The Critical Thinker's Guide to Personal Eco-Footprinting

Thursday, September 29, 2011

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Program for Resource Efficient Communities

UF | UNIVERSITY of FLORIDA

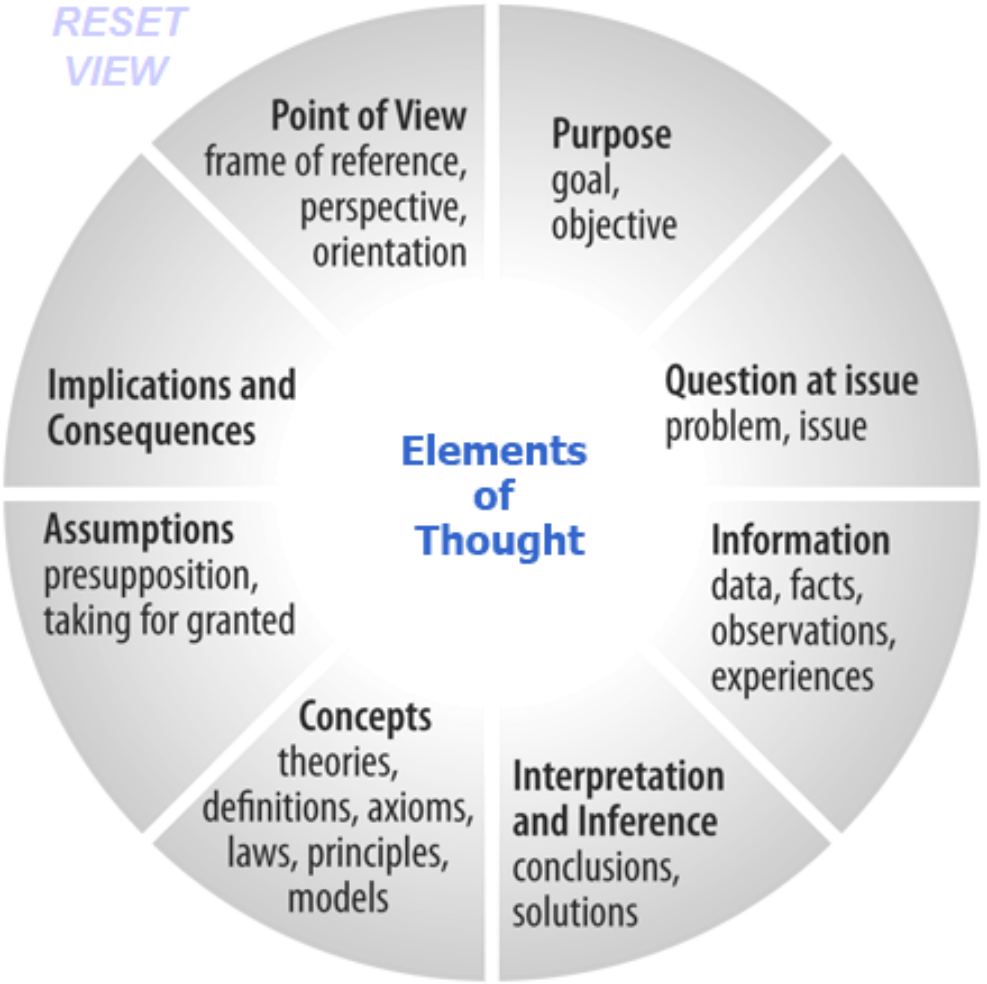
IFAS Extension

To Analyze Thinking We Must Identify and Question its Elemental Structures

Use the elements with sensitivity to Intellectual Standards »

Clarity	Accuracy	Precision	Relevance	Depth
Breadth	Logic	Significance	Fairness	more...

RESET VIEW



Why the Analysis of Thinking is Important

Everyone thinks; it is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed, or downright prejudiced. If we want to think well, we must understand at least the rudiments of thought, the most basic structures out of which all thinking is made. We must learn how to take thinking apart.

All Thinking Is Defined by the Eight Elements That Make It Up. Eight basic structures are present in all thinking: Whenever we think, we think for a purpose within a point of view based on assumptions leading to implications and consequences. We use concepts, ideas and theories to interpret data, facts, and experiences in order to answer questions, solve problems, and resolve issues.

Thinking, then:

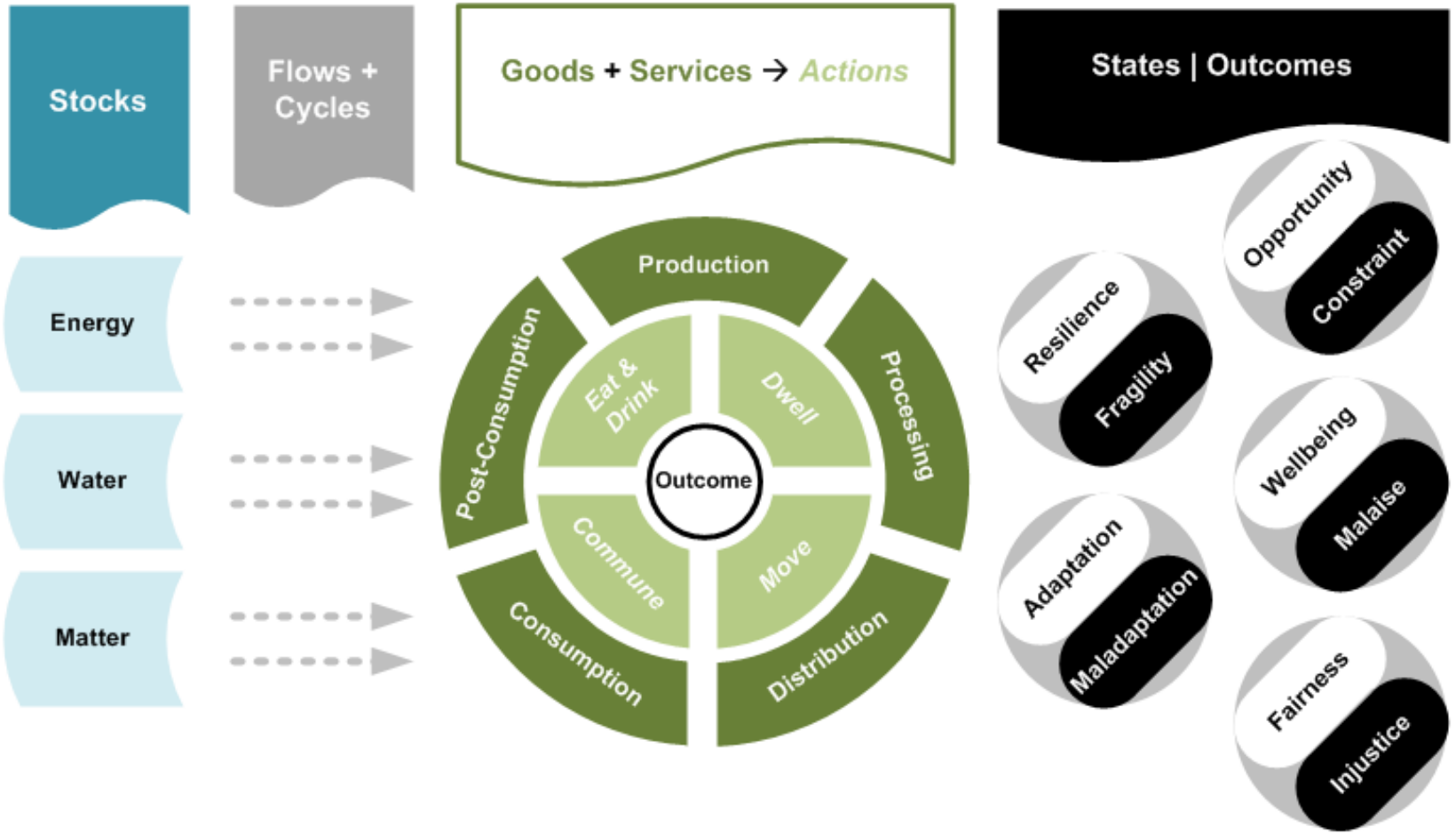
- generates purposes
- raises questions
- uses information
- utilizes concepts
- makes inferences
- makes assumptions
- generates implications
- embodies a point of view

Simply "Mouse Over" any object on the page to learn more about it.

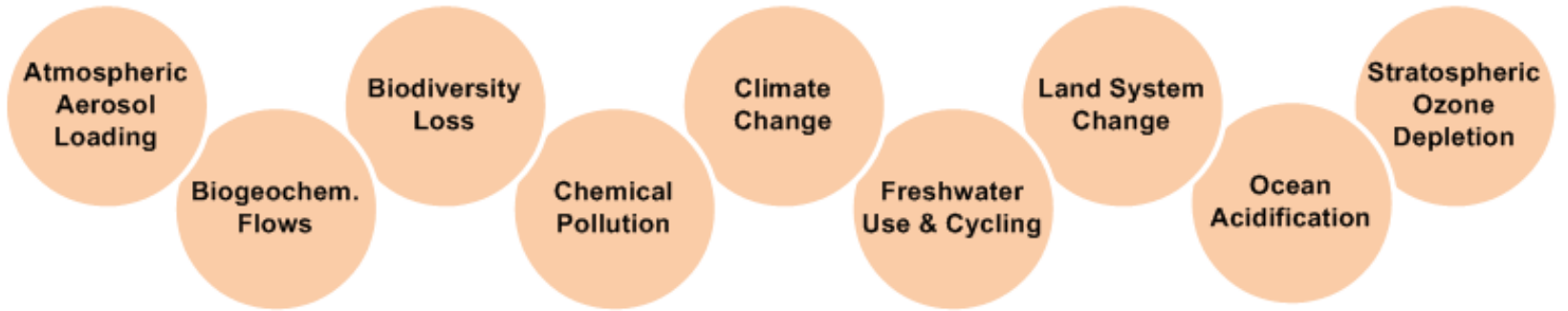
Foundation for Critical Thinking

Online Model for learning the Elements and Standards of Critical Thinking

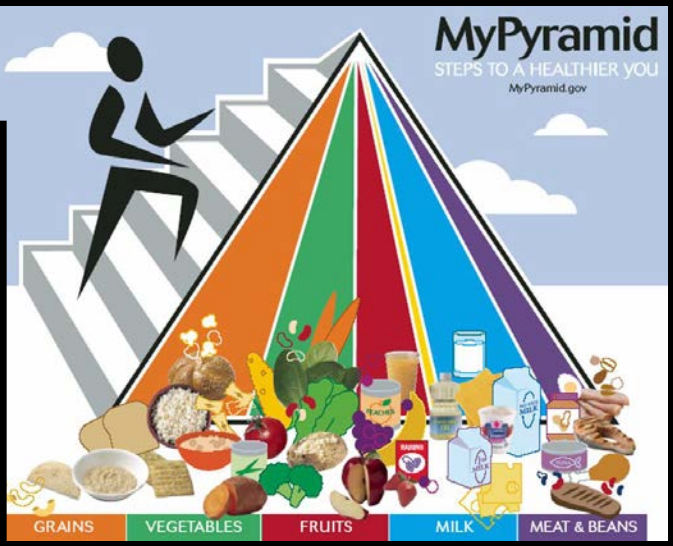
http://www.criticalthinking.org/ctmodel/logic-model1.htm#

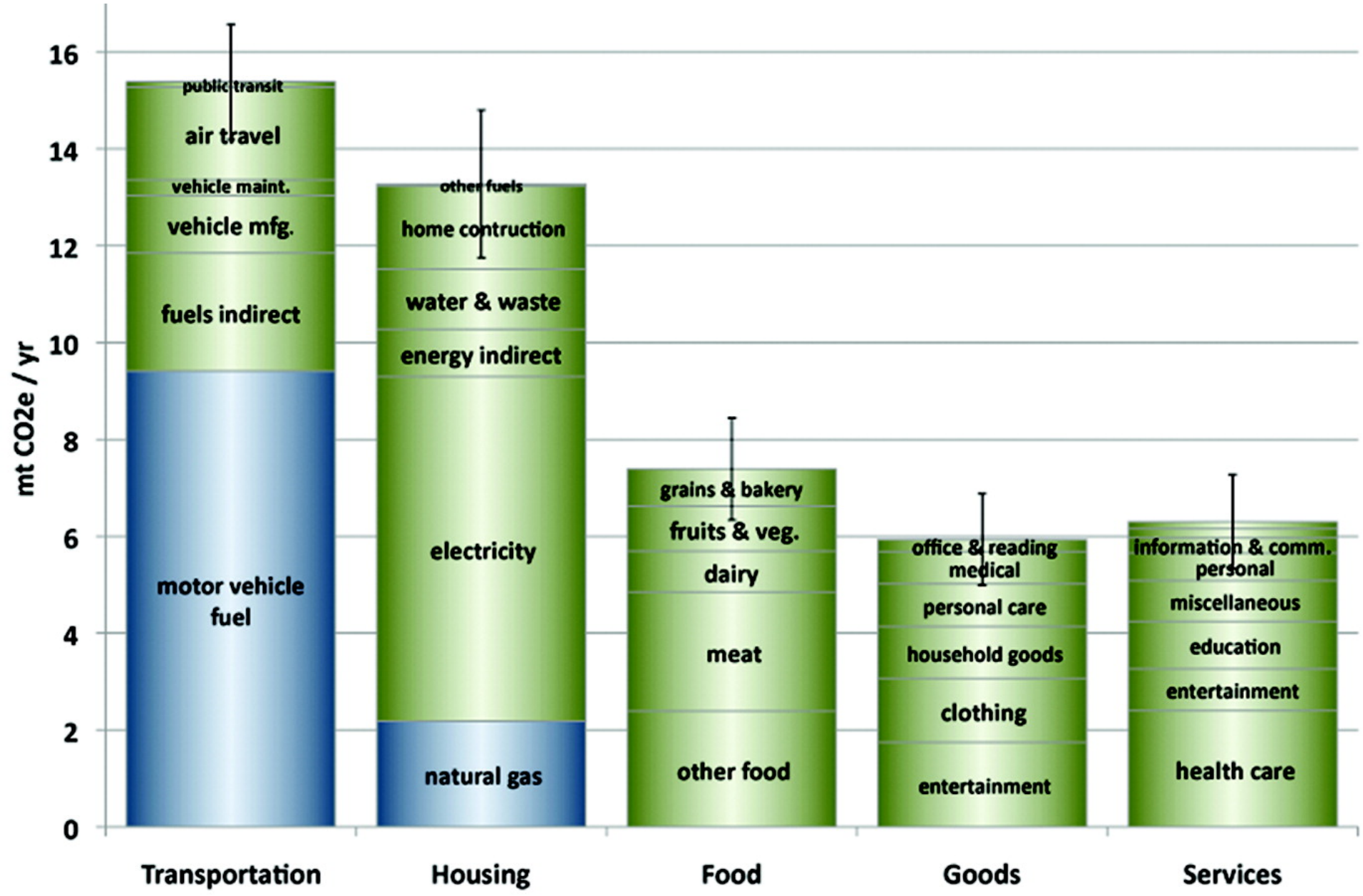


Change | Exchange

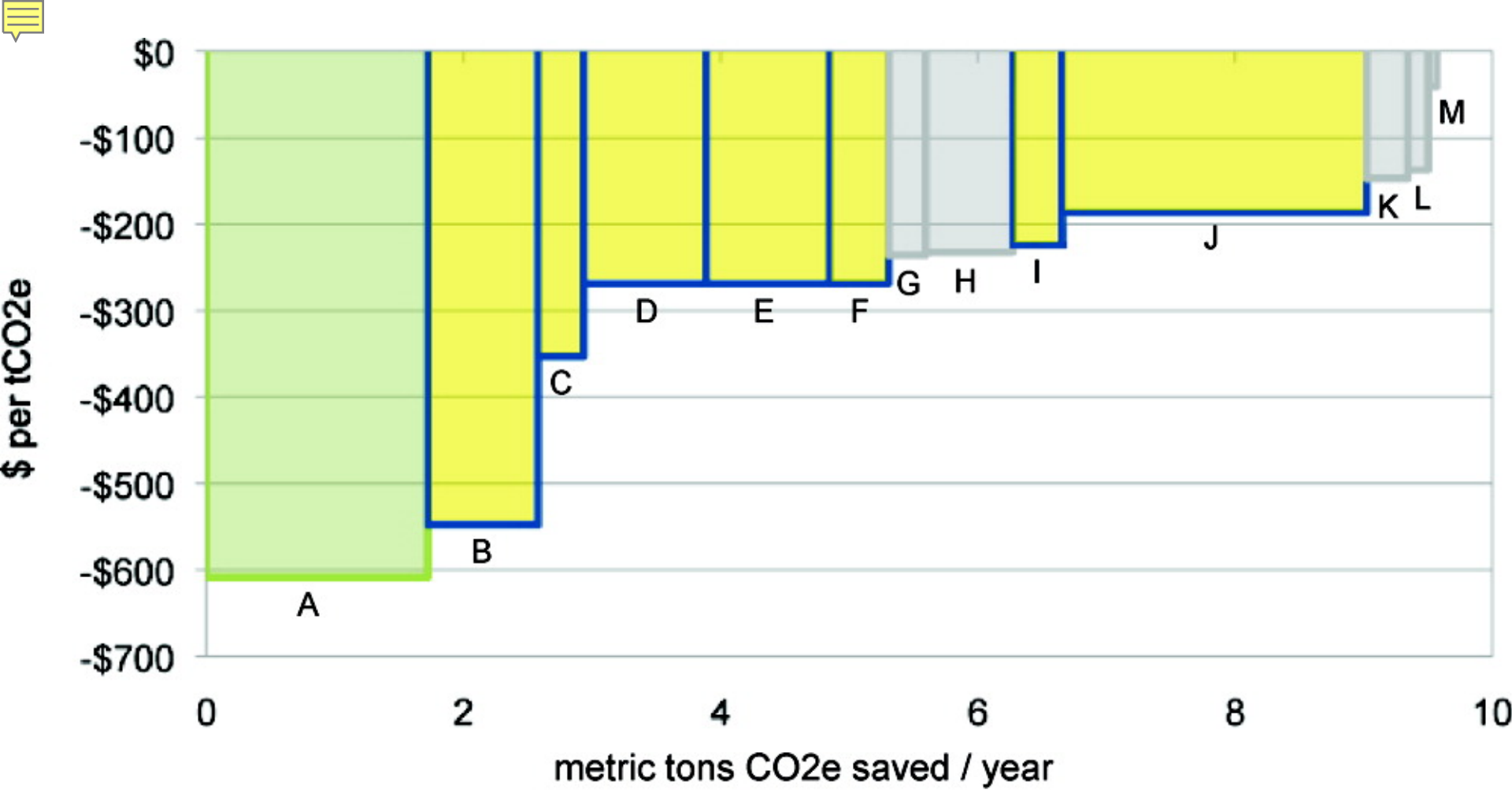


7 Most Harmful Consumer Activities





Published in: Christopher M. Jones; Daniel M. Kammen; *Environ. Sci. Technol.* **2011,** 45, 4088-4095. http://dx.doi.org/10.1021/es102221h



A - Change diet
B - Telecommute
C - Take transit
D - Eco-driving
E - Maintain vehicles
F - Ride bike
G - Turn up thermostat
H - Turn down thermostat
I - Reduce flying
J - Trade in vehicles
K - Buy CFLs
L - Line-dry clothes
M - Energy Star fridge

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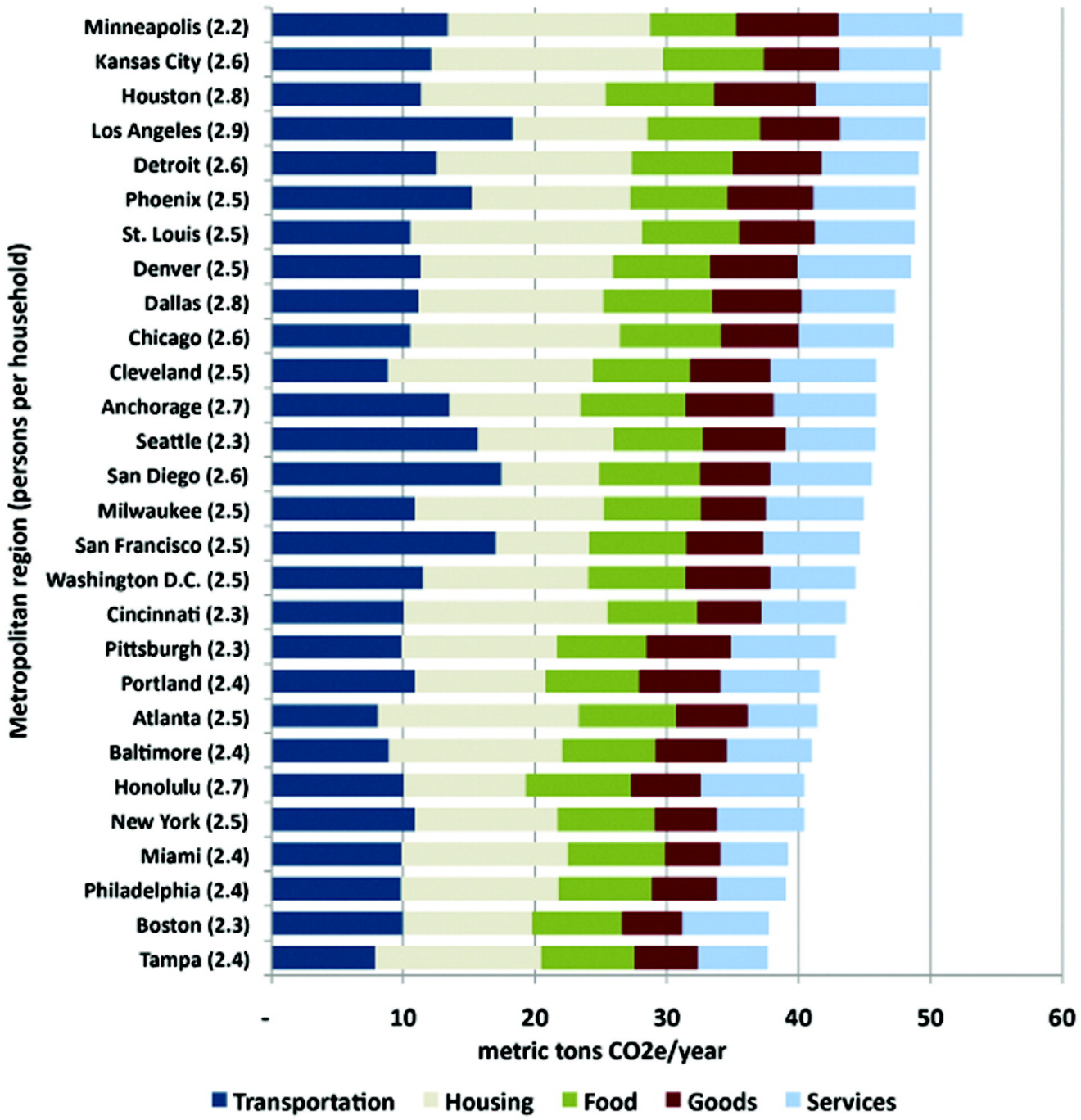

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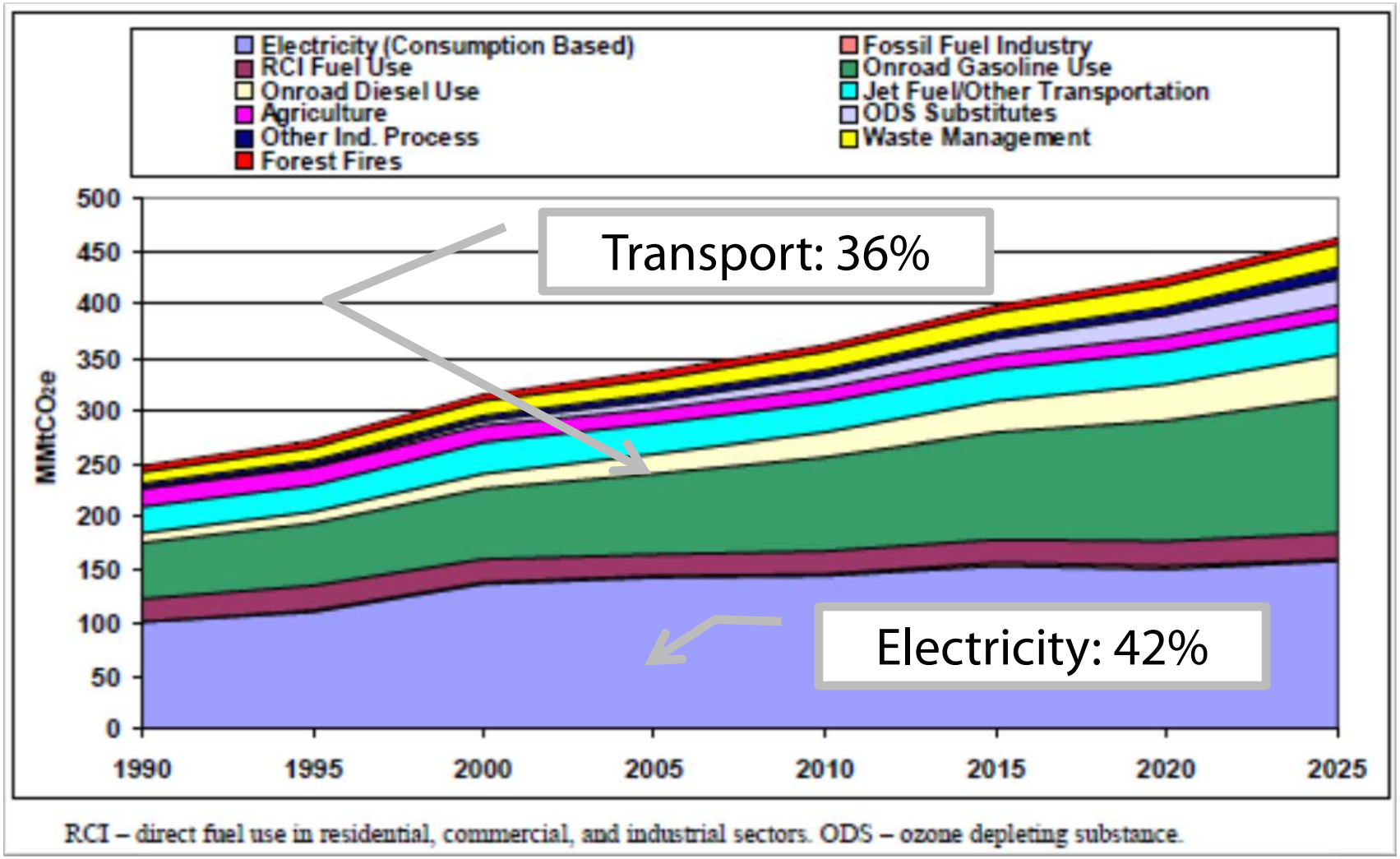
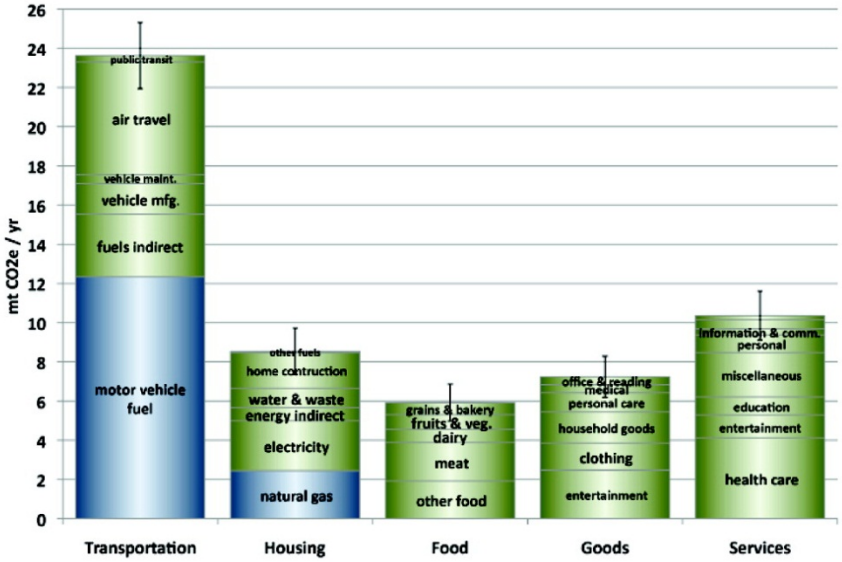
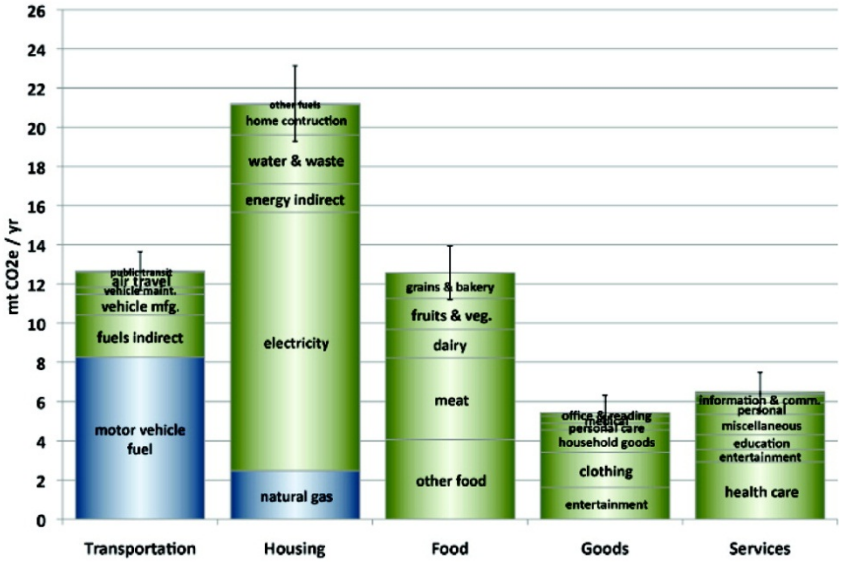
GHGs in Florida

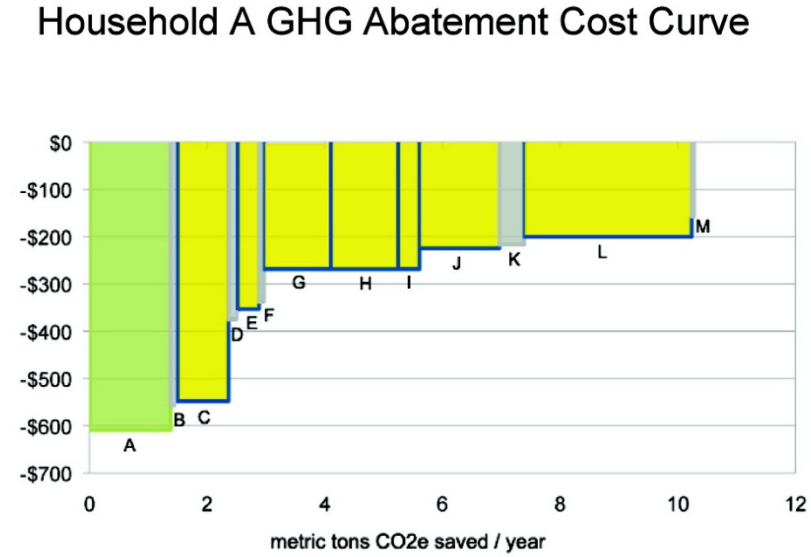


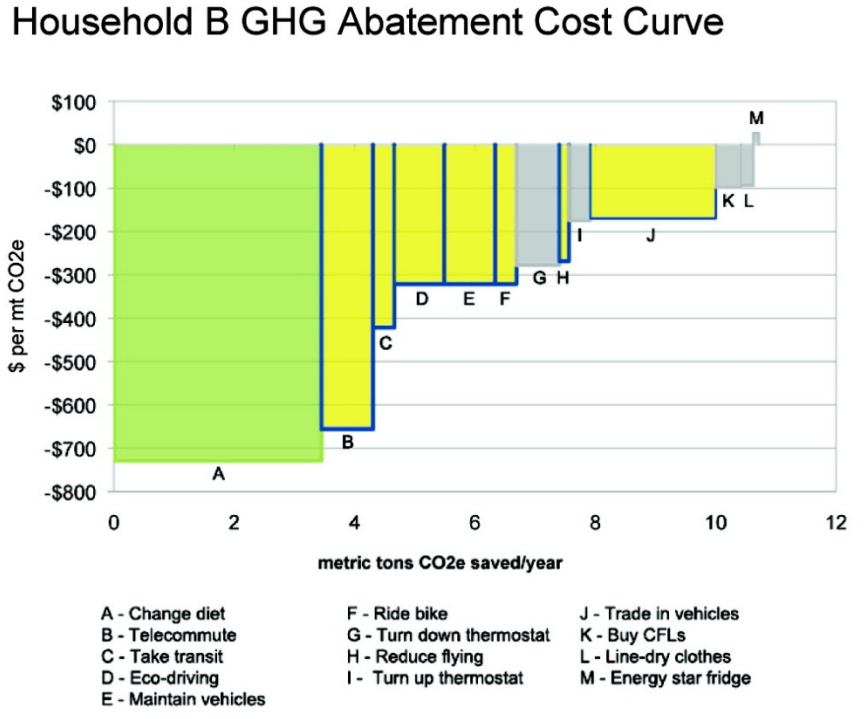
RCI – direct fuel use in residential, commercial, and industrial sectors. ODS – ozone depleting substance.

Source: http://www.flclimatechange.us/ewebeditpro/items/O12F20490.pdf









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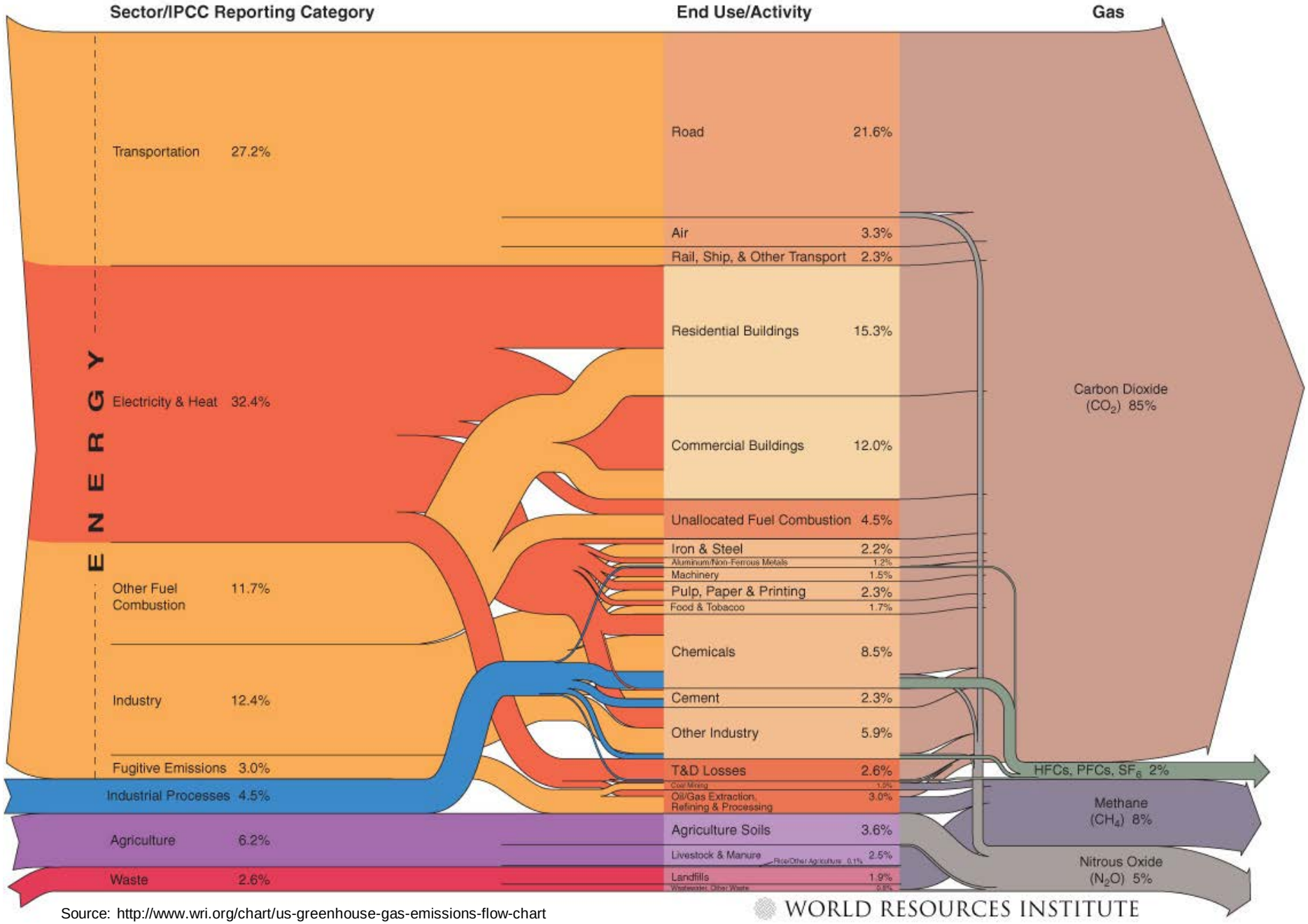
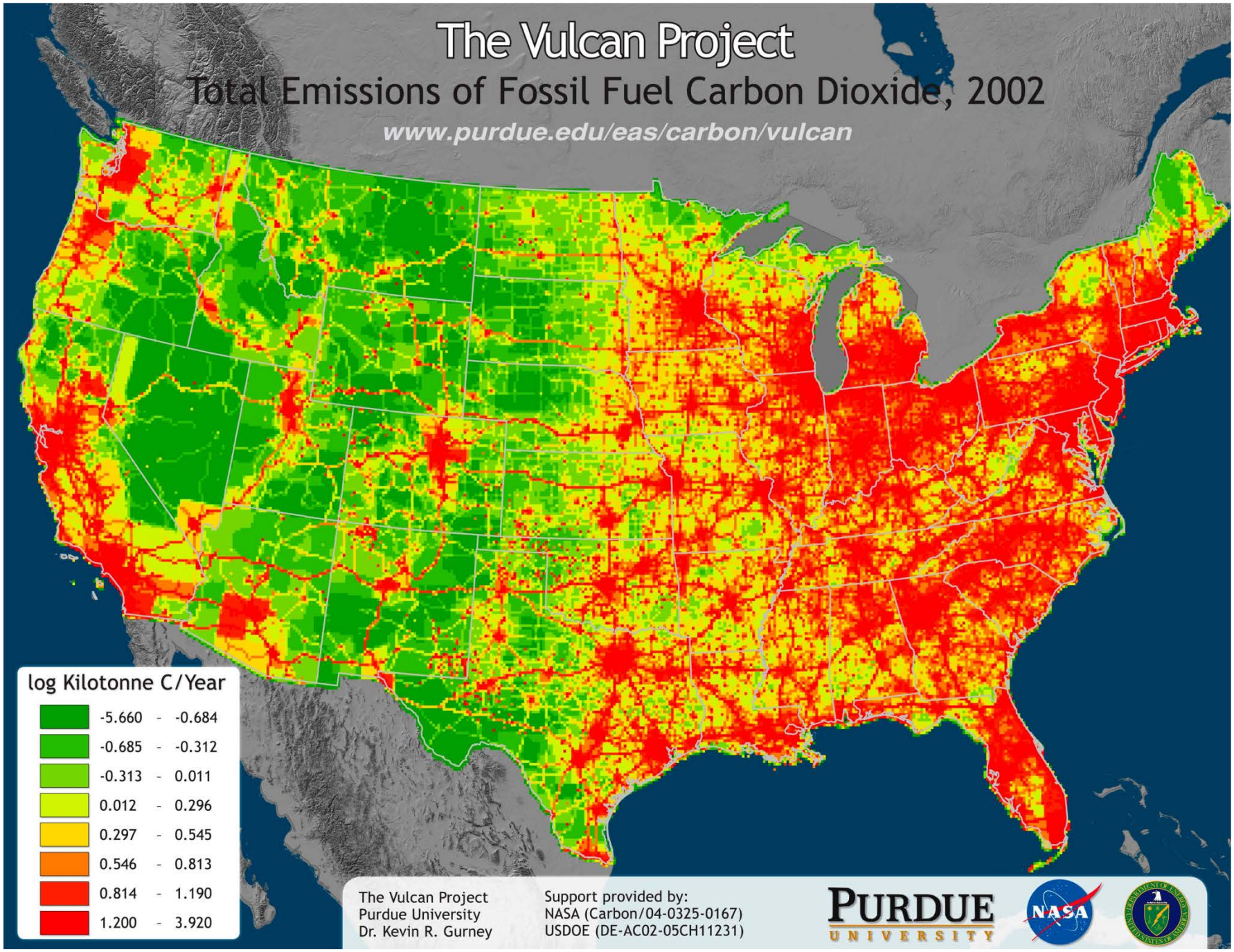
U.S. GHG Emissions Flow Chart



Source: http://www.wri.org/chart/us-greenhouse-gas-emissions-flow-chart

WORLD RESOURCES INSTITUTE

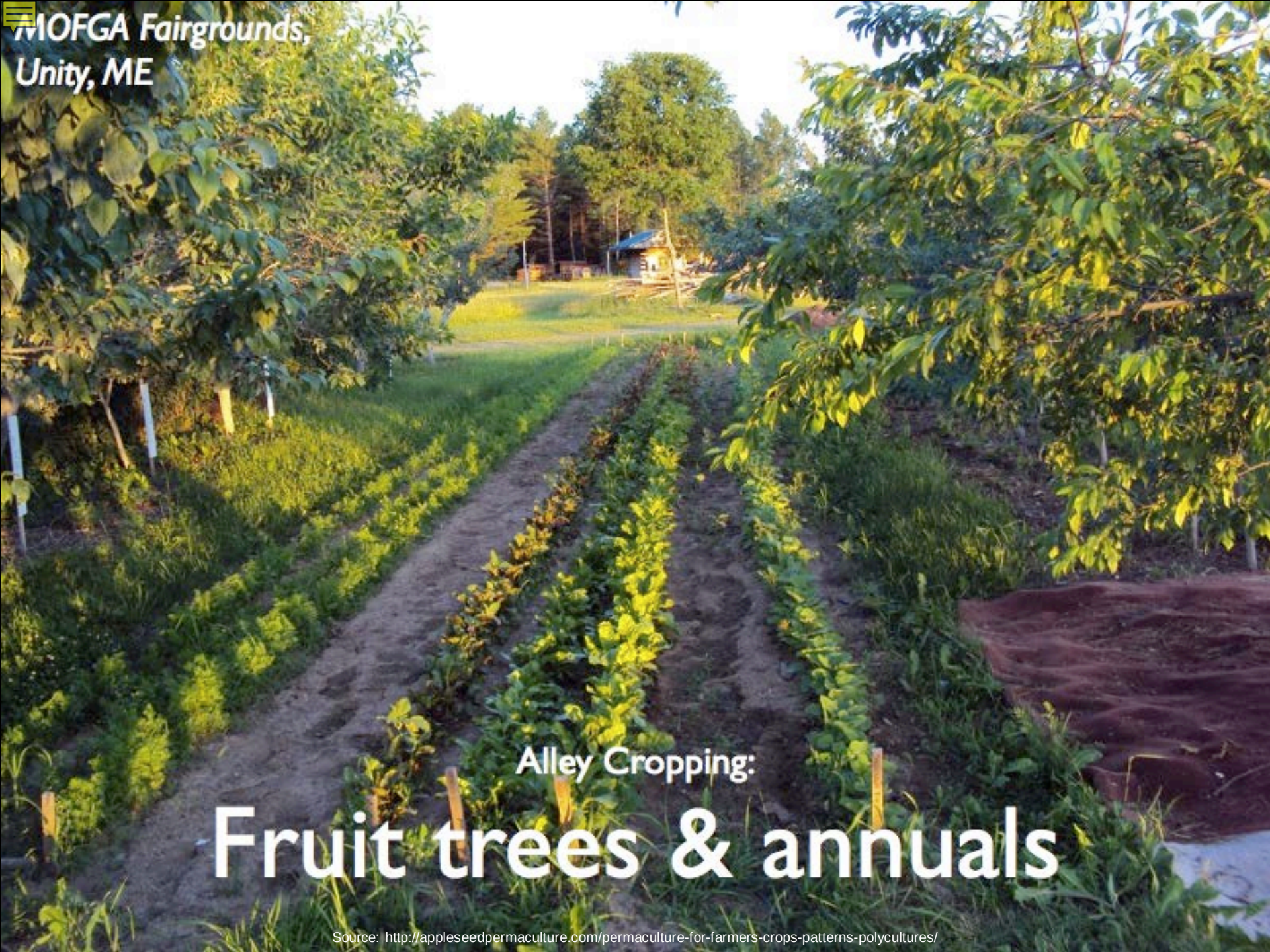

The Vulcan Project
Total Emissions of Fossil Fuel Carbon Dioxide, 2002
www.purdue.edu/eas/carbon/vulcan
log Kilotonne C/Year
-5.660 - -0.684
-0.685 - -0.312
-0.313 - 0.011
0.012 - 0.296
0.297 - 0.545
0.546 - 0.813
0.814 - 1.190
1.200 - 3.920
The Vulcan Project
Purdue University
Dr. Kevin R. Gurney
Support provided by:
NASA (Carbon/04-0325-0167)
USDOE (DE-AC02-05CH11231)
PURDUE
UNIVERSITY
NASA

To get 80 calories of food energy…

…takes more than 4,600 calories of fossil fuel energy for growing, chilling, washing, packaging, and transporting a 1-lb box of organic salad to a plate on the East Coast (i.e., 57 calories of fossil fuel energy for every calorie of food)

Source: http://www.agriculture.purdue.edu/connections/fall2004/galleries/Millennium/images/TrioP8190013_jpg.jpg

Source: http://paulin8.blogspot.com/2011/02/cafo-concentrated-animal-feeding.html



Source: http://appleseedpermaculture.com/permaculture-for-farmers-crops-patterns-polycultures/

Figure: Clint Lightsey moves cattle to the cowpen. Lightsey Cattle Company received the 2006 Environmental Stewardship Award from the National Cattlemen's Association. [Photo by Carlton Ward, Jr.] http://www.tampabay.com/blogs/alleyes/content/book-feature-florida-cowboys-carlton-ward-jr

Figure: "The Watering Hole" is one of the paintings featured in the SFCC MOFAC exhibit, Keith Martin Johns: The Florida Cracker Trail. The exhibit is on display at MOFAC through March 27. http://www.southflorida.edu/news/default.aspx?sid=155

Table. EIOLCA Estimates of Greenhouse Gas Emissions From the US Health Care Sector Based on National Expenditures, 2007a.

Table. EIOLCA Estimates of Greenhouse Gas Emissions From the US Health Care Sector Based on National Expenditures, 2007[a]

Spending Category	Expenditures, Millions of 1997 US Dollars[a]	Carbon Dioxide, MMTCO2Eq	Methane, MMTCO2Eq[c]	Nitrous Oxide, MMTCO2Eq	Chlorofluorocarbons, MMTCO2Eq[c]	Global Warming Potential, MMTCO2Eq[c]
Direct effects[d]						
Hospital	536 30	80.47		1.41	10	99.68
Physician/dental services	441 [illegible]	28.49	.12	0.27	1	5
Other professional	98 714	15.92	.83	0.25	1	8
Home health care	45 430	3.56	.16	0.05	3	10
Nursing home care	101 101	20.58	2.29	0.20	0.31	23.38
Prescription drugs	175 175	32.95	2.16	0.89	1.69	37.69
Nondurable and durable equipment	47 663	5.37	0.29	0.02	0.08	5.76
Administrative/insurance	119 889	1.33	0.29	0.01	0.00	1.63
Scientific research	32 648	4.06	0.21	0.06	0.18	4.51
Structures/equipment	77 539	24.80	0.59	0.21	0.03	25.63
Total	1 676 444	217.52	16.63	3.37	16.13	253.65
Total effects[e]						
Hospital	536 30	16	29.02	10.83	12.26	214.65
Physician/dental services	441 98	61.02	8.57	1.86	3.33	74.78
Other professional	98 714	3 61	.79	1.04	1.92	37.36
Home health care	45 430	7.37	0.85	0.22	0.43	8.88
Nursing home care	101 101	34.32	6.90	3.00	0.60	44.82
Prescription drugs	175 175	64.56	8.11	3.14	2.79	78.60
Nondurable and durable equipment	47 663	16.31	2.49	1.38	0.48	20.66
Administrative/insurance	119 889	8.30	1.50	0.20	0.11	10.10
Scientific research	32 648	7.79	0.93	0.26	0.29	9.28
Structures/equipment	77 539	41.73	3.20	0.74	0.7	46.41
Total	1 676 444	43	65.37	22.68	22	545.54

Abbreviations: EIOLCA, [illegible]mental Input-Output Life Cycle Assessment; MMTCO2Eq, million metric tons of carbon dioxide equivalent.

[a] Expenditure data from the National Health Expenditure Accounts Team,[1] converted to 1997 real dollars using the Consumer Price Index (0.77_{1997}$). Spending on government public health activities was excluded because corresponding industry sector in the 1997 Industry Benchmark EIOLCA model is not available. Numbers may not sum to totals due to rounding.

[b] Health care expenditures and corresponding North American Industrial Classification System sectors are in appendix available on request from the authors.

[c] Emissions of greenhouse gases expressed in terms of global warming potentials, defined as the effect of 1-kg emission of a gas on the balance of incoming radiant energy absorbed by the earth system and outgoing radiant energy reflected back out into space, relative to 1 kg of carbon dioxide over a 100-year period. Emissions of greenhouse gases other than carbon dioxide are expressed in terms of the amount of carbon dioxide that would produce an equivalent radiative potential effect over a 100-year period.[3]

[d] Accounting for emissions from purchases by the corresponding health care subsector alone.

[e] Accounting for direct effects plus emissions from all upstream purchases among suppliers to create the inputs purchased by the health care sector to produce its final output.

7-8% in US vs. 3% in UK

Chung, J. W. et al. JAMA 2009;302:1970-1972

Global Cost of NCDs

- Non-Communicable Diseases (NCDs)
  - Cardiovascular diseases (CVD)
  - Cancers
  - Chronic respiratory diseases
  - Diabetes
  - Mental health diseases
- 63% of worldwide deaths in 2010
- Cumulative output loss US $47 trillion (2010-2030)
  - 75% of global GDP in 2010 (US $63 trillion)

Source: World Economic Forum – The Global Economic Burden of Non-Communicable Diseases. http://www.weforum.org/reports/global-economic-burden-non-communicable-diseases

Human History in Generations

Milestone	Generations	% Total
Homo habilis	76,667	100.0
Homo erectus	60,000	78.2
Modern *Homo sapiens*	6,666	8.7
Neolithic revolution	366	0.48
Industrial revolution	7	0.009
Food industry (junk) & inactivity (sedentarism)	4	0.005

Source: The western diet and lifestyle and diseases of civilization. http://dx.doi.org/10.2147/RRCC.S16919

Foods Consumed in Paleolithic Era

Foods Available

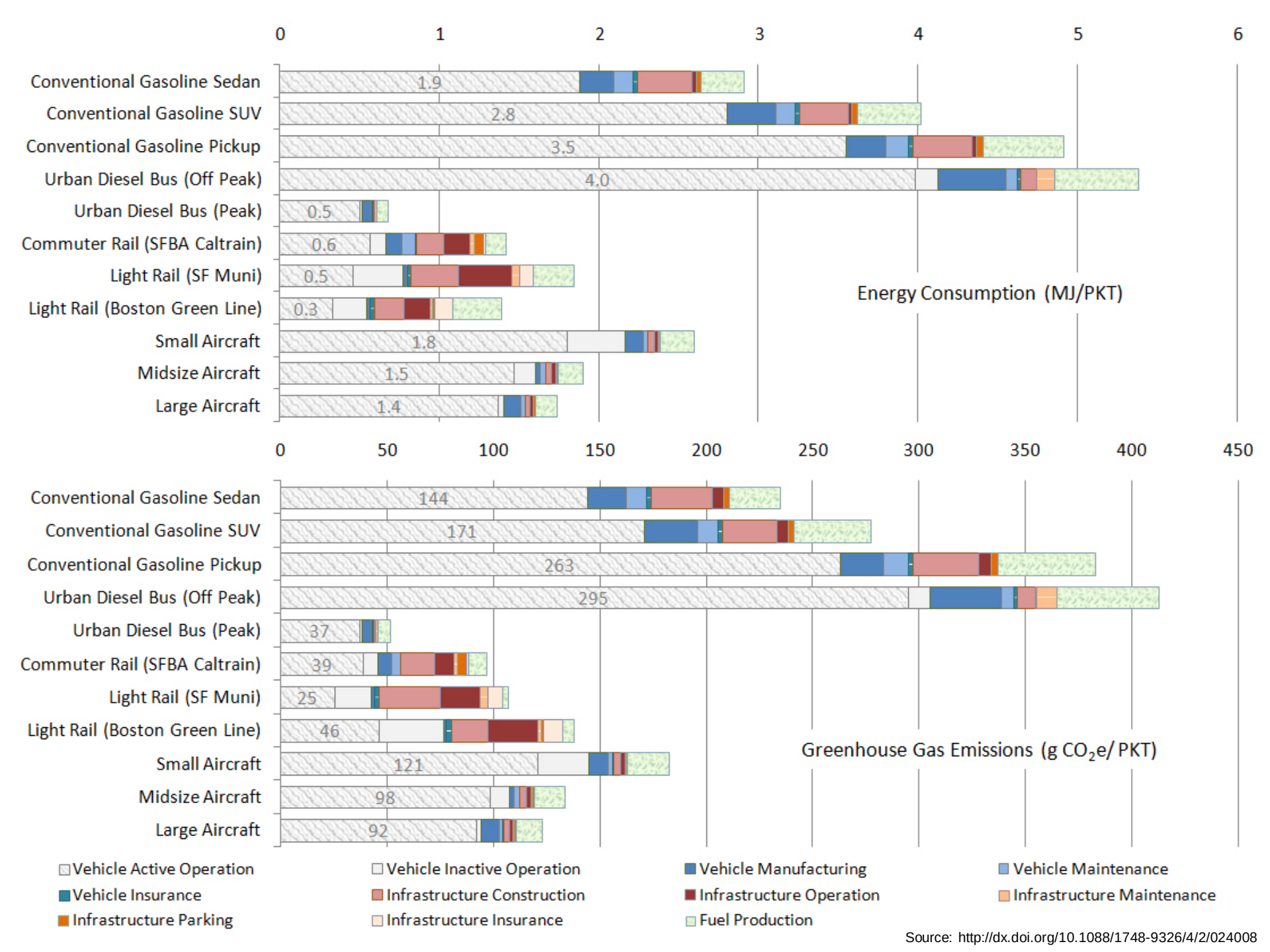
- Insects, fish, shellfish & other marine animals, reptiles, birds, wild terrestrial mammals & eggs
- Plant leaves, seaweed, sea grasses, & algae
- Roots & tubers
- Berries & wild fruits
- Nuts & seeds
- Honey (occasional intake)

Foods Not Available

- Dairy (except during human milk weaning)
- Cereal grains
- Legumes (except certain seasonal varieties)
- Isolated sugar
- Isolated oils
- Alcohol
- Refined salt

Source: The western diet and lifestyle and diseases of civilization. http://dx.doi.org/10.2147/RRCC.S16919

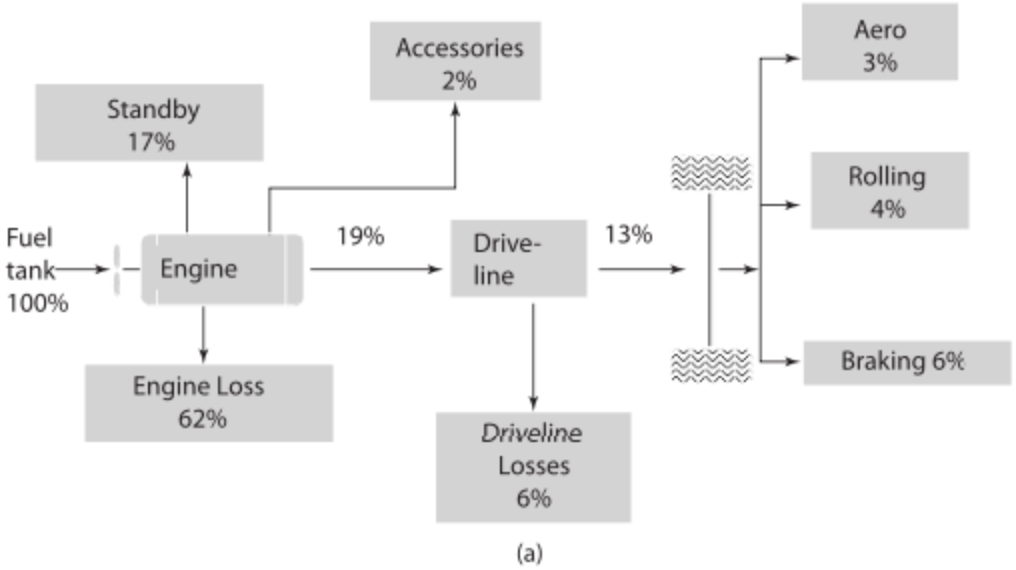

Alameda St
Union Station
Los Angeles
St



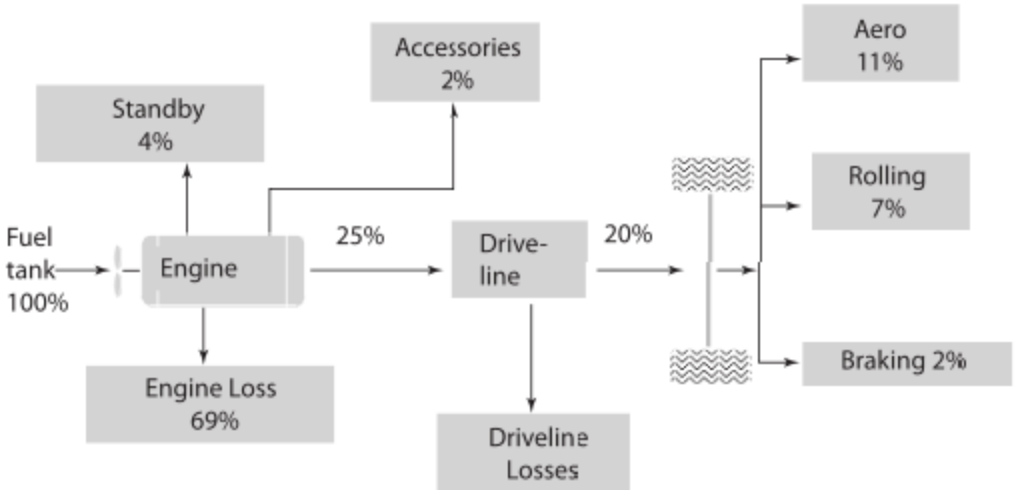
Source: http://dx.doi.org/10.1088/1748-9326/4/2/024008

Hypermiling: Beyond EPA

Urban Driving



Highway Driving



Source: http://en.wikipedia.org/wiki/Image:Energy_flows_in_car.png

Hydrocarbon Human

Source: http://www.sarahleen.com/Sarah_Leen/Work/Pages/Beyond_Oil.html#2

Source: http://www.old-picture.com/indians/Indian-Tepee.htm

Energy is the ability to do work,

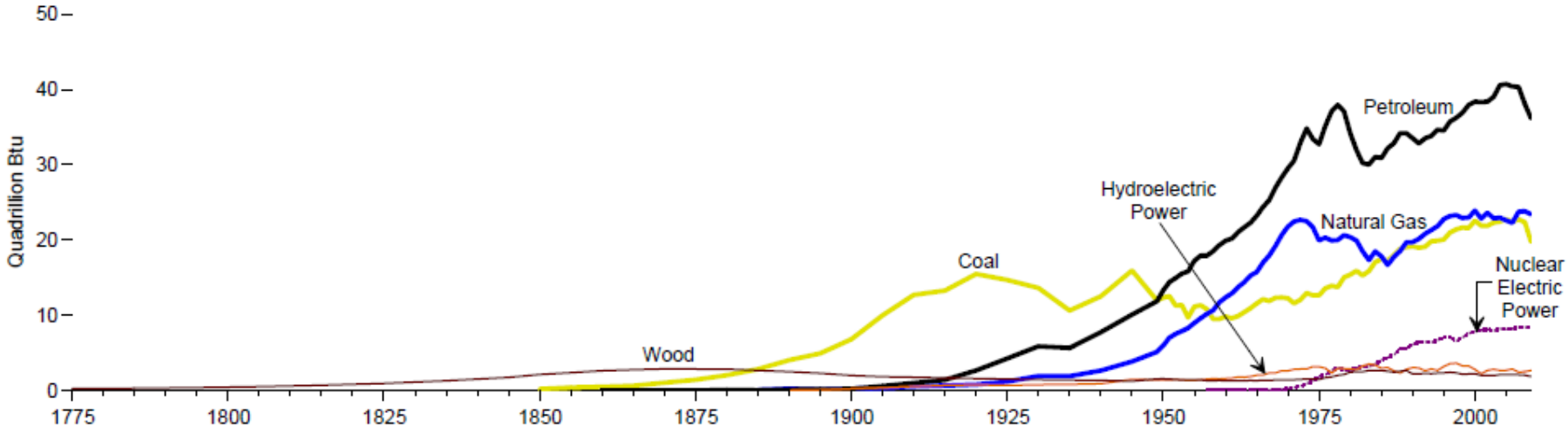
& with a big enough hammer…

Source: www.istockphoto.com

Source: http://www.istockphoto.com/stock-photo-13999264-old-rusty-car.php

Energy Eras in Human history

Figure 5. Primary Energy Consumption by Source, 1775-2009



Source: http://www.eia.doe.gov/emeu/aer/pdf/perspectives_2009.pdf

Thank You!

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