

# Carbon Footprinting

**The Business Council of NY State  
2008 Spring Environment Conference  
Albany, NY  
June 3, 2008**



**Environmental Resources Management (ERM) is the world's largest all-environmental consulting firm with over 120 offices in 42 countries and 3,300 staff. And 6 offices in NY. ERM has global experience in all technical, economic, and policy environmental areas.**

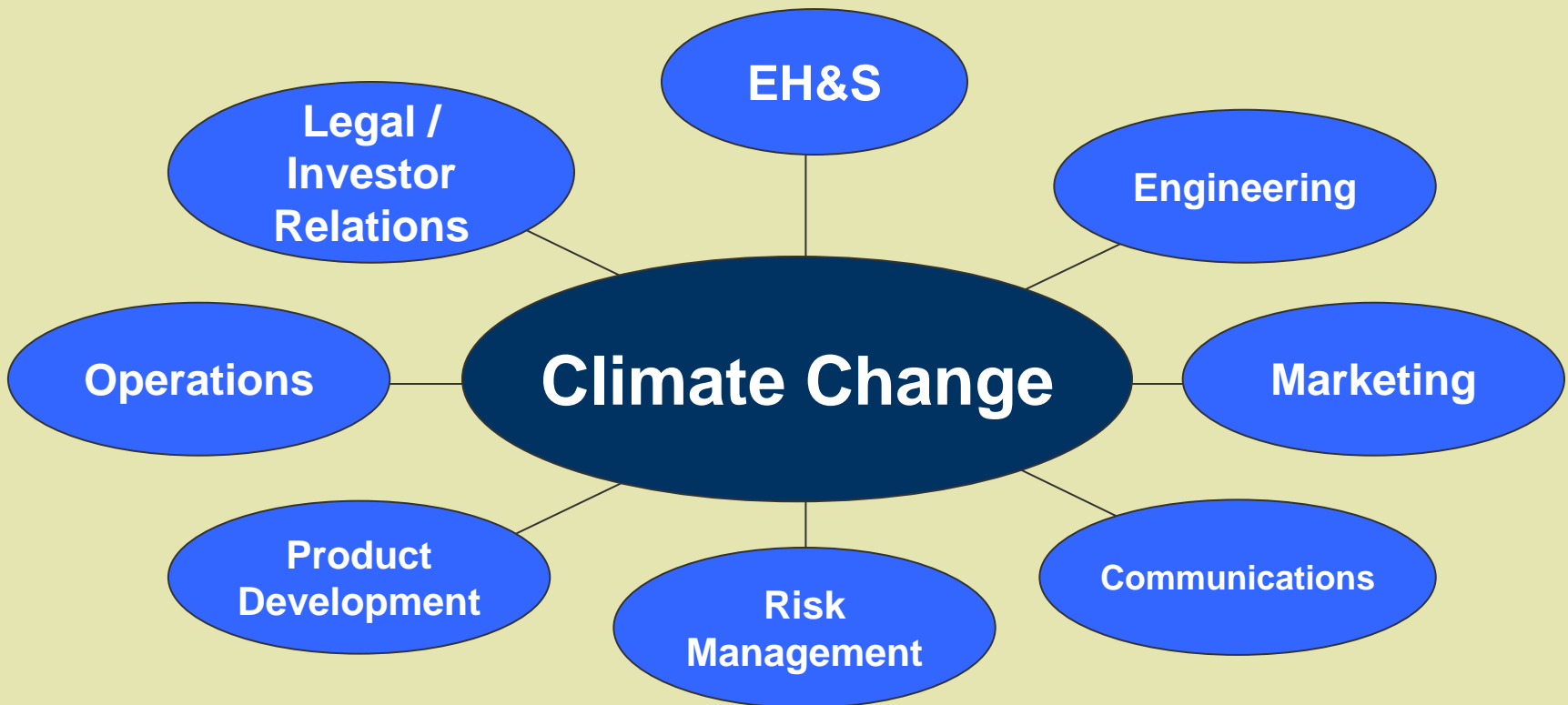
# Why Develop a Climate Change (CC) Program?

## There are Many Business (Non-regulatory) Reasons

- 1. \$\$\$.** The growing cost of energy
  1. Actions that reduce energy usage also reduce GHG emissions
  2. Given the price of energy these days, much \$\$\$ saved!
- 2. \$\$\$.** GHG emission reductions can become sellable credits.
- 3.** CC shareholder resolutions
- 4.** Pressure from financial market, insurance, accounting bodies
- 5.** CC risk - Usually, we are concerned with how a plant impacts the environment. For the first time, we are worried about how the environment will impact a plant's operations!
- 6.** Pleasing customers. More firms are asking about the "carbon footprint" of the products they sell. LCA
- 7.** Public relations and product development

# Effects on Business

- Climate Change is a multifaceted issue that affects every area of a firm's business



# The First Step: Develop a Climate Change Infrastructure

- **Develop a Group focused on Climate Change issues**
- **Should have participation from the many groups impacted by Climate Change:**
  - EH&S
  - Product Development
  - Communications
  - Engineering
  - Finance/Procurement
  - Operations and Maintenance
  - Legal
- **Need leadership from the top – from the CEO**

# Develop Future Climate Change Goals

- **Perform an initial evaluation of where you are vs. desired position in terms of a “Green” Climate Change program**
  - Do you want to be a leader in your industry, a follower, or in the middle of the pack?
- **Define the elements of a Climate Change program and assess where your company’s culture is or willingness to spend resources to progress. Diagnostics exist.**
- **Benefits of doing this? Business opportunity, to enhance your reputation, reduce costs, in response to stakeholder’s requests?**

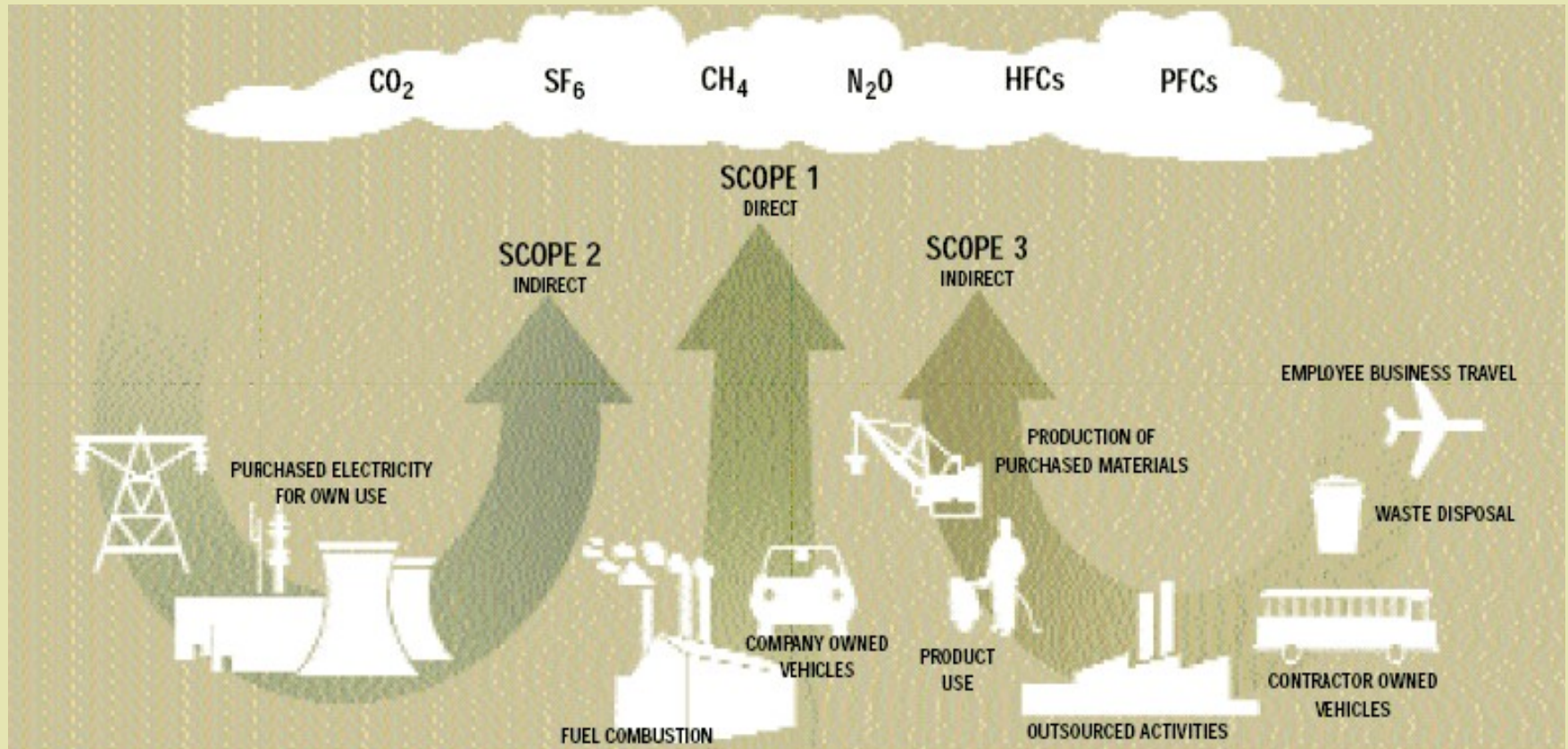
# Why Is Carbon Footprinting Important?

- **YOU CAN'T MANAGE WHAT YOU DON'T MEASURE**
  - True for anything: a business, a school system, an environmental program
- **Saves you \$\$.**
  - Enables you to pinpoint your strengths and weaknesses, focus on needed tasks
- **Utilize resources more efficiently.**

# Perform a Baseline GHG Emissions Inventory

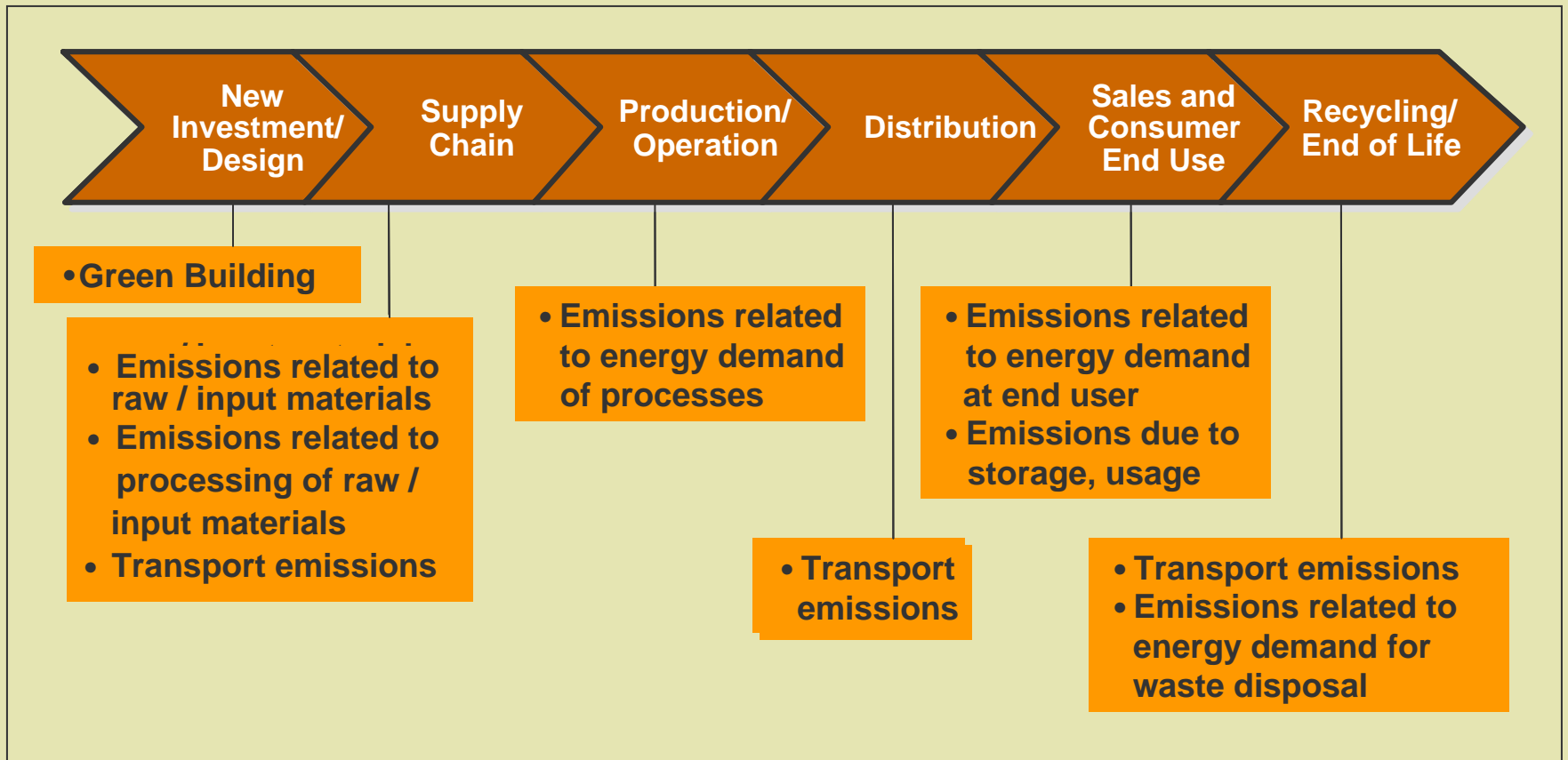
- **Which operations at your facilities emit GHGs?**
  - Manufacturing
  - Combustion
  - Transportation
  - Electricity usage (indirect GHG emissions)
- **Inventory of GHG-emitting equipment/processes**
- **Begin to gather data**
  - Records of historic operations
  - Changes, trends

# Determine Your Boundary



- **WBCSD / WRI GHG Accounting Protocol defines associated emissions in terms of GHGs**

# GHG Emissions Along Product Life Cycle



# Carbon Footprinting is Not So Easy!

- **Data Quality is Job 1**

- Collect plant data, such as electricity and fuel usage, transportation, process data
- Be very careful(!) to check on quality of data – a lot of data is misunderstood, not applicable, or incomplete
- Firm may invest a lot based on results; worth spending extra resources to check the accuracy!

# Computing GHG Emissions

- **GHG Emission Factors – many sources now exist**
  - More manufacturers are becoming aware and test and publicize their factors
  - WRI/WBCSD “GHG Protocol” is internationally accepted and contains more developed, equipment-specific emission factors
- **Normalize emissions to operational or output data to give it relevancy.**
  - Examples, lb CO<sub>2</sub>/ton chemical produced; lb/widget; lb/kW-h output; lb/\$ revenue; lb/sq. ft. of space
  - Enables easier comparison with other similar facilities
- **Link carbon emissions inventories from plant to plant to determine a corporate inventory and compare comparable units.**

# GHG Data Management

- **While many initial inventories are done on Excel, consider specialized GHG software as your program grows and becomes more complex.**
- **3 phases:**
  - Strategic planning and design
    - Identify goals, functional requirements
  - Software selection
    - Identify commercially-available software to meet your goals and can interact with existing systems
  - Implementation
    - Transfer data, integrate into existing systems, maintenance

# Verify Accuracy of Emissions Inventory

- **There is potentially a lot of money riding on the results of your GHG emissions inventory.**
- **Firm needs to ensure that the emissions inventory is:**
  - Relevant: Ensure that inventory reflects actual operations of each piece of equipment at each facility and is flexible enough to respond to change.
  - Completeness: The inventory reflects all operating scenarios involving all equipment and activities.
  - Consistency: Use consistent and, at least, reasonably thorough, transparent methods to develop emission rates.
- **Firm needs to devote resources to verify its accuracy, minimize uncertainties, and assure its integrity**
- **Third party verification**

# How to Reduce Your Carbon Footprint

## Energy Reduction Assessment

- **A great return on your investment!**
- **Evaluate where the facility uses energy**
- **Collect data**
- **Determine largest energy uses**
- **Prioritize potential energy and \$\$\$ savings opportunities**
- **Rank order of projects (i.e., low hanging fruit to high hanging fruit)**
- **Quantify energy and \$\$\$ savings and additional environmental benefits in terms of GHG reductions**
- **And green buildings for long-term savings – to be discussed!**

# External GHG Emission Reduction Projects

- Given the global nature of GHG emissions, investing resources in GHG reductions - even outside your facility - will make a difference. **“Offsets”**
- Example: the first CDM project was a German energy firm that built a hydroelectric plant in a rural, undeveloped portion of Guatemala. It was cheaper to build overseas than to make upgrades at their own plants.
- Example: a US firm wanting to be “carbon neutral” looked for local projects to reduce GHG emissions. They paid half the cost to the local school system to replace coal-fired boilers with modern gas-fired units.
  - The effort helped achieve their GHG offset goals and resulted in wonderful publicity.

# What To Do Once GHG Emissions Are Reduced

- **Register as certifiably reducing GHG emissions:**
  - USDOE “1605b” program
  - USEPA Climate Leaders Program
  - The Climate Registry
- **Opportunity to obtain sellable credits on the voluntary market? 3<sup>rd</sup> party verification**
- **Document your success in reducing GHG emissions on your website, in your Annual Statement and other financial and legal documents**

# Why Should a Firm Invest in Carbon Management?

- **Reduce exposure to future rules and carbon trading**
- **Direct economic benefits of GHG reductions**
  - Can be a moneymaker
- **Carbon management should be part of overall planning**
- **Integrate GHG metrics into EH&S and other reporting**
- **Respond to stakeholders**
- **Social benefits of doing the “right” thing before being required to do so**
- **Carbon management as VALUE, not LIABILITY, as pollution is normally considered.**

**“The best way to predict the future is to invent it.”**

**-Alan Kay**

**Thank you. Questions?**

**Marc Karell, P.E.**

**ERM, Inc.**

**235 Park Ave. South, 4<sup>th</sup> Floor**

**New York, NY 10003**

**212-447-1902**

**Marc.Karell@ERM.com**