

# Measuring Your Carbon Footprint

How, Boundaries, Best Practices & Guidelines

FMI Sustainability Task Force Meeting  
January 16, 2008



# Today's Discussion

- Background
- What is a Carbon Footprint and how do I determine it for my organization?
- Boundaries
- Best of the Best
- Available tools
- Guidelines & Recommendations



# It's not a big deal, right?

- Social Responsibility / Public Relations
- Advantages for early adopters
- Potential financial risk (GAAP / SEC)
- **GOOD BUSINESS SENSE!**



# Legislative efforts – Moving quickly!

- Warner / Lieberman bill passed committee
- 12 different bills in Congress
- Numerous regional/state/city initiatives
- International pressure – Kyoto adoption



# The Carbon Market

- International
  - Kyoto Phase II Underway
  - Price of Carbon on EU ETS = \$35 USD and rising
- United States
  - Voluntary efforts
  - CCX Price = \$4.00
  - Anticipated regulated price = \$25 USD and rising
- Significant financial investments into the market



# Climate Change Exposure

- Increase in food / commodity prices
- Increase in transport costs
- Increase in energy costs
- Increase in refrigeration costs
- Increase in production costs
- 'Food miles' regulation
- Consumer exposure



# Public Opinion

## Do you believe global warming exists?

	October 2005	January 2006
Yes	77%	82%
No	13%	10%
Don't Know	10%	8%

Source: *Source: Opinion Dynamics / Fox News, January 30 & 31, 2007*



The latest polls

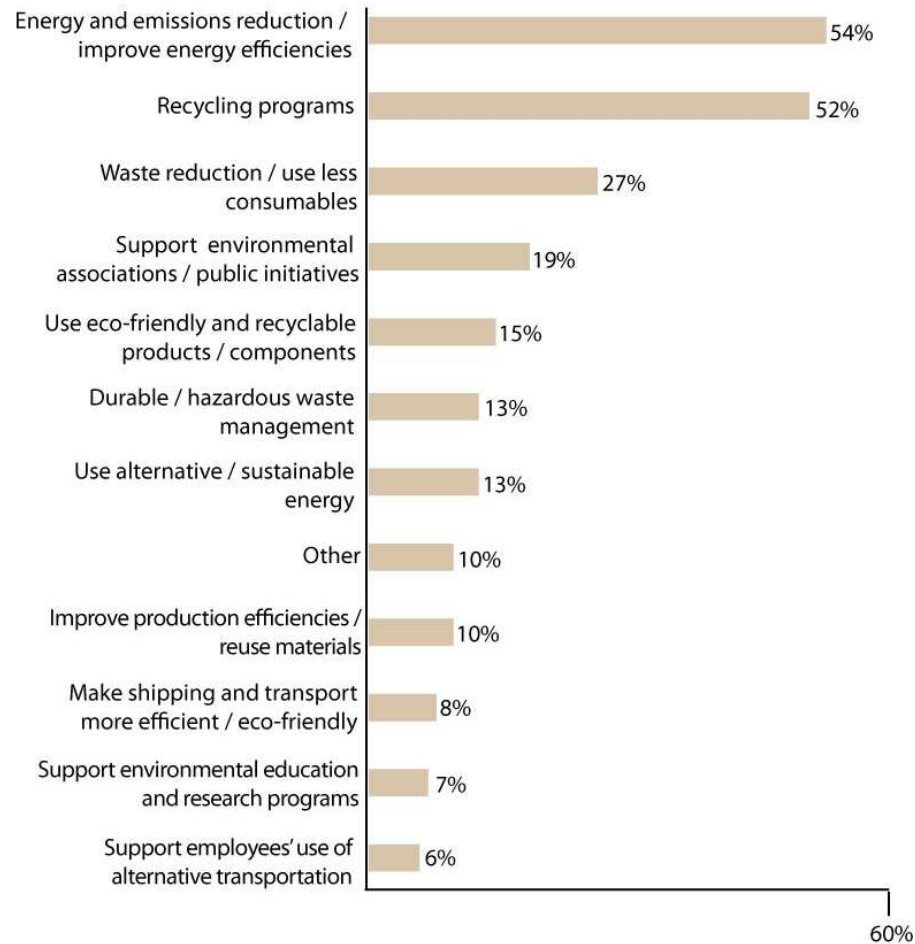
<http://www.pollingreport.com/enviro.htm>



# Growing Awareness

**Figure 1:** Environmental initiatives

*Briefly describe the environmental initiatives you are currently involved in or plan to be involved in within the next 12 months*



Source: AMR Research, 2007





# What is a Carbon Footprint?

- Total emissions from **your** operations
  - Direct Emissions
    - Stationary
    - Mobile
    - Fugitive
  - Indirect Emissions
    - Electric Energy Use

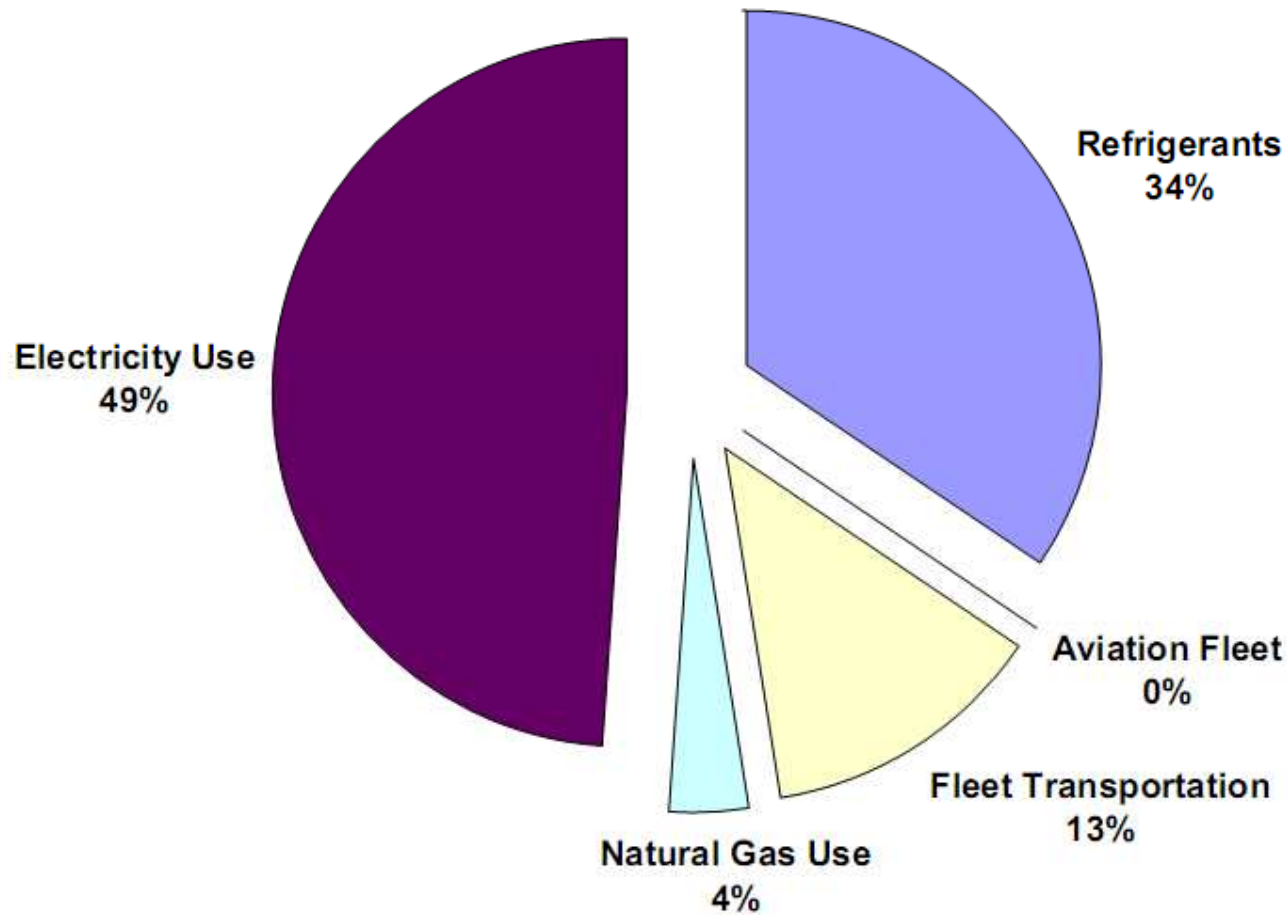


# What's in a Carbon Footprint?

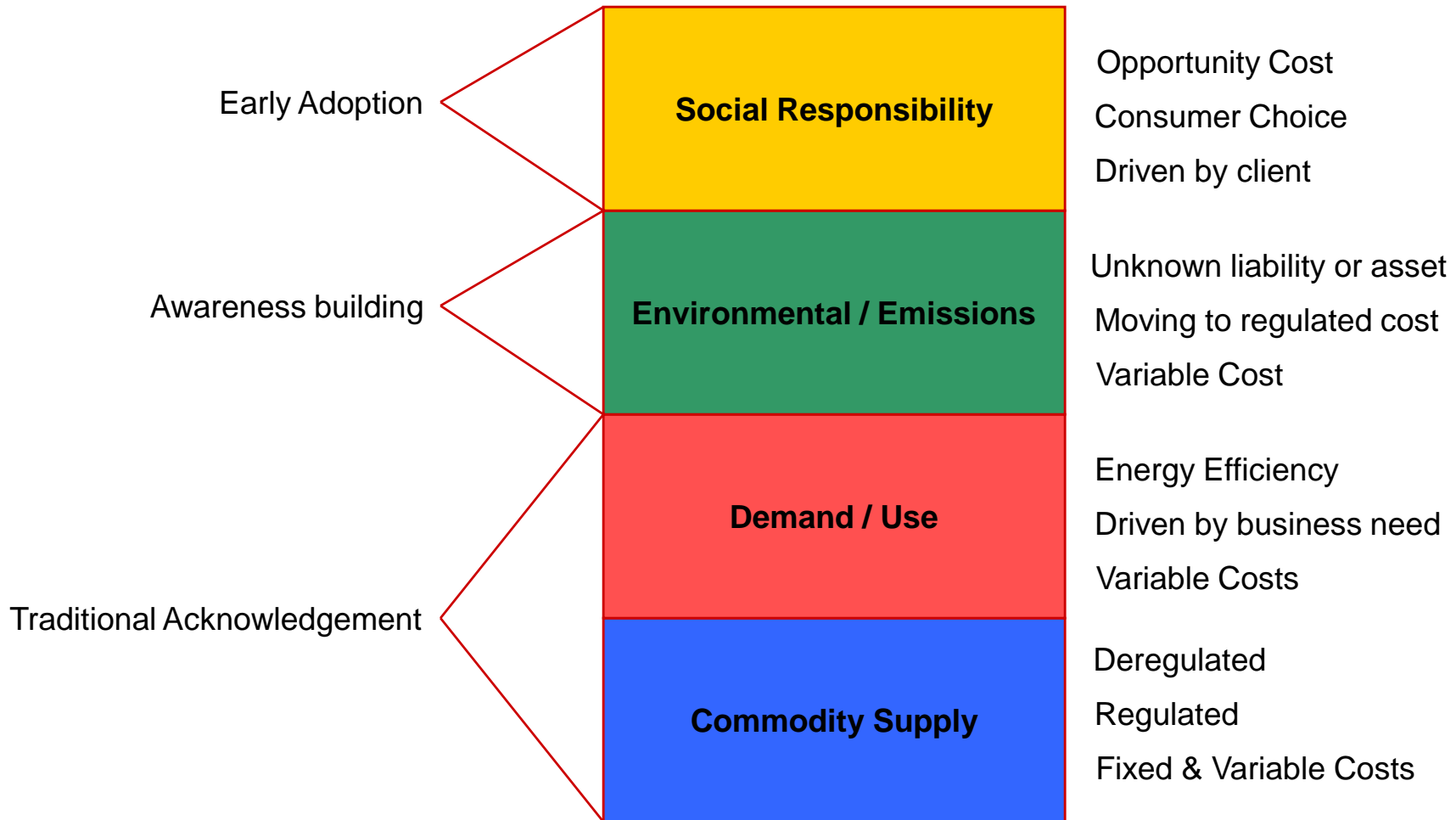
- Indirect Emissions
  - Those emissions from electricity use supplied by another
- Direct Emissions
  - Mobile Combustion (vehicles)
  - Stationary Combustion (furnaces, generators)
  - Fugitive Emissions (refrigerant leaks)
  - Manufacturing Emissions (raw material use)



# Carbon Footprint – Grocery Retail



# Total Cost of Energy



# HFCs- High GWP Gases



- One 100 pound cylinder of R-404A leaked to atmosphere equals:
  - 27 Chevy Suburban's Driving 12,000 miles Each
  - Or 38 Acres of Forest

(Carbonfund.Org ) \*2006 Chevy Suburban's 4WD

**US EPA has required tracking of refrigerants since 1994. Potential fines of \$32,500 per day.**



# How do I get started?

## Indirect emission

- Amount of energy used
- The utility who is supplying it
- Their generation mix and emissions from that generation

## Where do I find this information?

- Utility Bills
- EPA
- Utility companies



# How do I get started?

## Direct emission - Mobile combustion

- Types of vehicles (All fuel operated vehicles – Forklifts, cars, truck, plane)
- Where vehicles are registered
- Fuel consumption of each vehicle
- Fuel type of each vehicle
- Miles traveled by vehicle
- Model year of vehicle

## Where do I find this information?

- Fleet management systems
- Fuel / mileage logs
- Surveys



# How do I get started?

- Direct emission –  
Stationary combustion
- Type of fuel consumed
  - How much fuel combusted(consumed)
  - Special circumstances for Combined Heat & Power or CoGen systems

## Where do I find this information?

- Natural gas bills
- Fuel bills for generators & other equipment
- Propane invoices





# How do I get started?

## Direct emission – Fugitive emissions

- Type & quantity of air conditioning equipment
- Type and quantity of refrigeration equipment
- Total refrigerant charge for each
- Annual actual or calculated leak rates
- Types of refrigerants
- Quantity of refrigerants purchased & used in those systems

## Where do I find this information?

- **EPA Sec 608 Clean Air Act REQUIRES you have this information**
- Refrigeration services logs / invoices
- Purchased refrigerant invoices
- Surveys



# How do I get started?

- Manufacturing Emissions
  - Continuous emission monitoring systems (CEMS)
  - Only needed if you have emissions emitted from stacks
  - Not necessarily germane to grocers



# Boundaries

## Included

- Anything serving your business whether owned or significantly used for operations
  - Truck fleets
  - Facilities
  - Vehicles
  - Equipment on site
- Employee travel for business
  - Optional for most registries



# Boundaries

## Not included

- Pre-store opening construction unless by your own personnel
- Supplier food production and delivery
- Employee commuting



# Best of the Best?

- [www.cdproject.net](http://www.cdproject.net)
- Tesco – published and granular
- Wal-Mart – published and granular
- Safeway – Chicago Climate Exchange member
- Others – look to Europe & UK (Marks & Spencer, John Lewis Partnership, Carrefour, Auchan)



# Industry Recommendations

- Calculate
  - By emission type
  - Granularity
  - Strive for near real time
- Benchmark
  - Per overall sales
  - Per square foot
  - Per employee
- Publish
  - Industry Disclosures
  - Transparency
- Go downstream
  - Include suppliers
  - To the SKU?
- Support Cap & Trade
  - Engage government
  - Track reduction projects
- Industry Fund?
  - Investment in emissions reduction projects to pool industry offsets/credits
- Global reach



# Tools & Resources



- Spreadsheets
- [EPA Climate Leaders](#)
- [The Climate Registry](#)
- Software
- Outsource Partners



# Verisae's Business

*Delivering solutions that enable our clients to meet their sustainability goals & regulatory requirements*

Software and hardware used to measure, monitor & manage:

- Energy use
- Greenhouse gas emissions
- EPA Clean Air Act S608 compliance
- Site and equipment energy profiles
- Equipment maintenance
- Equipment procurement







**We look forward to working with you!**

**Connect with us**

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