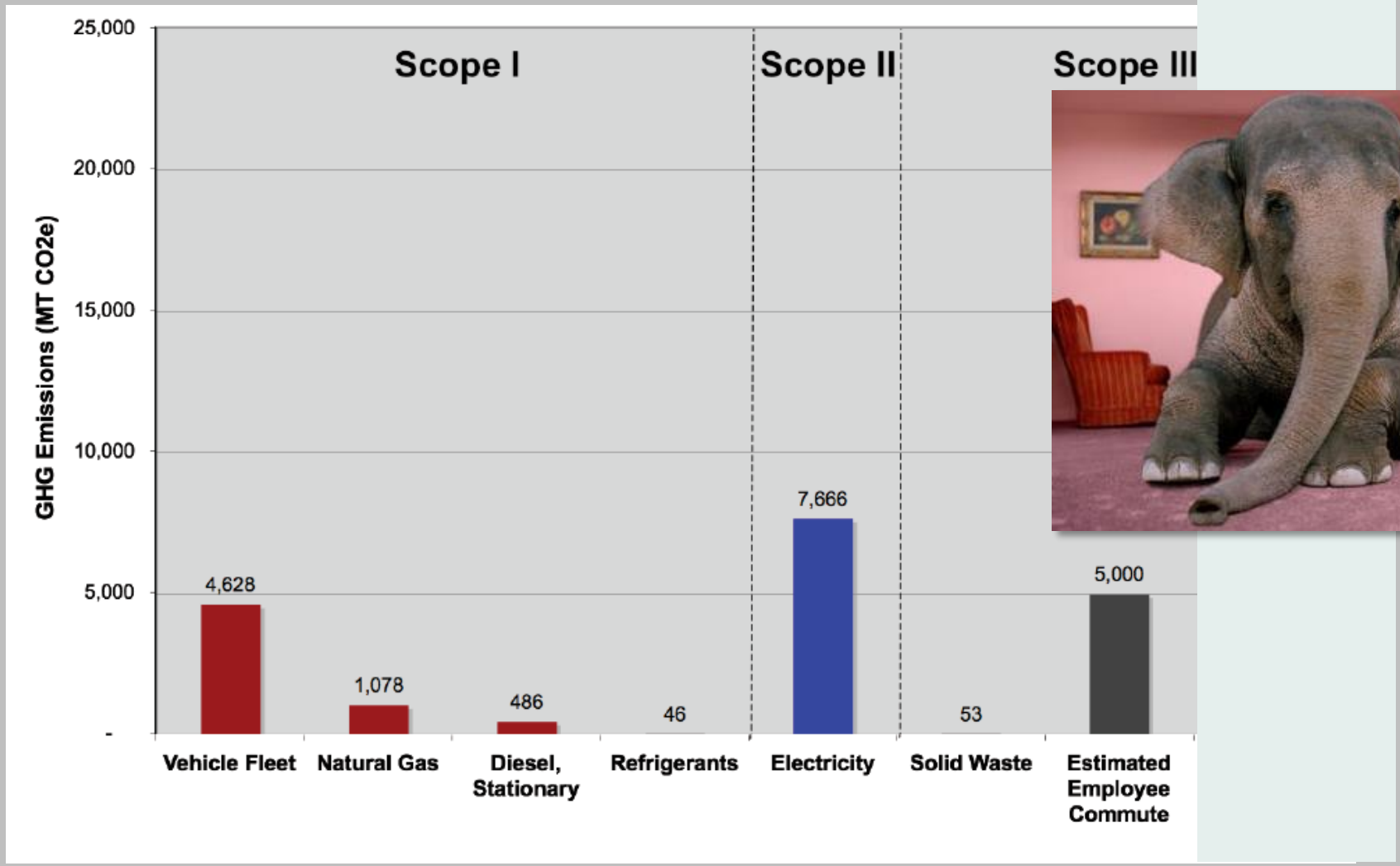
- sustainability research and consulting firm
- mission-driven, for-profit
- clients: government, higher ed, private sector

Scopes 1&2 (Required)	Public	Private	Capital Projects	TOTAL
Electricity use (generated and purchased)	45	30	14	89
Stationary fuel use (natural gas, etc.)	45	30	14	89
Fugitive emissions of refrigerant use	45	30	N/A	75
Fleet fuel use (diesel, gasoline, CNG, LNG, etc.)	45	30	14	89
Scope 3 (Optional but Recommended)	**Public**	**Private**	**Capital Projects**	**TOTAL**
Solid waste management	45	23	11	79
Employee commute	45	24	8	77
Business travel (air, car, train, etc.)	45	23	8	76
Supply chain purchases from operations	30	24	14	68
Supply chain purchases from capital projects	30	24	14	68
Transit access trips	1	1	N/A	2
Benefits of mode shift to transit, congestion relief and land use multiplier	0	1	6	7
Benefits of onsite renewable energy generation	1	4	6	11

GHG inventories and purchasing

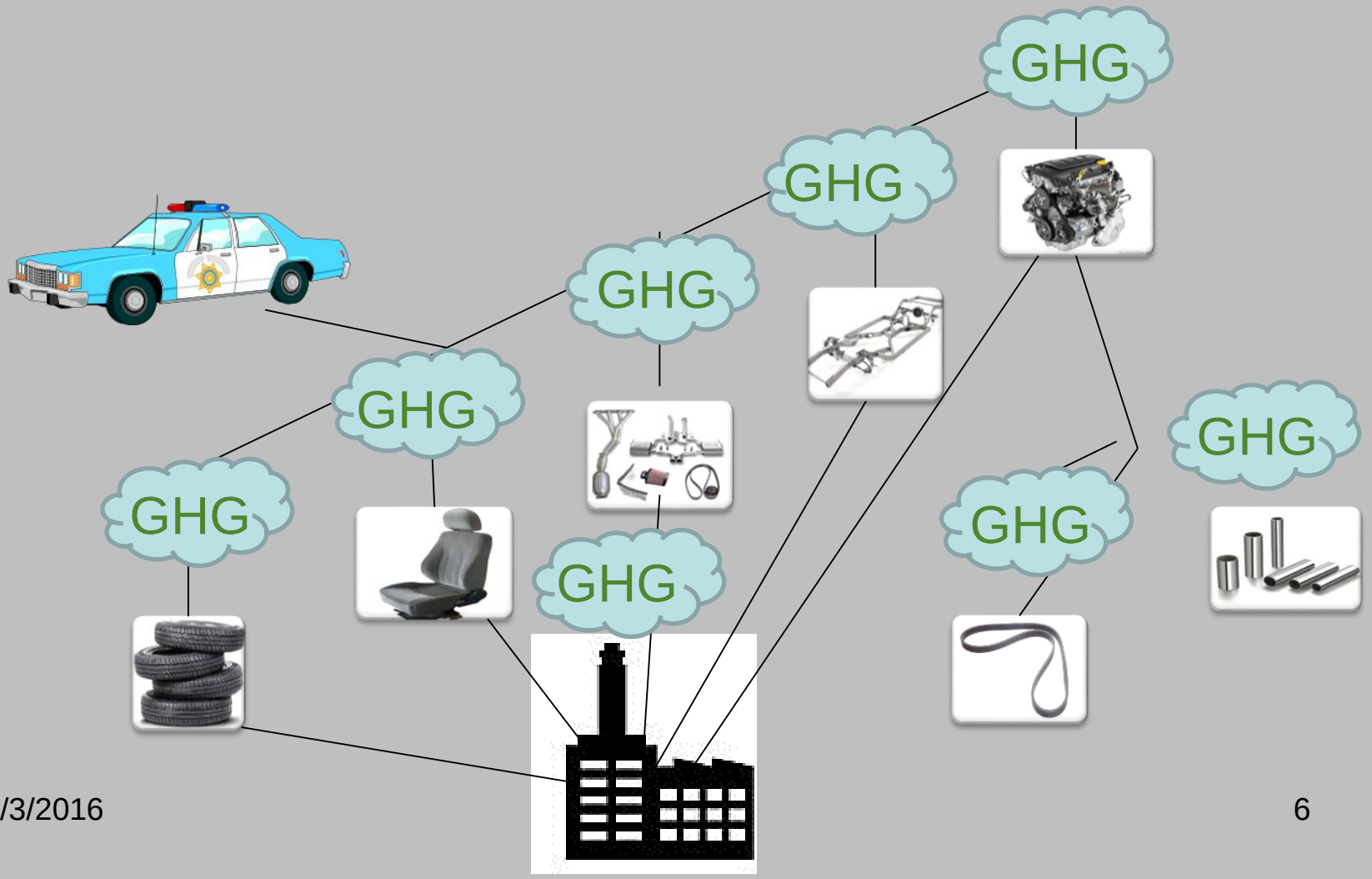


GHG elephant in the inventory…

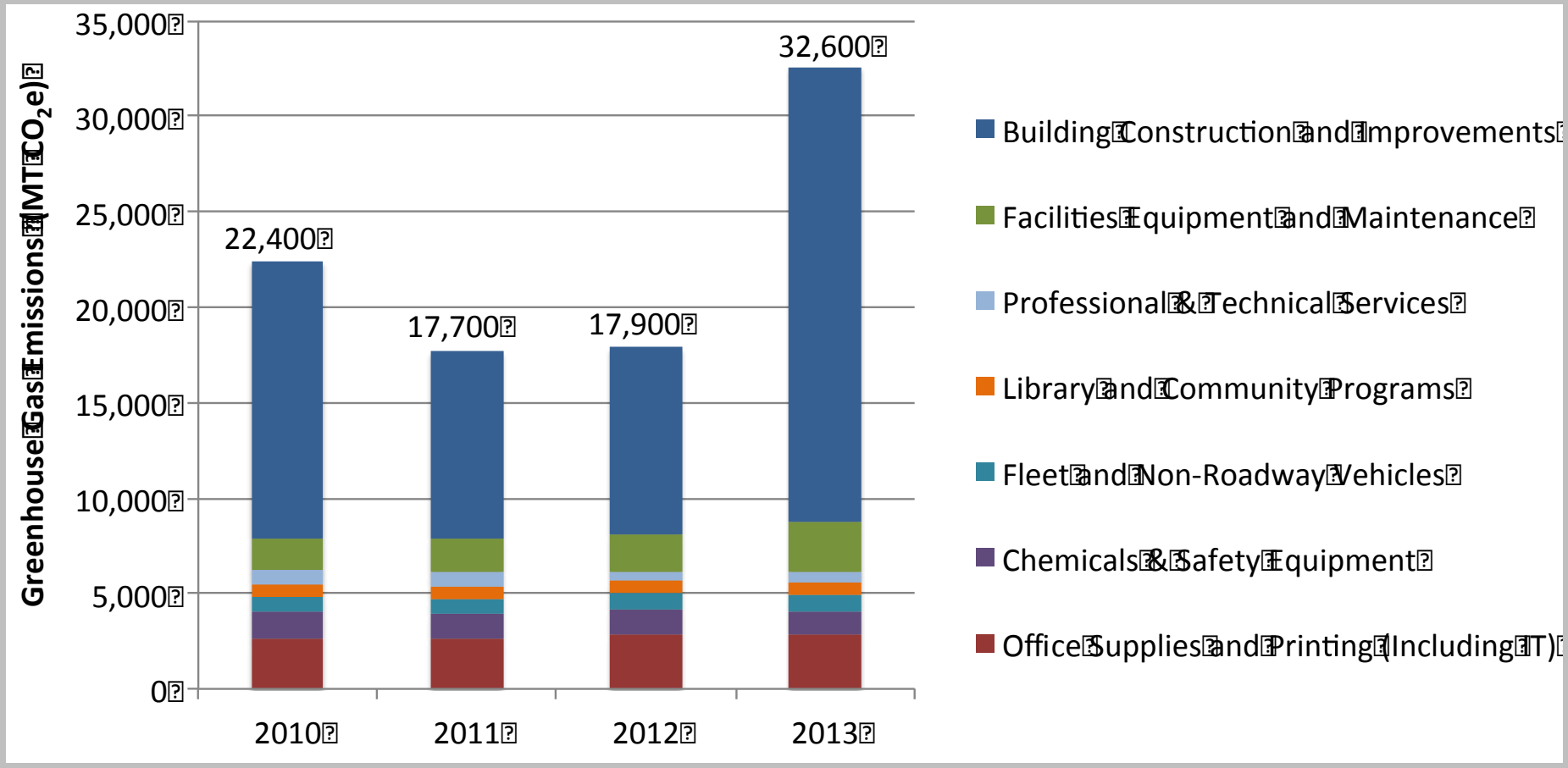


Example of direct, Scope 1 operational emissions

Example of related indirect supply chain emissions



Beginning with the end in mind - results



Process Steps

I. Leadership Support and Project Team

II. Select an Approach and Tool

III. Prepare a spreadsheet

IV. Collect and Refine Purchasing Data

V. Exclude Certain Purchases

VI. Adjust Expenditures for Inflation

VII. Sort and Group Data

VIII. Assign GHG Intensities to Purchases

IX. Calculate GHG Emissions

X. Summarize the Results

For details visit http://westcoastclimateforum.com/cfpt/HowTo

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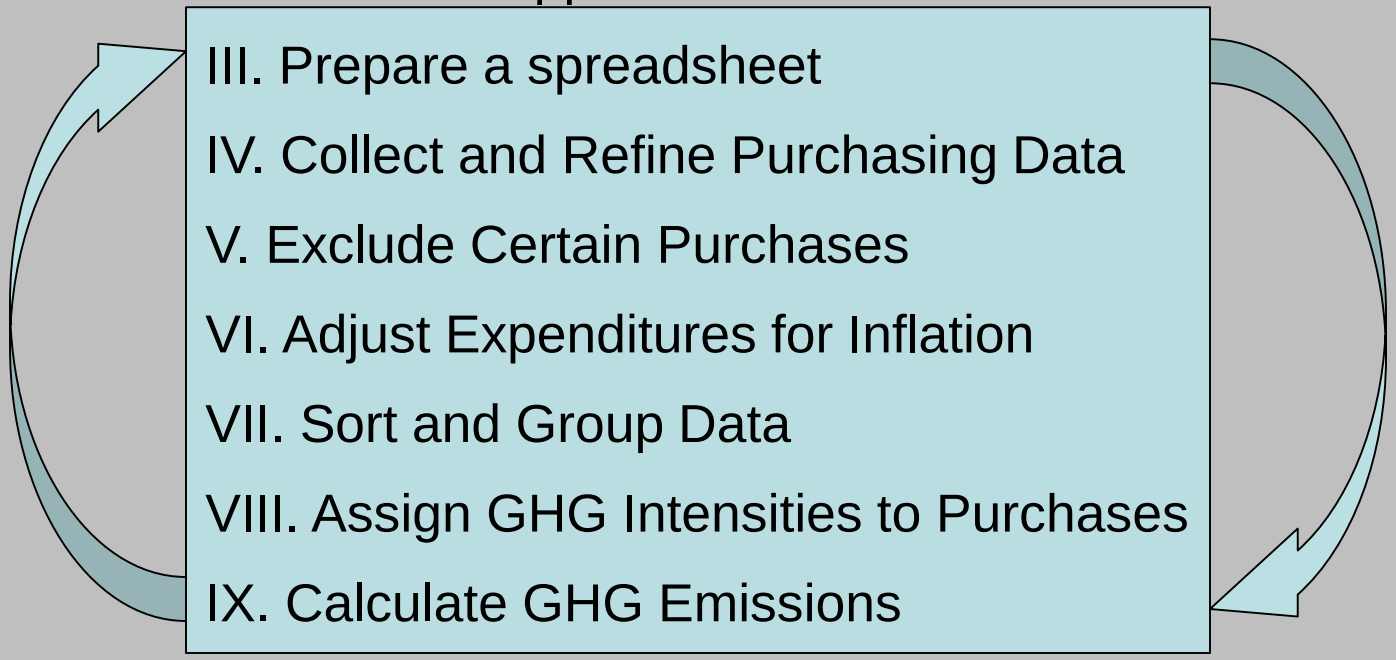

X. Summarize the Results

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Approach – Converting $ to CO_2e

$$\$ \cdot \frac{CO_2e}{\$} = CO_2e$$

$	=	expenditure (i.e. your purchasing data)
CO_2e/$	=	"carbon intensity" of expenditure (from EIOLCA)
CO_2e	=	final estimate of total emissions in expenditure

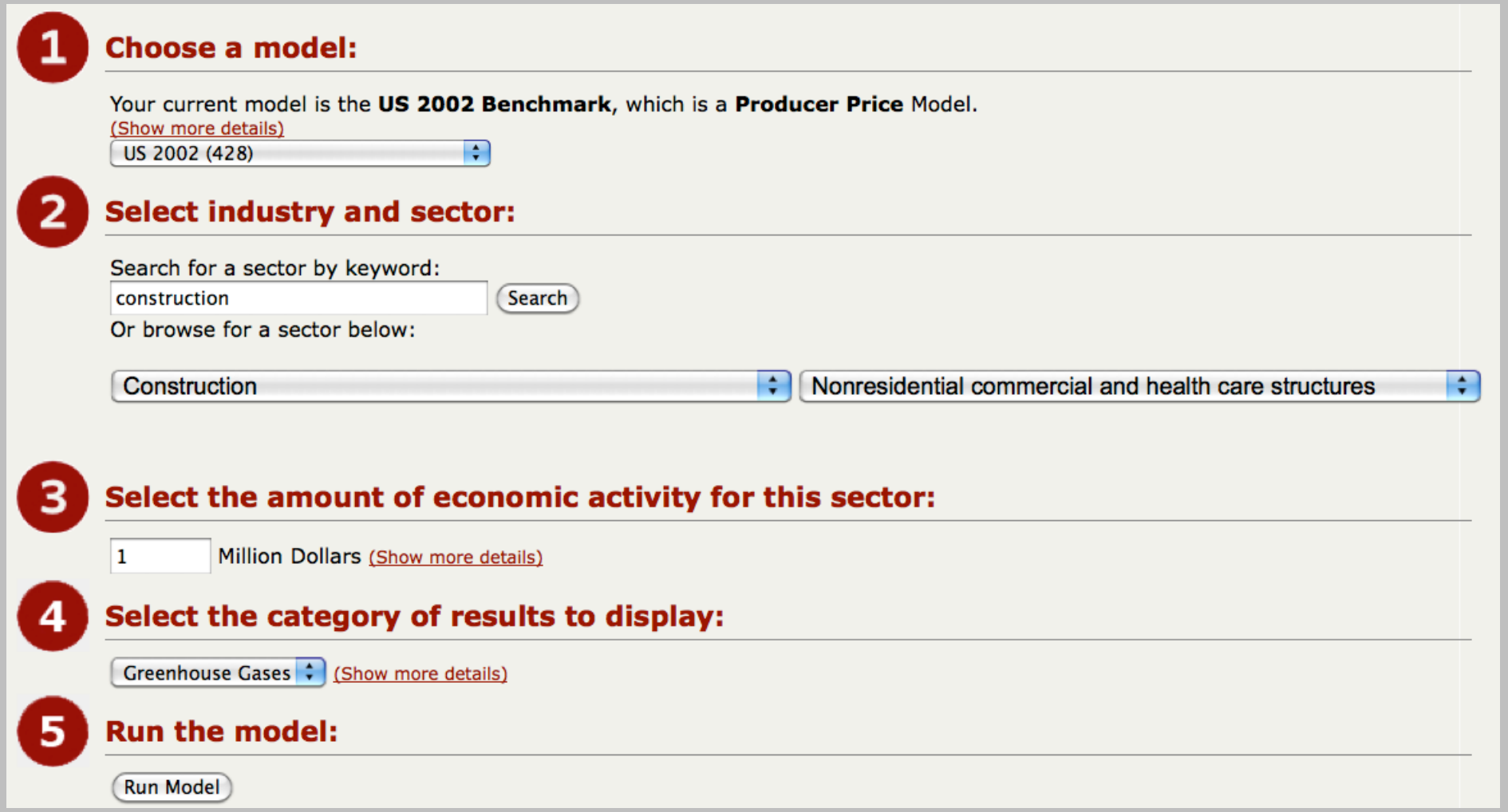
Inventory Tool: eiolca.net

- powerful web-based, public-domain tool
  - Carnegie Mellon University's Green Design Institute
  - translates economic activity into GHG emissions (and other things)
  - easy to use
  - free, based on deep research
  - Website: http://www.eiolca.net
- Economic Input-Output (EIO) =
  - model of the US economy
  - includes 428 economic sectors
- Lifecycle Assessment (LCA) =
  - details from academic literature on environmental impacts

Inventory Tool: eiolca.net (continued)

- EIOLCA has limitations
  - a chainsaw, not a scalpel
  - results capture national averages
  - cannot use to compare products within one sector
  - 2002 data set
  - trade not included (i.e. products produced in China)

Easy to use: Answer 5 questions



Example of results

	Sector	Total t CO2e
	Total for all sectors	*589.*
230101	Nonresidential commercial and health care structures	216.0
221100	Power generation and supply	111.0
331110	Iron and steel mills	42.2
327310	Cement manufacturing	36.8
211000	Oil and gas extraction	25.1
324110	Petroleum refineries	17.7
484000	Truck transportation	16.0
325310	Fertilizer Manufacturing	9.67
32712A	Brick, tile, and other structural clay product manufacturing	7.88
3274A0	Lime and gypsum product manufacturing	6.16

Example of results

	A	B	C	D	E	F	L
1							
2	Purchasing Category Description	Annual Expenditure	Inflation Correction Factor	Annual Expenditure (inflation corrected)	EIOLCA Sector # and Description	Total CO_2e	Total CO_2e
3		$ / year	unitless	$ / year		$MTCO_2e$ / $1 Million	MT CO_2e
4	Building Construction	$1,000,000	0.81	$810,000	230101: X structures	589	= 477
5	Paper	$50,000	0.81	$40,500	322120: Paper mills	1520	1231
6	Source: Data from purchasing department		ICF = (2002 CPI / Inventory year CPI)	$ / year = C4*D4			MT CO_2e = (E4/1000000)*G4
7							
8		=	User input cell				
9		=	Calculated with a Formula				

Getting started on your inventory…

- Team
  - Interest in carbon accounting
  - Comfort with math and Excel
  - Familiar with accounting / purchasing systems and data
- Approach
  - Internal
  - Consultant
  - Hybrid
- Or…use the Trends Analysis and Toolkit to develop climate actions for purchasing

Thank you!

Aaron Toneys
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Learning from Others: Trends Analysis of Inventories

Karen Cook

Alameda County, CA

West Coast Climate Forum

May 3, 2016

Alameda County SUSTAINABILITY

Local Action, Global Impact.

Alameda County

- Serving 1.5M people over 739 sq miles
- 9,500 employees
- 22 agencies/departments
- $2.74B operating budget (FY2016)

Alameda County SUSTAINABILITY
Local Action, Global Impact.

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Alameda County SUSTAINABILITY
Local Action, Global Impact.

CITY OF HILLSBORO

INVENTORY OF GREENHOUSE GASES
LOCAL GOVERNMENT OPERATIONS FOR CALENDAR YEAR 2007
FEBRUARY 16,2010

CONTENTS

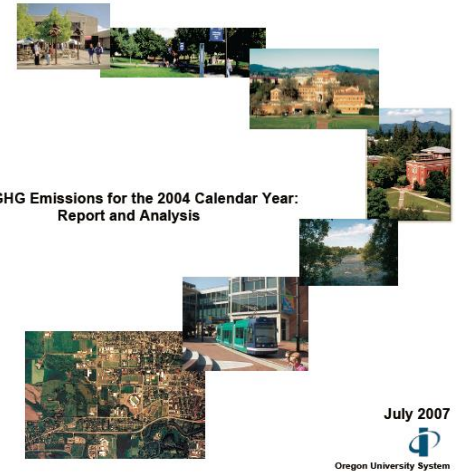
www.oregonmetro.gov

GHG Emissions Baseline Inventory, 2008

for Metro internal and business operations

Oregon University System

Greenhouse Gas Inventory

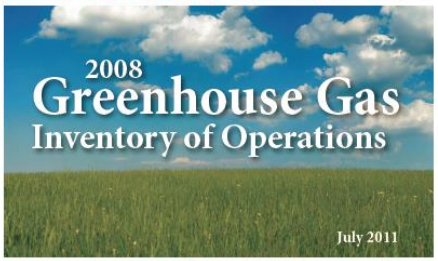


GHG Emissions for the 2004 Calendar Year:
Report and Analysis

July 2007

Oregon University System

1



Sustainability Program

INTRODUCTION

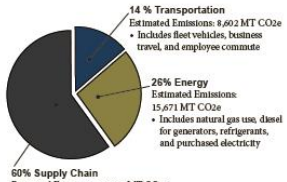
Because sustainable practices can bolster the well-being of existing and future communities, Washington County extended its sustainability practices to include an analysis of the environmental impacts associated with its operations. Specifically, we measured the greenhouse gas (GHG) emissions generated by six primary sources: Building Energy, Transportation, Refrigerants, Employee Commute, Solid Waste and Supply Chain.

The inventory is intended to establish a baseline of Washington County's GHG emission sources in order to make sound investment decisions that reduce both emissions and operating costs. The assessment of inventory data will allow Washington County to reduce the negative impacts of GHG emissions on human health, economies and the environment.

GHG sources are classified as either direct or indirect depending on whether the sources are owned or controlled by the organization. To distinguish between indirect and direct emissions, three "scopes" are defined for traditional accounting and reporting purposes in accordance with the World Resources Institute's Greenhouse Gas Protocols. The following pages will provide significant detail on the three scopes.

The chart below summarizes greenhouse gas emissions from mission-critical activities under the categories of transportation, energy and supply chain. Total emissions stemming from activities associated with Washington County operations are an estimated 61,378 metric tons carbon dioxide equivalent (MT CO2e).

2008 Washington County Greenhouse Gas Emissions



14 % Transportation
Estimated Emissions: 8,602 MT CO2e
- Includes fleet vehicles, business travel, and employee commute

26% Energy
Estimated Emissions:
15,671 MT CO2e
- Includes natural gas use, diesel for generators, refrigerants, and purchased electricity

60% Supply Chain
Estimated Emissions: 37,105 MT CO2e
- Includes emissions generated from the resource extraction and manufacture of purchased goods and services

ORANGE COUNTY TRANSPORTATION AUTHORITY

OCTA

2005-2010 Greenhouse Gas Emissions Inventory:

Results, Analysis and Recommendations

Prepared by:
Good Company
August 2011

Alameda County
SUSTAINABILITY
Local Action, Global Impact.

Project Team

Project Partners

STOPWASTE
at home • at work • at school

Alameda County
SUSTAINABILITY
Local Action, Global Impact.

West Coast Climate
& Materials Management Forum

Completed by

good COMPANY

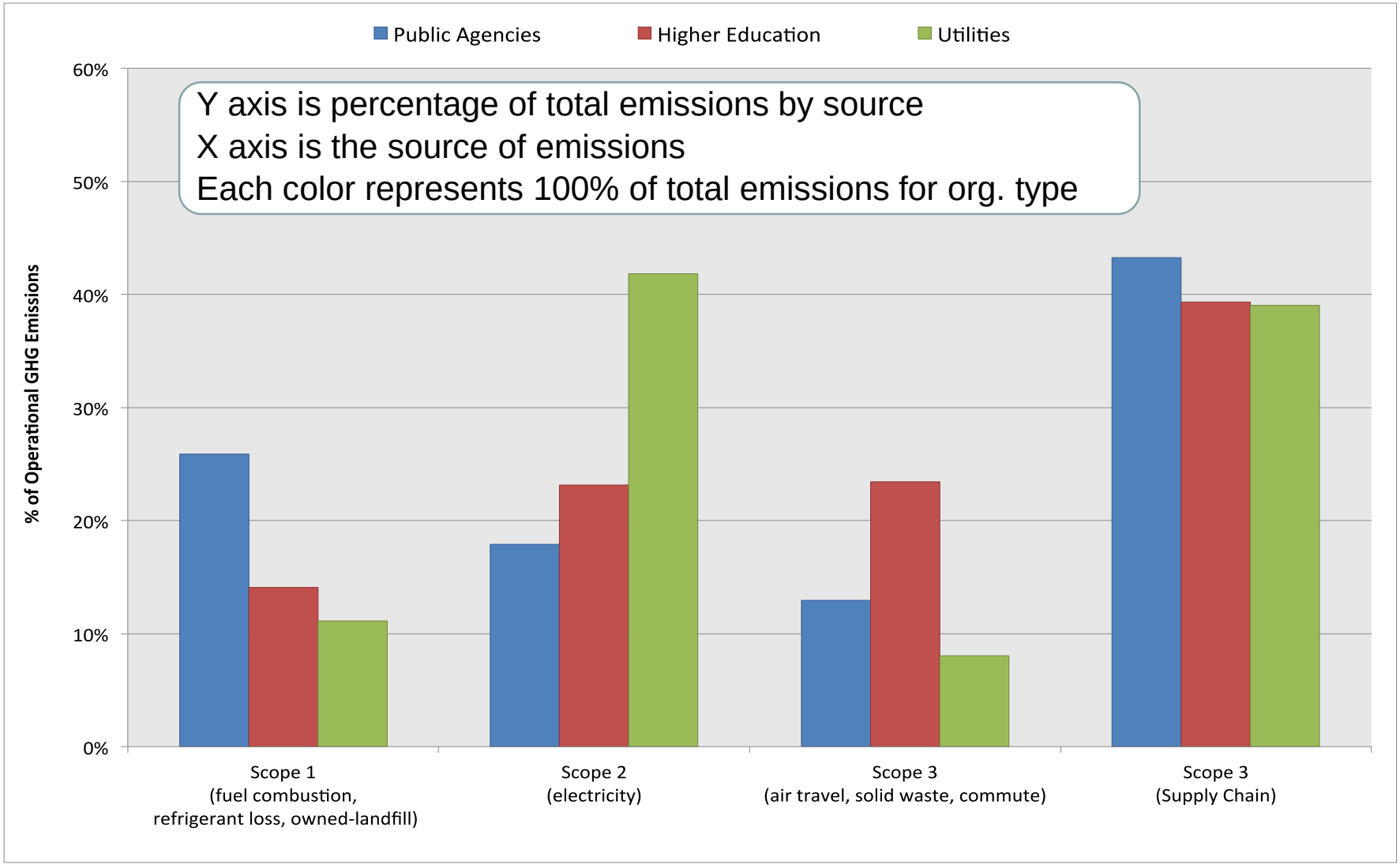
Good Company
65 Centennial Loop, Suite B
Eugene, Oregon 97401
(541) 341-463 x213
aaron.toneys@goodcompany.com

Finding Trends in Results

- 86 inventories from 36 organizations
- Organization types:
  - Public Agencies
  - Higher Education
  - Public Utilities
- Alternate views:
  - Population & Revenue

Higher Education Funding Council for England (HEFCE)
Portland Community College
University of California - Berkeley
University of Cambridge
De Montfort University
Nottingham Trent University
Yale University
University of Oregon
Southern Oregon University
Eastern Oregon Univeristy
Western Oregon University
Oregon State University
Portland State University
Oregon Institute of Technology
University of Texas - Austin
University of North Carolina - Willmington
Portland, OR - Parks and Recreation
Tualatin Hills, OR - Parks & Recreation District
Eugene, OR
Vancouver, WA
Gresham, OR
Hillsboro, OR
Beaverton, OR
Corvallis, OR
Lake Oswego, OR
Springfield, OR
Orange County, CA - Transportation Authority
Washington County, OR
Alameda County, CA
Portland Metro
East of England Local Authorities
Minnesota Pollution Control Agency
Oregon DEQ Operational
Joint Water Commission
Eugene Metropolitan Wastewater Management Commission
Eugene Water and Electric Board

Significance of Supply Chain GHG Emissions



Source (next 7 slides): Good Company on behalf of StopWaste (2015). *Supply Chain Greenhouse Gas Inventory Meta-Analysis*

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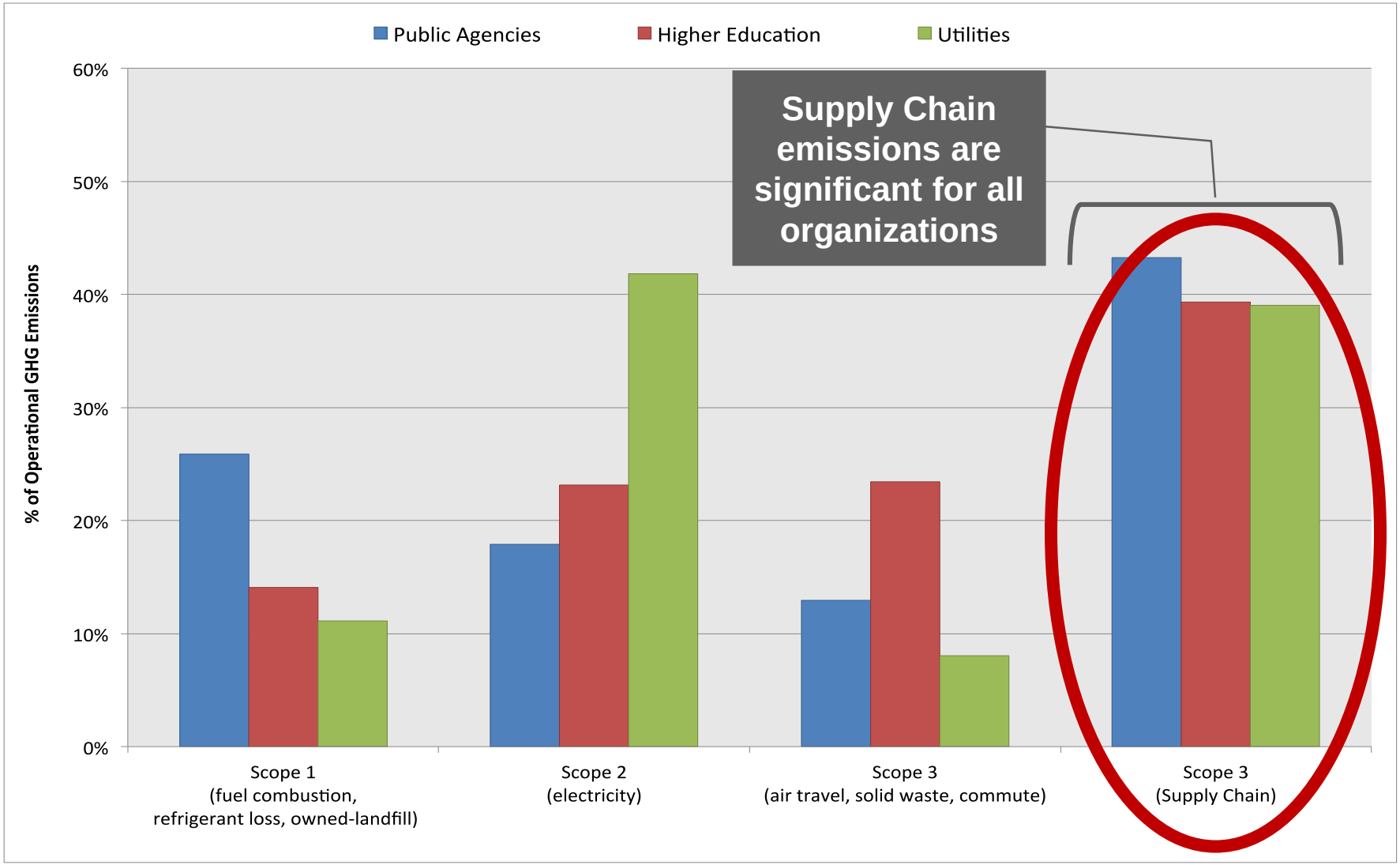
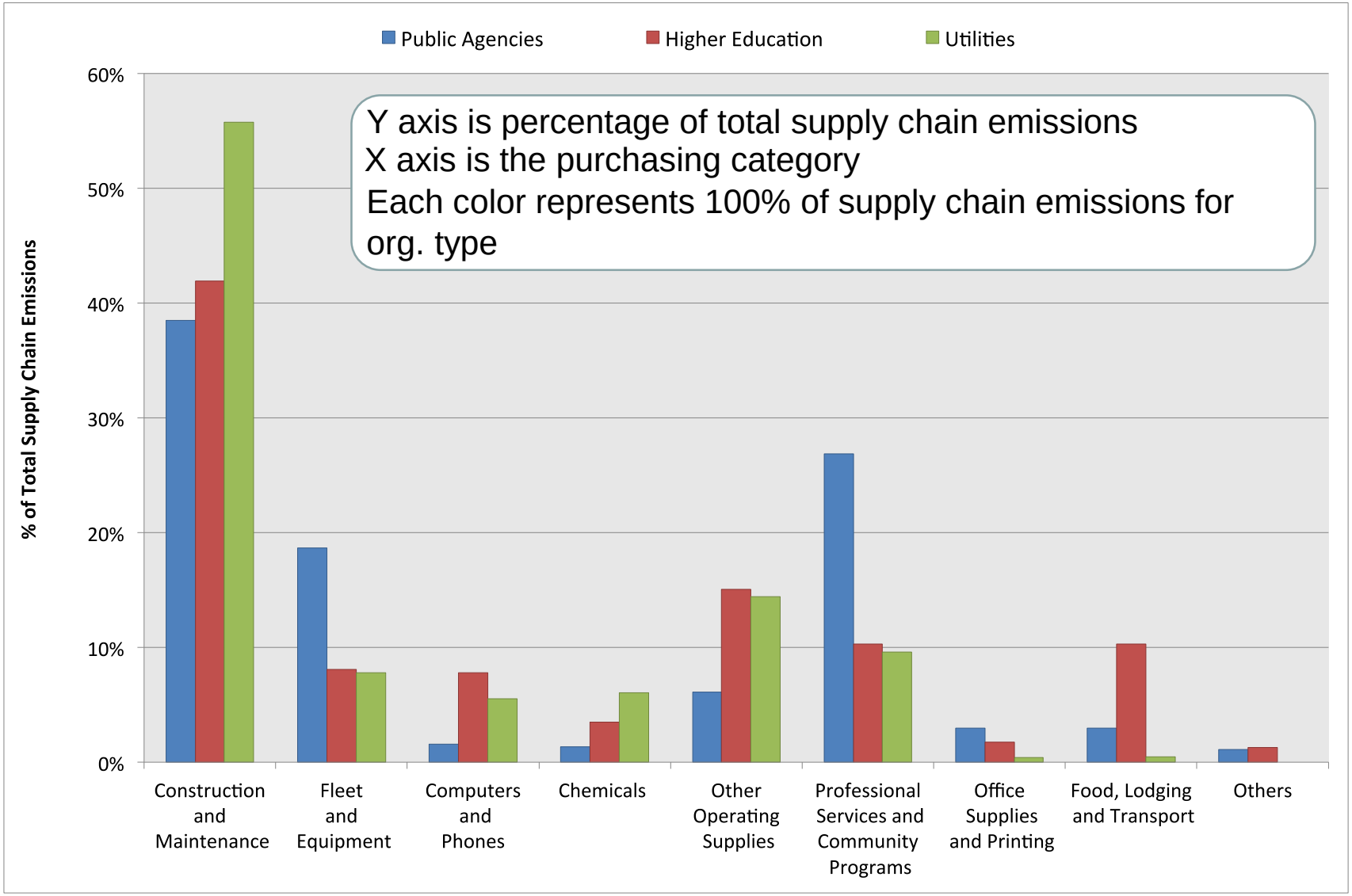


Significant Purchasing Categories in Supply Chain GHG Emissions



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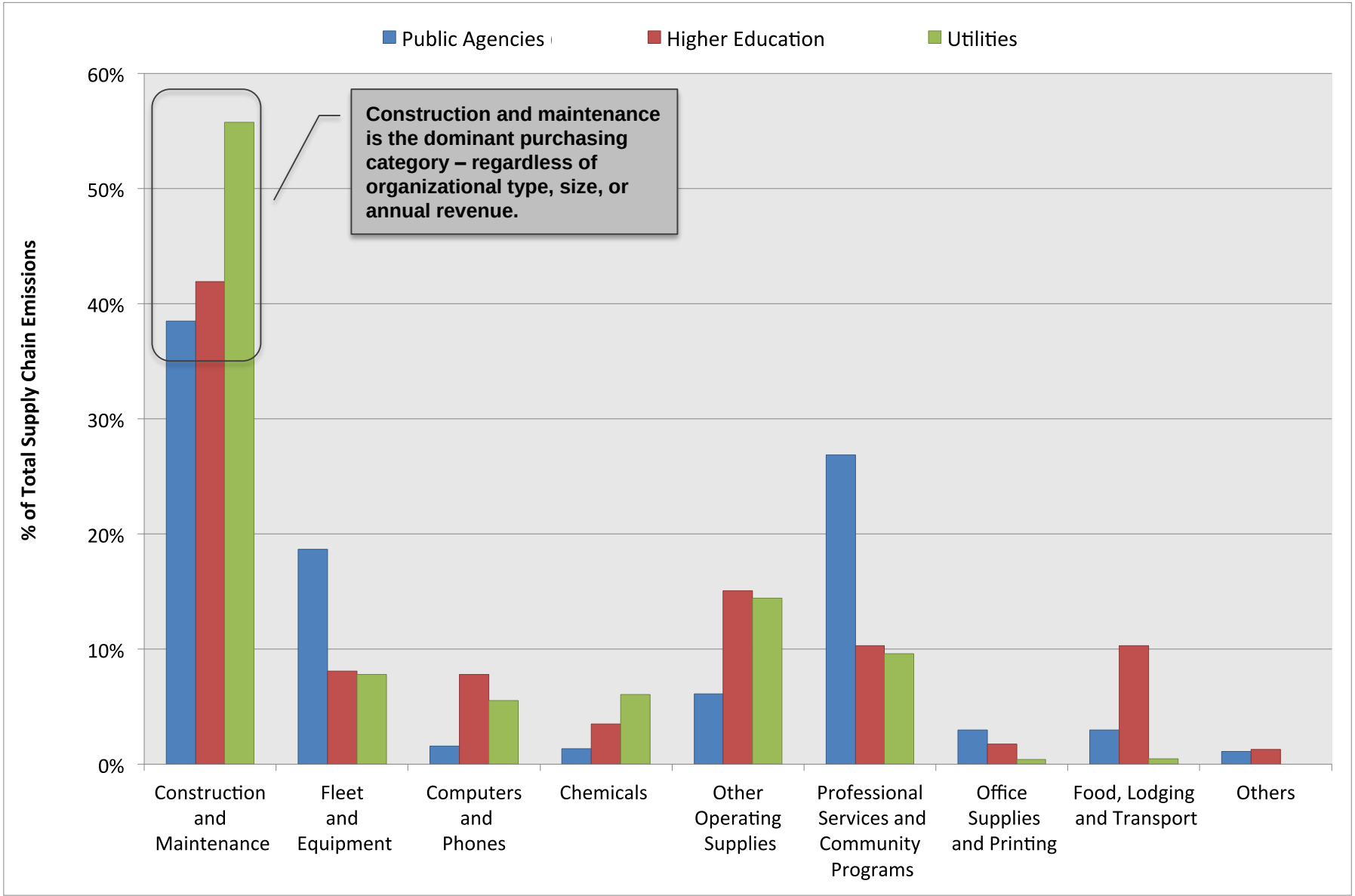

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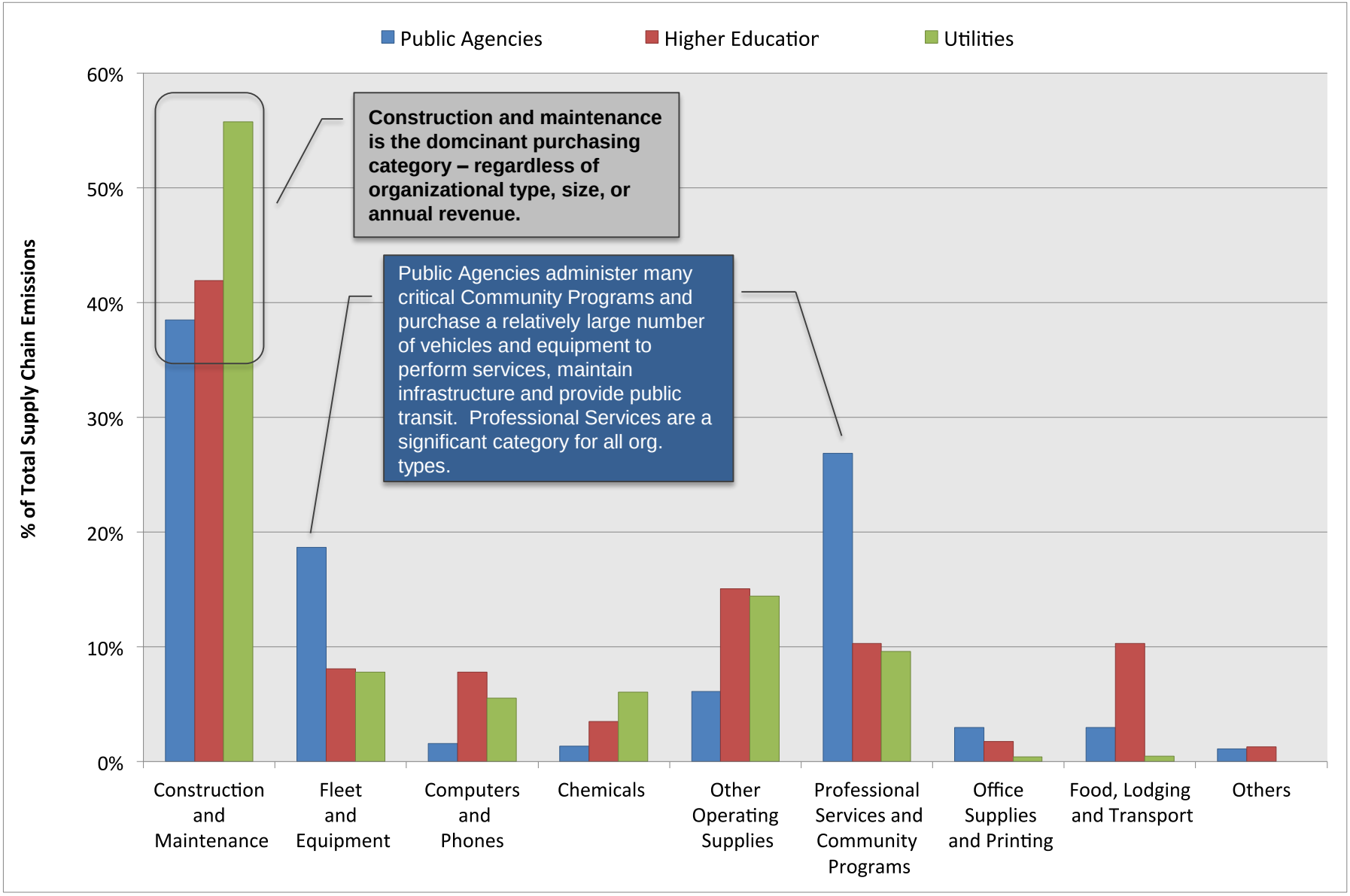

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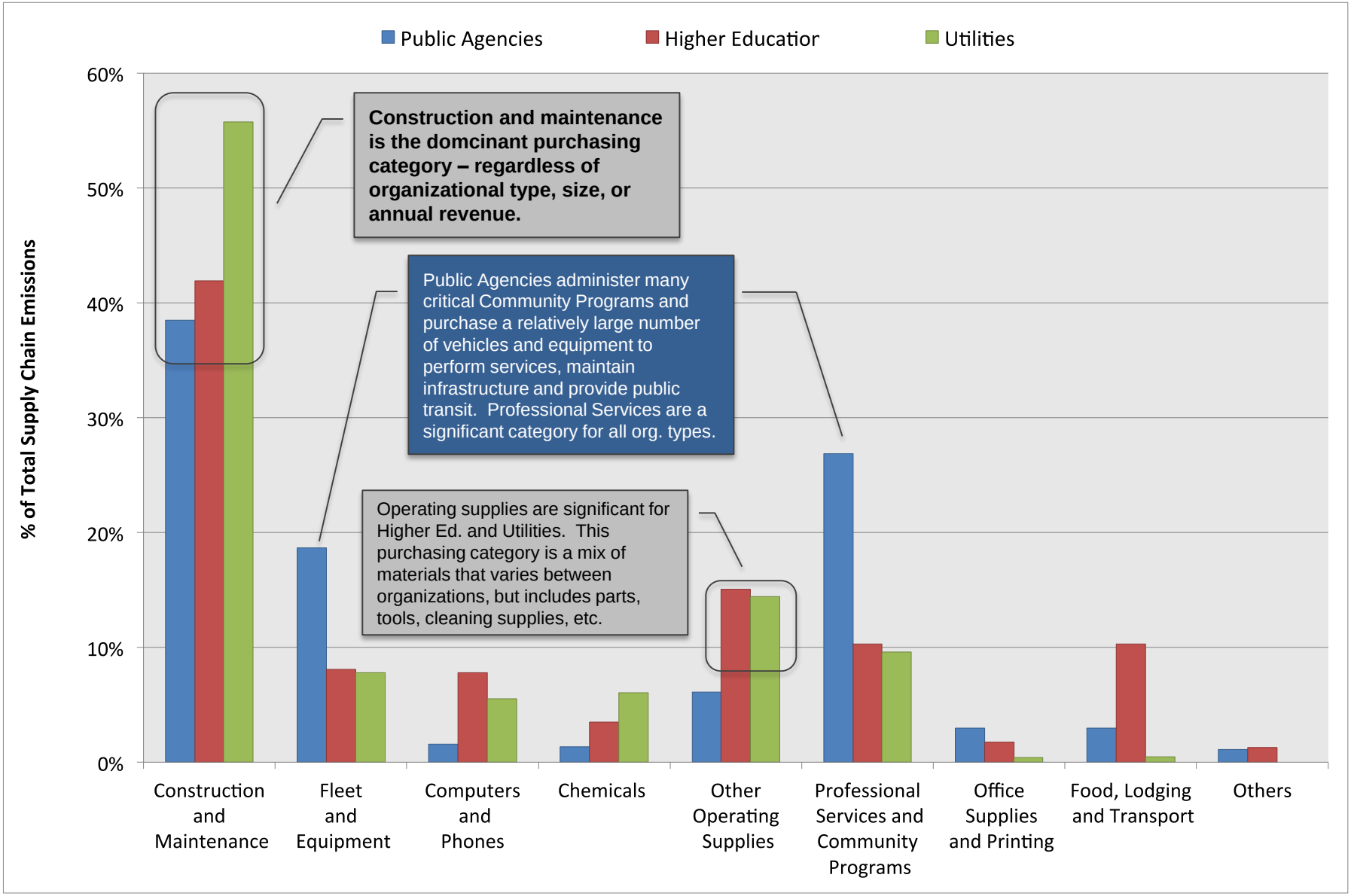

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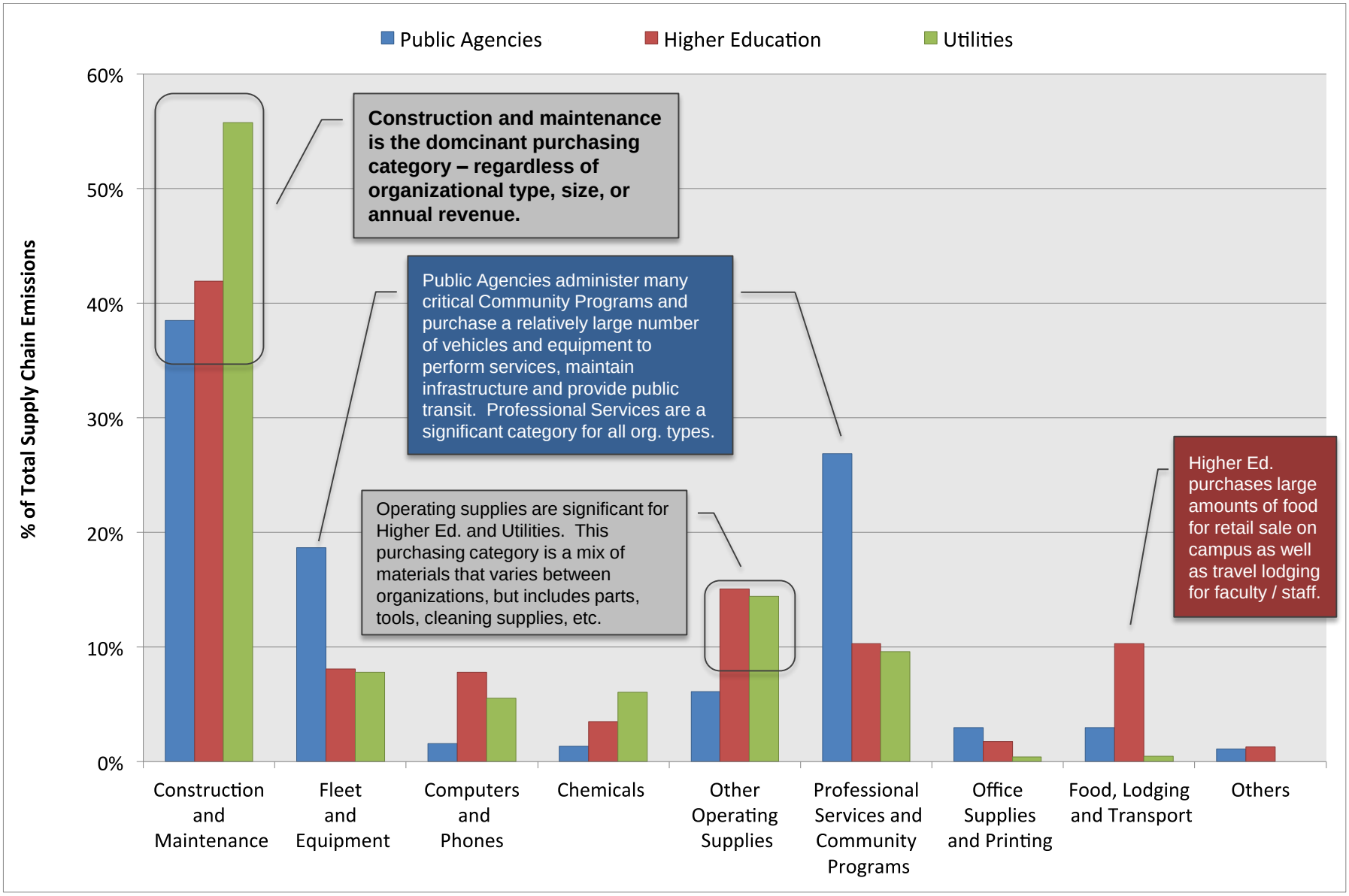
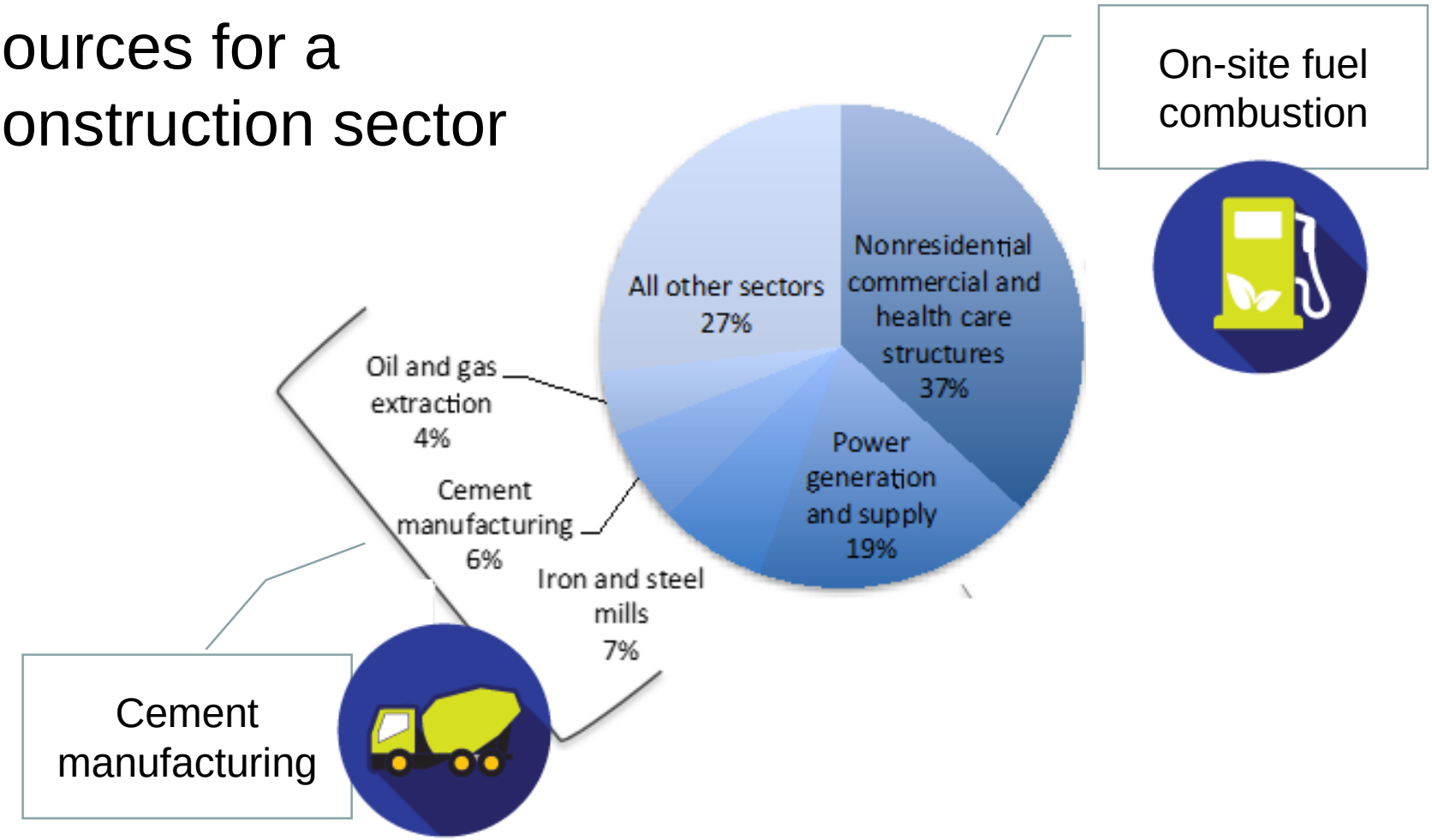


Purchasing Category "Hot Spots"

- EIOLCA.net emissions sources for a construction sector



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Asphalt, Concrete and More

Diesel Fuels

Food

Information and Communication Technology (ICT)

Professional Services

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Thank You!

Karen Cook

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