

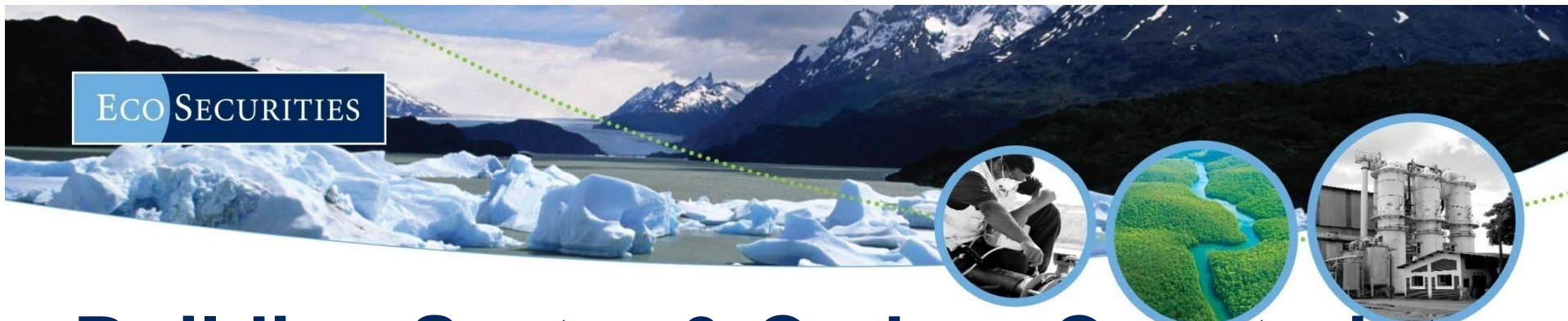


# Climate Change and Carbon Management in the Building Industry

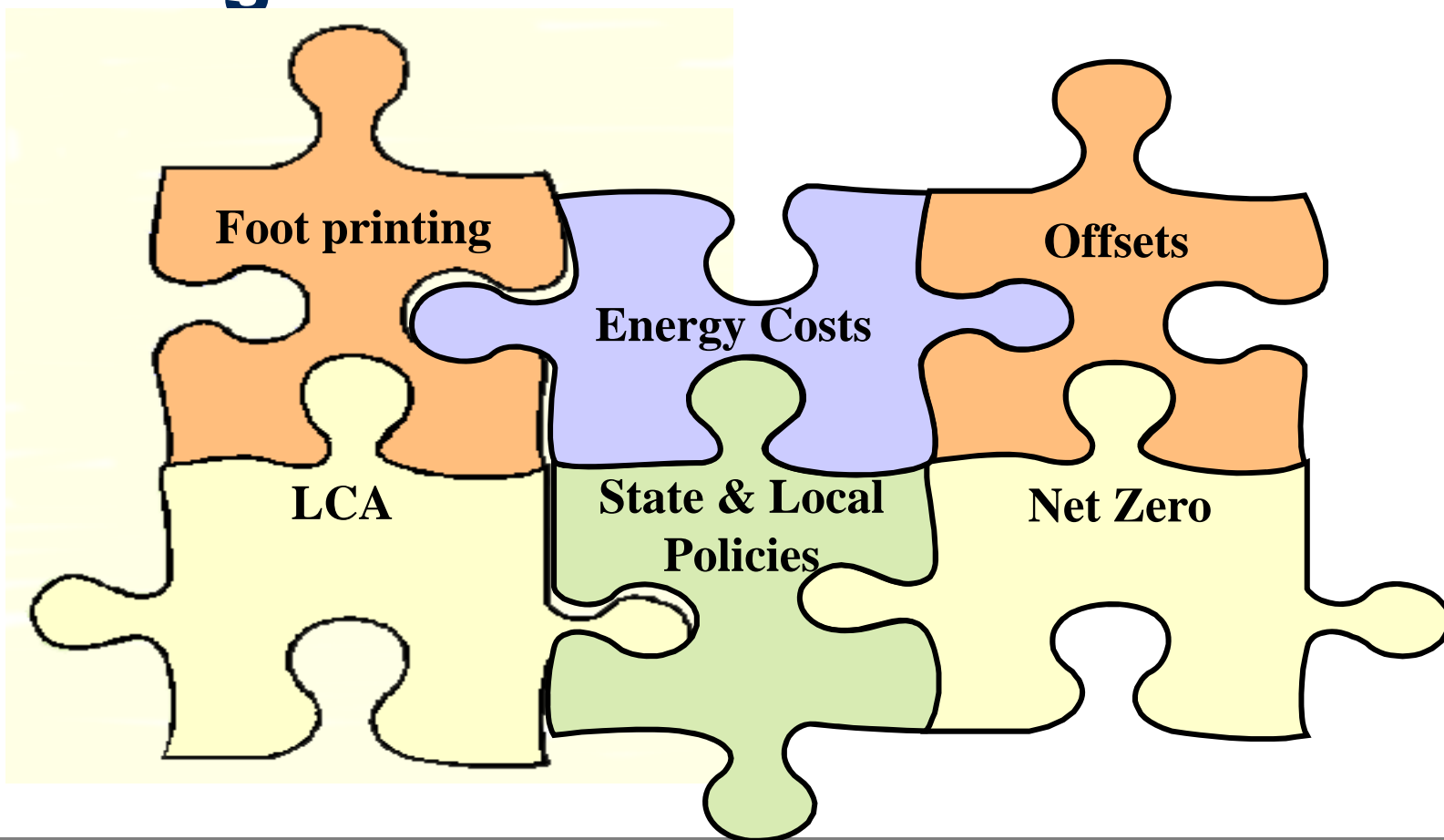
EcoSecurities Group plc

Global Consulting Services

- **Bill Jones, Ph.D.**
  - Principal Consultant
  - Global Consulting Services
    - EcoSecurities
- Living Future 08 Conference  
Vancouver, BC  
Canada
- April 18, 2008



# Building Sector & Carbon Constraints





# Presentation Overview

1. EcoSecurities – A Short Overview
2. Climate Change Action: Political Will
3. Buildings Matter To Climate Change
4. Measuring Carbon in Buildings
5. Buildings and Atmospheric Stabilization
6. Conclusions

# Who We Are & What We Do

EcoSecurities: leading company (since 1997) in sourcing, developing, and trading carbon credits in global and U.S. carbon trading markets, and in providing consulting services to governments, businesses, industry associations, and NGOs.

## ▪ OFFSET MARKET

### • **International Market**

- 400+ CDM projects spanning 26 countries, using 17 technologies
- Totalling >178 million CERs (1 CER = 1 metric ton CO<sub>2</sub> equivalent)
- VER Mkt.
- Projects: landfill, biomass, hydro, fuel switching, CERs

### • **US Market**

- 3.7 MMTCO<sub>2</sub>e under contract through 2012
- Projects: landfill, biomass, animal waste, energy efficiency

## CONSULTING SERVICES

### • **Public Clients**

- Policy, planning, regulatory and program assessment and development,
- Modeling, price forecasting services - GHG reduction programs and offset trading market

### • **Private Clients**

- Corporate risk planning,
- Footprinting Inventory & assessment support & mitigation plans
- Carbon management Strategies
- Market entry positioning, branding,
- Price forecasting, modeling



# A Local Presence in a Global Market





## Some GCS Firsts

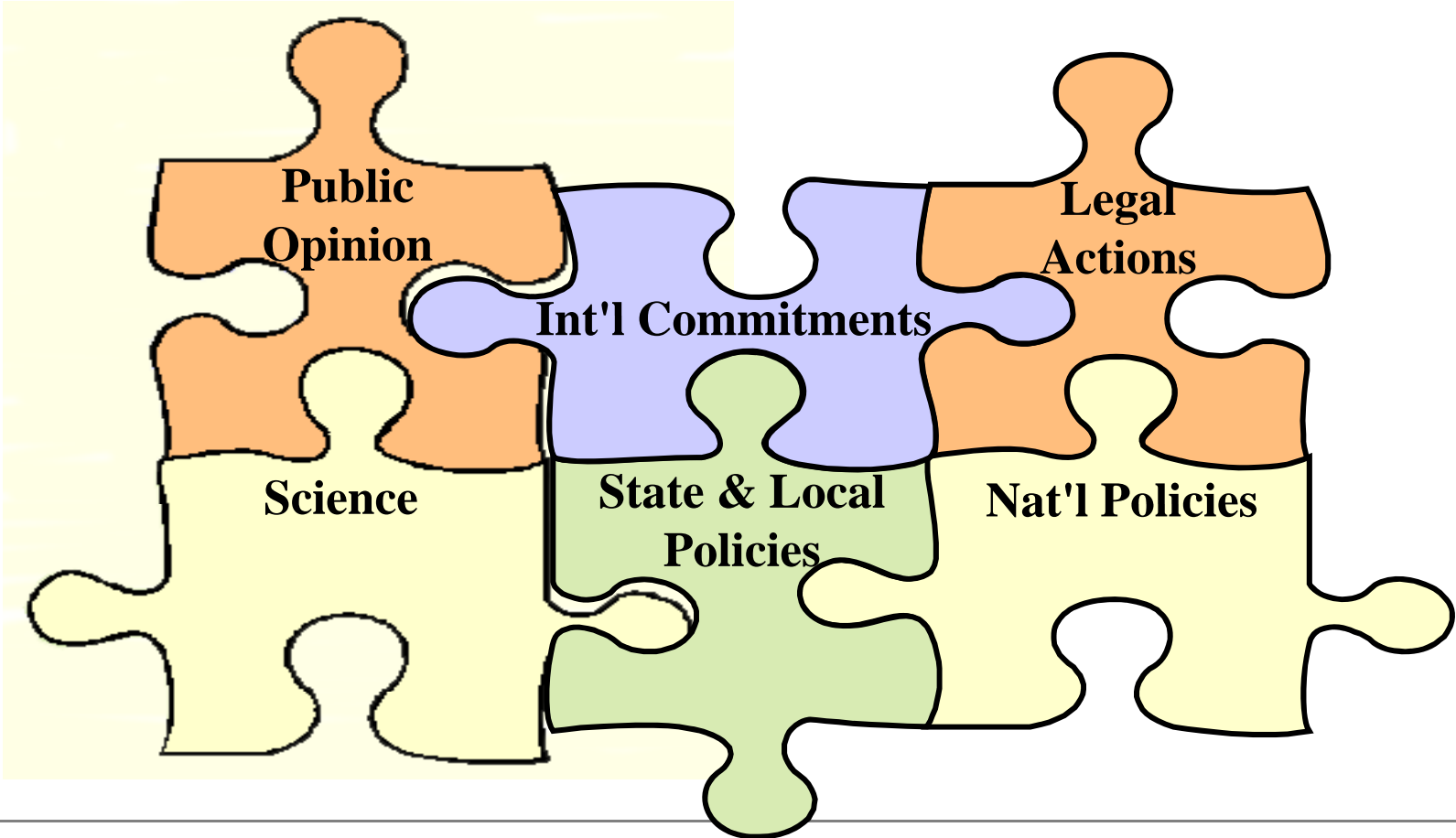
- Took Stonyfield Farm Carbon Neutral With Custom Portfolio
- Got Shaklee Certified as Climate Neutral Through CNN
- Developed and Assembled First Certified Offset Portfolio
- Supported Design of First Climate Neutral Electricity Product
- Developed Offset Scoring System for Voluntary Market
- Advised Several Companies on Climate Neutral Product Programs
- Rated Retail Offset Providers for Clean Air Cool Planet
- Validating Climate Neutral Product Line
- Extensively Published on Voluntary Market Issues
- Recognized for Work on Quality in Offset Markets



## 2. Climate Change: Political Will Challenge



# Will The Pieces Fall Into Place?





# Scenario 1 – Political Stalemate?

- Major Political and Economic Challenges
- Could Challenges Lead to Collapse of Int'l and Domestic Policy Momentum, Markets?
  - Carbon has value, but minimal (\$0-10/ton)
  - Absent a scientific reversal, very hard to see
  - Broad public support for action on this issue
- President Bush CC Statement (4/16/08)
- The Odds: Low
- Note: Scenario Subject to Sudden Reversal



## Scenario 2 – Political Realism?

- Issue is Here to Stay
  - Numerous policies and measures pursued
- Will Affect Many Sectors in Material Ways
  - At cost of : \$10-40/ton CO<sub>2</sub>
- Canada: *Turning the Corner: An Action Plan to Reduce Greenhouse Gases and Air Pollution & Updates (March 2008)*; Alberta Regulatory System; 9 out of 10 provinces climate change plans (except Prince Edward Island), Vancouver, BC.
- US: Lieberman-Warner S. 2191, RGGI, WCI, MGGRA, Ca.
- But Don't Achieve CO<sub>2</sub> Stabilization
- The Odds: High
- Note: Scenario Subject to Sudden Reversal





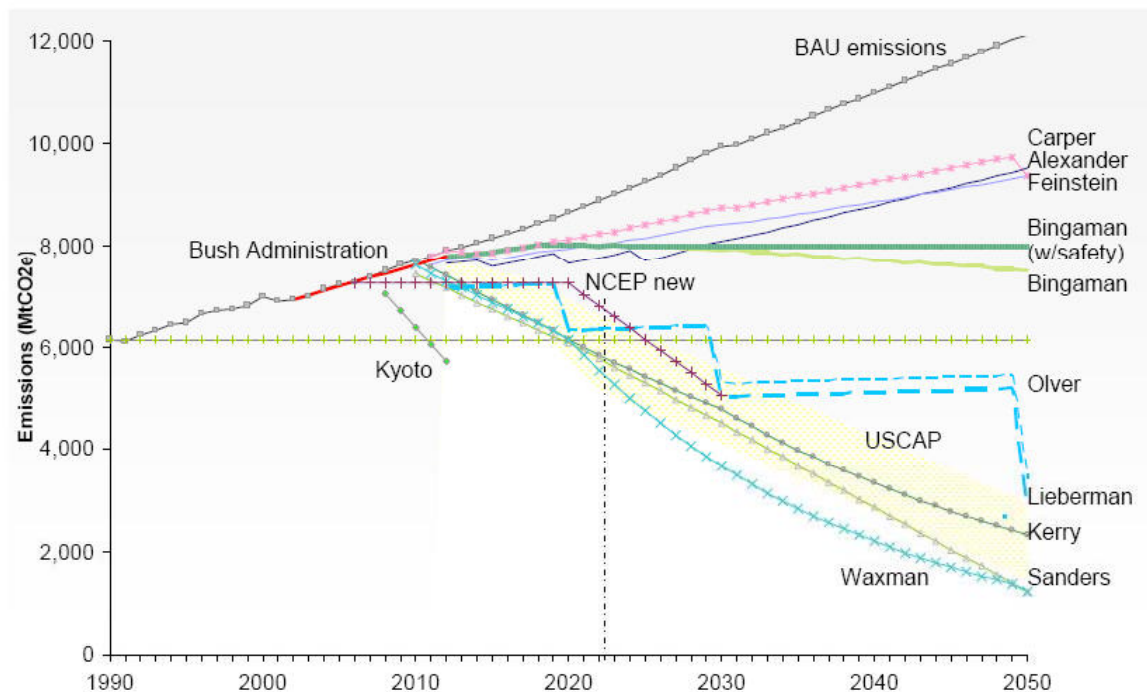
## Scenario 3 – Atmospheric Stabilization?

- We Develop Political Will to Tackle Climate Change
  - Aggressive emissions reductions
  - Aggressive technology development
  - Aggressive reliance on GHG markets
- Non-Market Behavior Change
  - Use Less, Demand Less (non-market)
  - Reduce, Reuse, Recycle
- Living Buildings Challenge? AIA Net Zero 2030?
- Would Have Dramatic Implications
  - At cost of: \$40-100/ton CO<sub>2</sub>
- The Odds: Low
- Note: Scenario Less Subject to Sudden Reversal



# Proposed Federal GHG Bills

Comparison of US 2007 Climate Change Bills – Emissions versus Targets



Source: New Carbon Finance. Notes: BAU = business as usual greenhouse gas emissions; Projections based on EIA and BEA data, and NEF extrapolations; NCEP new = National Commission on Energy Policy's revised recommended targets; USCAP = US Climate Action Partnership's recommended targets.



### 3. Buildings Matter to Climate Change

# Why Buildings Matter to Climate?

- Buildings Account for Over 65% of U.S. Electricity Use
  - Buildings Account for Over 35% of U.S. Energy Use
  - Buildings Account for Over 30% of U.S. GHG Emissions
  - Indirect Implications of Sector Even Greater
- 
- We're Seeing It in Green Building Codes
  - We're Seeing it in Mayoral Climate Protection Agreement
  - We're seeing it in local carbon tax proposals
  - We're Seeing it in AIA's Net-Zero Goal, Living Buildings Challenge, NBI, etc.

# Efficiency as a Climate Strategy

- Yes, They're Closely Linked
- But Energy Efficiency By Itself Isn't a Climate Strategy
  - Look at California's per capita energy use vs. GHG needs
  - Some energy programs will increase GHG emissions (off-peak)
  - Like everything else, energy efficiency part of a larger puzzle
  - Efficiency doesn't address future carbon value
  - Doesn't address embedded/embodied carbon
  - Is a very limited (and self-serving?) sustainability story to stakeholders
  - Doesn't begin to respond to climate neutrality push and branding opportunities
  - Increasing focus on comprehensive GHG footprinting

## Beyond Energy Efficiency and the Building Envelope

- Carbon emissions go beyond conventional energy consumption: building's life cycle, from design, construction, O&M, to end-of-life disposal.
- LCA: “embedded” carbon emissions (e.g., design, construction, materials, and labor to build structure), end-of-life disposal (unknown and vague concept) as well as the emissions associated with operation and maintenance.
- LCA can be an expensive burden for a client to undertake with undetermined value.
- Realistic approach: steps that make sense based on Client goals.
  - Comprehensive GHG inventory: direct & indirect, upstream & downstream supply chain emissions identification & quantification.
  - Climate neutrality: corporate level or level for a specific product or service such as a building or aspect of a building.
  - Branding support around sustainability & climate change.

# Why Climate Matters to Bldg Sector?

- Sector Wants to Offer a Green Story
  - For tenants, increasingly looking for a green story
  - For regulators, increasingly looking for industry action
- Sector Looking at Energy Costs
  - \$50/ton CO<sub>2</sub>e = 5 cents/kWh for coal, 2.5 for gas
  - If anticipated in building design, could make a big difference in construction decision-making
- Sector Looking at Public Policy
  - Land use planning, building codes, density, and related policies
  - Enhanced incentives for efficiency, renewables, location, loans
  - Set asides and participation in carbon cap-and-trade
- Sector Starting to Consider Negative Public Perception?
- Sector Recognizing Physical Climate Risk



## 4. Measuring Carbon in Buildings



# A Footprinting Primer

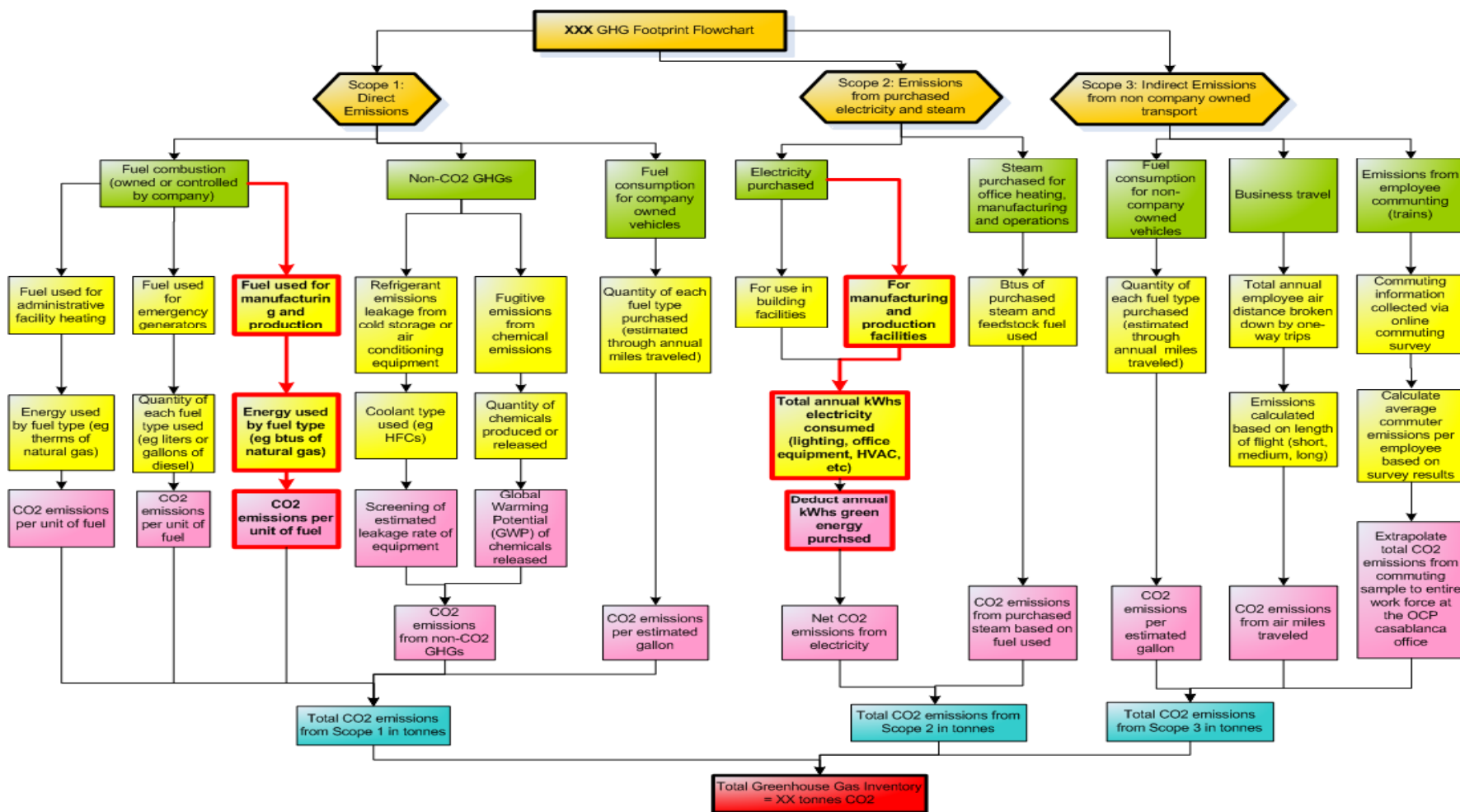
- The Scopes of a Footprint:
  - Scope 1: Direct GHG emissions from sources owned or controlled by the company (e.g. fossil fuel combustion, transport fleets)
  - Scope 2: GHG emissions from purchased energy
  - Scope 3: Other indirect GHG emissions – production and transport of raw materials and finished product, business travel, employee travel, many other potential emissions
- You Have to Specify Your Scope Appropriately to do a Credible Footprint
- We Have a Suite of Standardized Footprinting Products



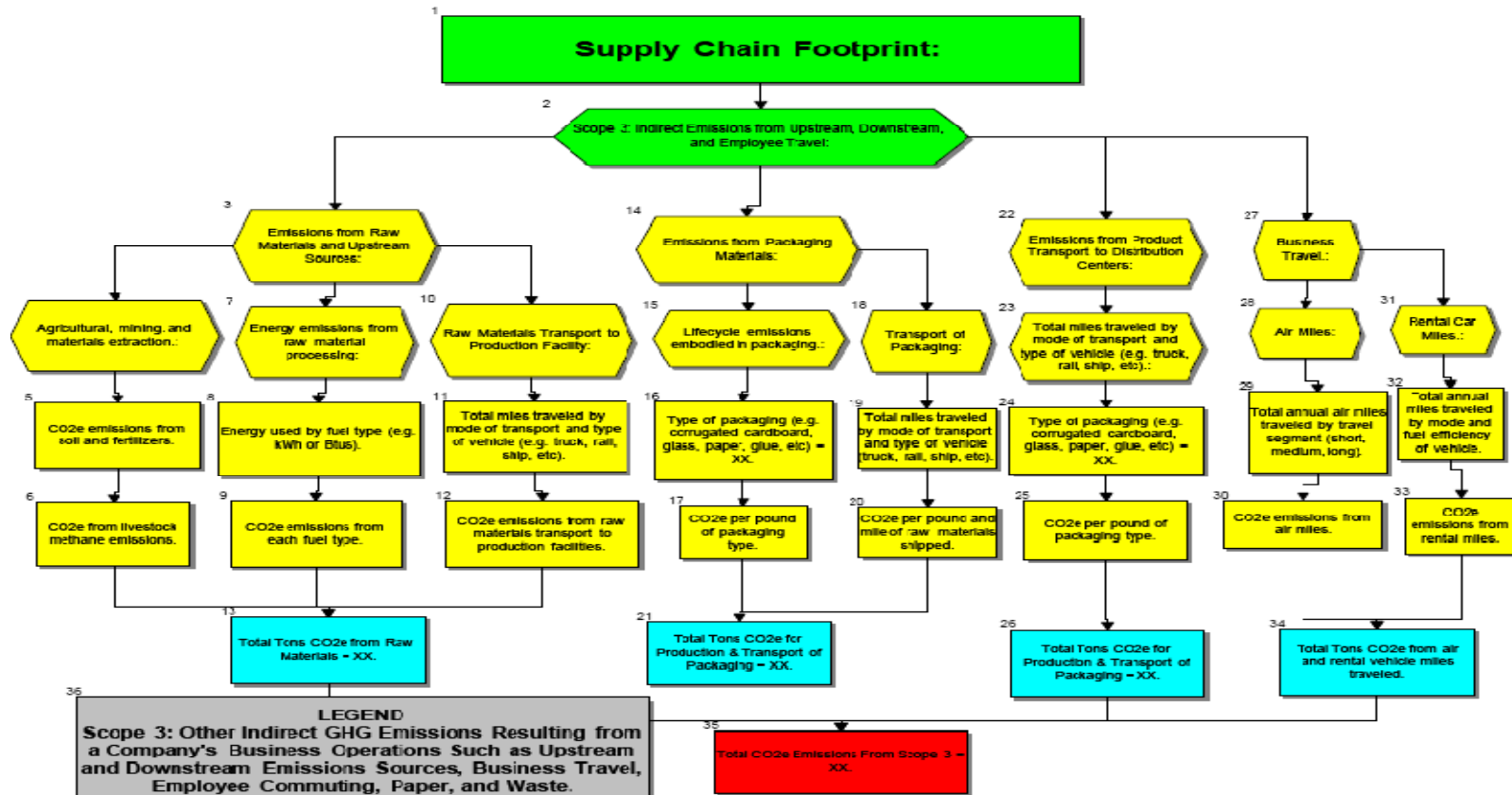
# Understanding GHG Inventory Standards

- Corporate GHG Inventory standards, supply chain footprints, LCAs
- WRI/WBCSD GHG Protocol
- ISO 14064
- Public registries: CCAR, Climate Leaders, The Climate Registry
- UK-based Carbon Trust pilot methodology for supply chain footprints  
( under consideration for British Standards Association).
- LCA approaches: cradle to cradle, cradle to gate, gate to gate, etc.

# GHG Inventory – sample process map



# Scope 3 – Sample Supply Chain Process Map





# Determining Mitigation Options

- Internal mitigation vs external mitigation
- Driven by the company's GHG inventory, objectives, risks, budget, etc
- GHG Offsets: evolving standards both in voluntary and compliance carbon markets
- CDM, Gold Standard & VCS
- International agreement for carbon offset standards in voluntary market still in process
- Greatest distinction between low-quality and high-quality offsets: Additionality



## Carbon offsets & The Offset Market – Potential Opportunities

- Opportunities for buildings participate in the offset market ?
- Carbon neutrality gaining momentum. Buildings not yet carbon neutral through internal operations.
- Seller: some opportunities for builders and owners to generate credits to be sold into the carbon market (usually small CO<sub>2</sub> reductions & unclear what is driving emission reductions)
- Buyer: more realistic to buy credits to achieve mitigation goals.
  - Buying carbon offsets as part of the LEED point system.
  - Buying carbon offsets as a way of claiming carbon neutrality.
  - Key factors in offset market participation: purchase or create high quality offsets.
  - Key also for companies participating in the offset market not make inappropriate climate neutrality claims.

# An Offsets/Neutrality Primer

- Neutrality Is an Increasingly Attractive Branding Tool
- Neutrality Is More Than Buying Offsets
  - The right footprint
  - The right reductions strategy
  - The right offsets
- Not All Offsets Are Created Equal
  - Particularly offsets that aren't offsets (RECs)
- Greenwashing Charge Worse Than Doing Nothing
- Quality Matters, and Will Matter More



## 5. Buildings and Atmospheric Stabilization

# What is the Role of Buildings?

- Can We Portray Carbon as Material?
  - Factoring In Future Cost of Carbon into Building Decisions?
    - Is 2.5 – 5.0 cents a kWh a lot for client purposes?
    - For typical 25,000 ft<sup>2</sup> building, \$50/ton is \$9000/year
- Can We Portray The Full Picture As The Right One?
  - Incorporating Lifecycle Analysis?
    - Flax insulation vs. paper wool (1.7 vs. .6 kg CO<sub>2</sub>e/kg product)
    - Wood vs. Steel (.5 vs. 1.8 kg CO<sub>2</sub>e/kg product)
- Can We Portray Consumer/Tenant Sentiment As Key Driver?
  - Responding to Footprinting Calls?
    - Comprehensive carbon footprinting, ecological footprinting



## Building Role Continued...

- Can We Turn Net Zero to Advantage?
  - Pushing the broader view?
  - Offering climate neutrality /w reductions, quality VERs
- Can We Use Carbon Markets to Advantage?
  - Offering entry into voluntary carbon market w/ reductions?
- Can We Make the Climate Story Important to Clients?
  - Helping tell stakeholders a much better climate story?
  - A more coherent approach to “sustainability”?
  - A new efficiency/climate strategy/neutralty brand?
- What Have We Missed?



## 6. Conclusions

# Conclusions

- A Carbon Constrained World Would Change the Building Sector – And it Could be **Dramatic!**
- Still Very Difficult to Get Companies to Act Accordingly, but the Environment is Clearly Changing
- There’s the “Risk Club,” and the “Branding Carrot”
- Are There Products and Services That Respond to New Needs?
- Can We Create New Needs in the Market?

The top of the slide features a wide banner image. On the left, a dark blue box contains the text 'ECO SECURITIES' in white. The background of the banner shows a landscape with snow-capped mountains, a body of water, and icebergs. A dotted green line runs across the banner. On the right side, there are three circular inset images: the first shows two people looking at a document, the second shows a lush green landscape with a winding river, and the third shows an industrial facility with large storage tanks.

ECO SECURITIES

## For More Information

- Bill Jones, Ph.D.
- Principal Consultant, Global Consulting Services
- [Bill.jones@ecosecurities.com](mailto:Bill.jones@ecosecurities.com)
  
- Office: 503-231-2727
- Mobile: 503-869-6407
- [www.ecosecurities.com](http://www.ecosecurities.com)