



Corrugated Packaging Alliance Life-cycle Assessment (LCA) Webinar



March 17, 2010

11 am EDST/ 8 am PDST





Welcome



Dwight Schmidt, CPA/FBA

- Welcome participants
- WebEx orientation
- Explain CPA's mission and charter areas
- Purpose of today's webinar
- Review agenda





Corrugated Packaging Alliance



Mission

To foster growth and profitability of corrugated in applications where it can be demonstrated, based on credible and persuasive evidence, that corrugated should be the packaging material of choice.

To provide a coordinated industry forum that effectively acts on competing materials matters that could not be accomplished by individual members.





Corrugated Packaging Alliance



Sponsors:

- American Forest & Paper Association
- Association of Independent Corrugated Converters
- Fibre Box Association



Charter Areas:

1. Competing Materials
2. Wax Alternatives
3. RFID
4. Sustainability





Webinar Goals

Timing is driven by the release of a key piece of credible sustainability evidence – an expert reviewed, cradle-to cradle life cycle assessment of corrugated products



- Discover what an LCA is, why we did it, what we found out, what we'll do with the results
- Disclose how the report fits with other available information and how together they deliver the industry's sustainability story
- Explore how the industry's story complements your company's sustainability marketing plan and what you can and should do with the results
- Answer your questions regarding the industry's campaign and any specifics as presented





Corrugated Packaging Alliance



Agenda:

- Antitrust reminder – David Simon, Foley & Lardner, CPA counsel
- What did we hope to accomplish with the LCA – Cathy Foley, AF&PA
- Overview of the LCA Study – Brian O’Banion, FBA
- What should we do with the results – Steve Young, AICC
- Available Materials & Tools – Rachel Kenyon, FBA
- Q&A – Dwight Schmidt, moderator





LCA Study Overview



Cathy Foley

Group Vice President

American Forest & Paper Association





LCA Study Overview



- Why did we do the study?
- Who were our stakeholders and what were their expectations?
- What did we hope to accomplish?





Background

- Increasing pressure from product manufacturers and consumer retail markets to select environmentally preferable packaging options led to 1st ever corrugated industry LCA
- The aim of the study is to generate high-quality, up-to-date data on the environmental impacts of corrugated packaging
- The study evaluates the performance of an industry average corrugated container throughout its entire life cycle, “cradle-to-cradle”
- LCA includes data from 56 mills (95%) of U.S. production and 162 conversion facilities (45%)





Audiences



To whom will this LCA be directed?

- Corrugated Packaging Alliance (internal)
- Member CEOs, top management
- All industry members



Who are the potential external stakeholders?

- Wal-Mart (as a representative retailer), CPGs
- COMPASS, U.S. LCI data base
- Sustainable Packaging Coalition/Green Blue, EPA and other Non-government Organizations (NGOs)
- International corrugated community (ICCA, FEFCO)
- Academics, LCA practitioners, software providers





Goals

- Construct a core LCI dataset for corrugated packaging to enable benchmarking
- Respond to marketplace requests
- Identify relevant impact indicators
- Conform to ISO 14040 series for comparisons
- Create a model that can be used for future studies





The LCA Study

Brian O'Banion
Vice President
Fibre Box Association





The LCA Study



- How was the study structured?
- What were the key findings?

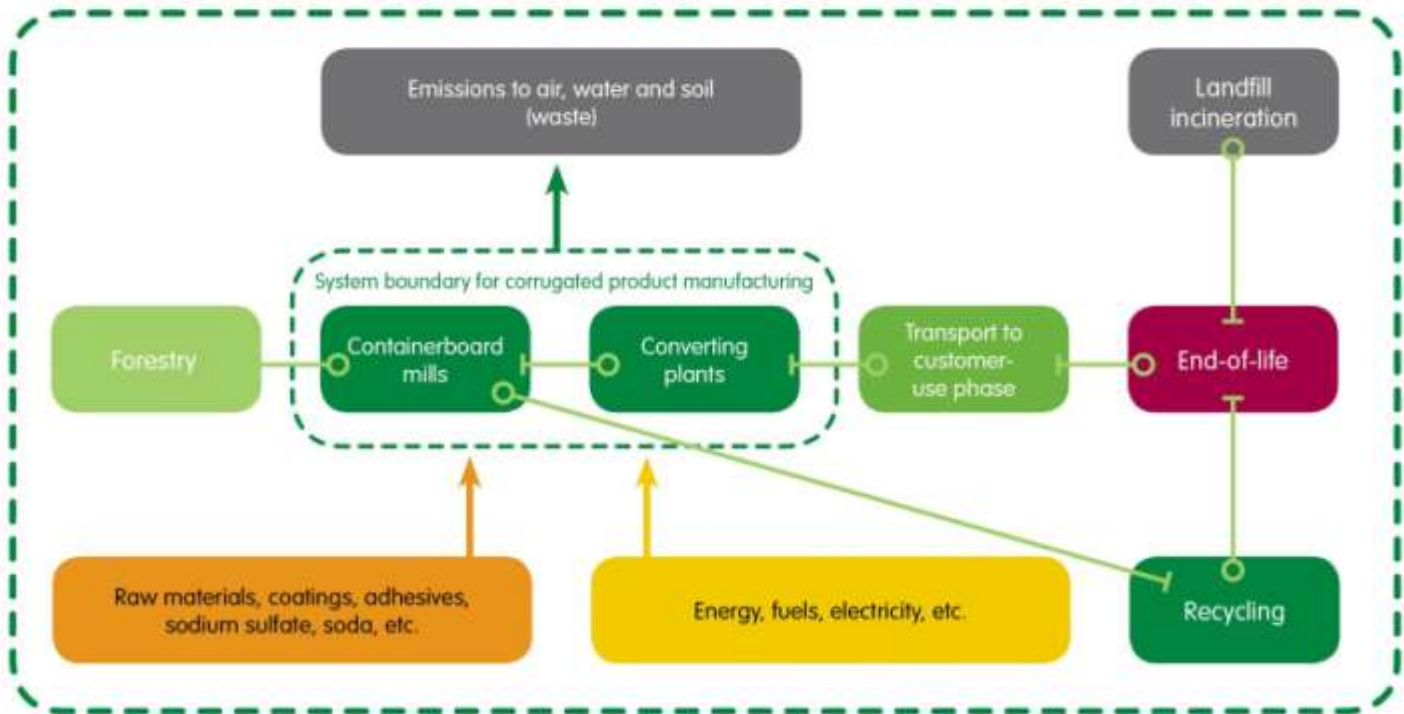




Scope

Figure 1.

System Scope and Life-cycle Phases for U.S. Average Corrugated Product
Summary of System Boundaries





Data Collection

- Time coverage
 - 2006 for primary data, latest/best available for proxy data
- Technology coverage
 - Representative industry technology mix within process flow model specifications
- Geographical coverage (production)
 - U.S.
- Raw and Process Materials
 - By existing studies, available proxy data sets where possible
- Fuels and Energy
 - Consumptions: Industry averages distinguished by fuel type
 - Sources: Ideally, regional grid mixes based on location, or else U.S. averages
 - Distinguish renewables from fossil
 - Include greenhouse gas information: direct vs. indirect vs. biomass





Critical Review Panel



LCA Expert Reviewers: (reviewed scope and study drafts)

- Mr. Jamie Meil – Athena Institute / LCA Expertise, Chair
- Dr. Lindita Bushi – Athena Institute
- Dr. Michael Deru – NREL / US LCI Data Base
- Dr. Jim Wilson – Oregon State / CORRIM
- Ms. Martha Stevenson – formerly with GreenBlue / Sustainable Packaging Coalition





Product Systems



Functional Unit:

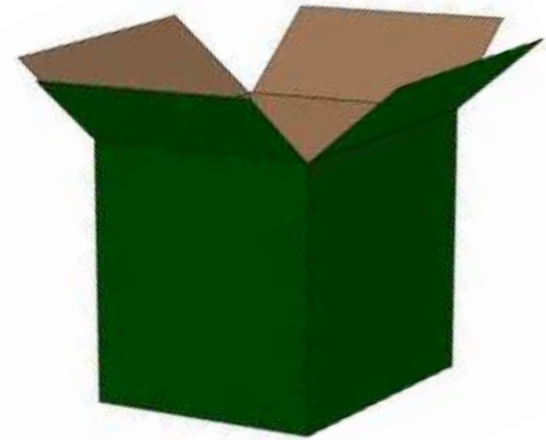
- Per kilogram of U.S. Industry Average Corrugated Product shipped
(Shipped = saleable)





RSC- ECT 32 = 1 Kilo

- Style: RSC
- Inside Dimensions:
20 x 18 x 20
- Board Weight:
35#/26#C/35#
- Square Feet: 20.47
- Basis Weight: 108.18#/msf
- Box Weight: 2.2 lbs/ 1 kg





24-12oz Long Neck Bottles = .35 Kg

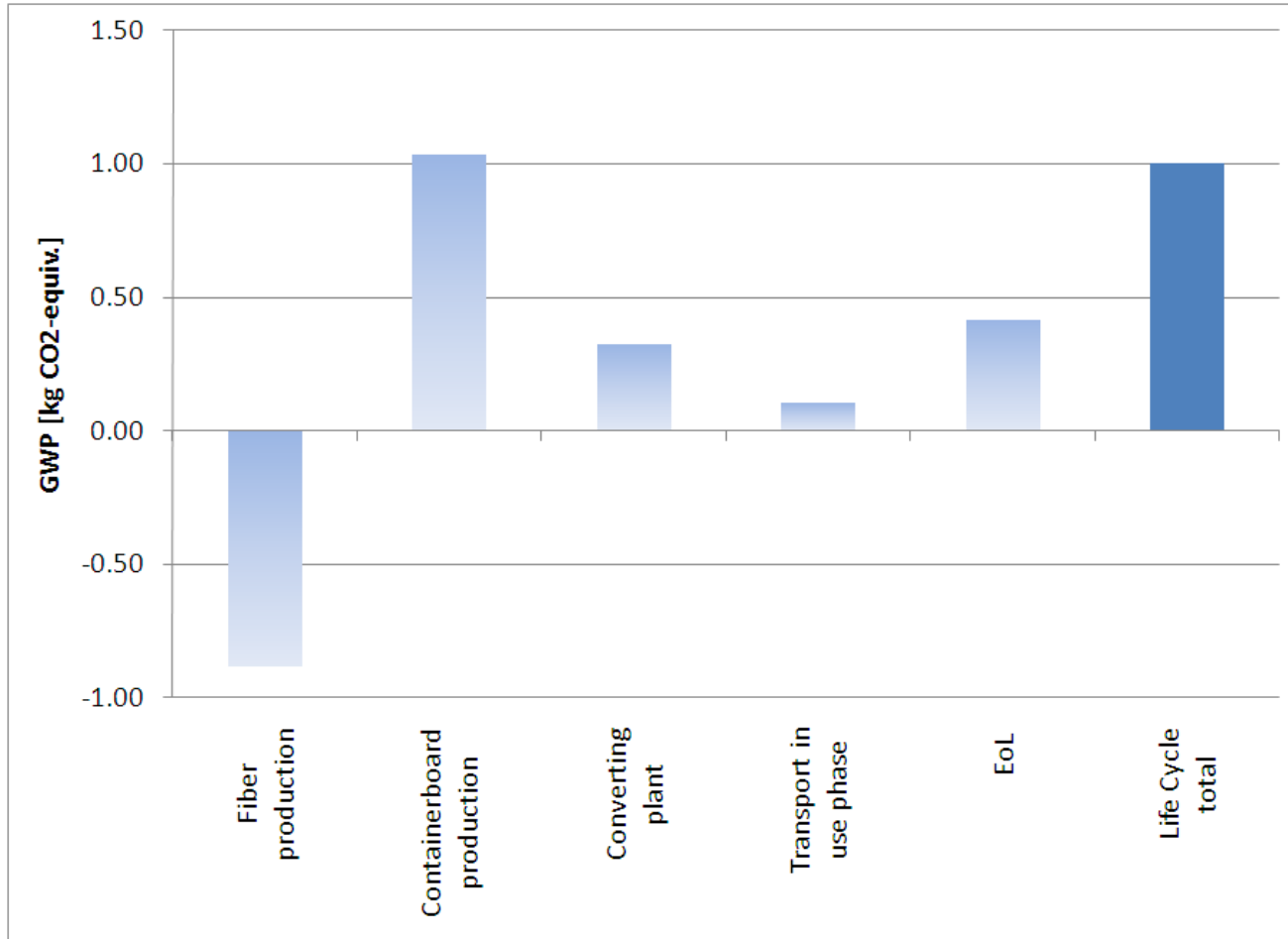


- Style: die cut RSC
- ID Dimensions:
15-5/8 x 10-7/16 x 9
- Board Weight:
35#/26#B/35#
- Square Feet: 6.93
- Basis Weight: 105.3#/msf
- Box Weight: .77 lbs/ .35 kg

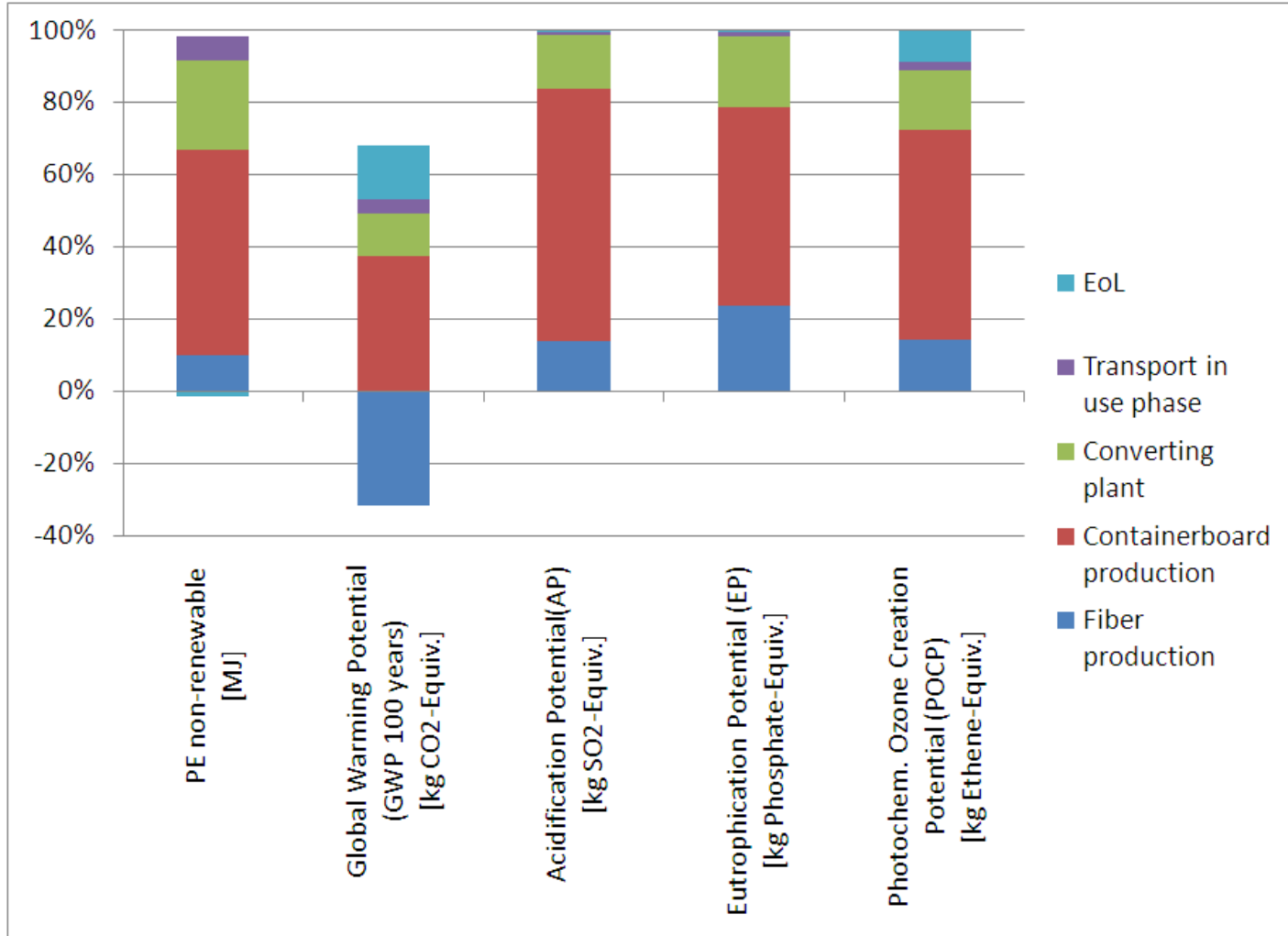




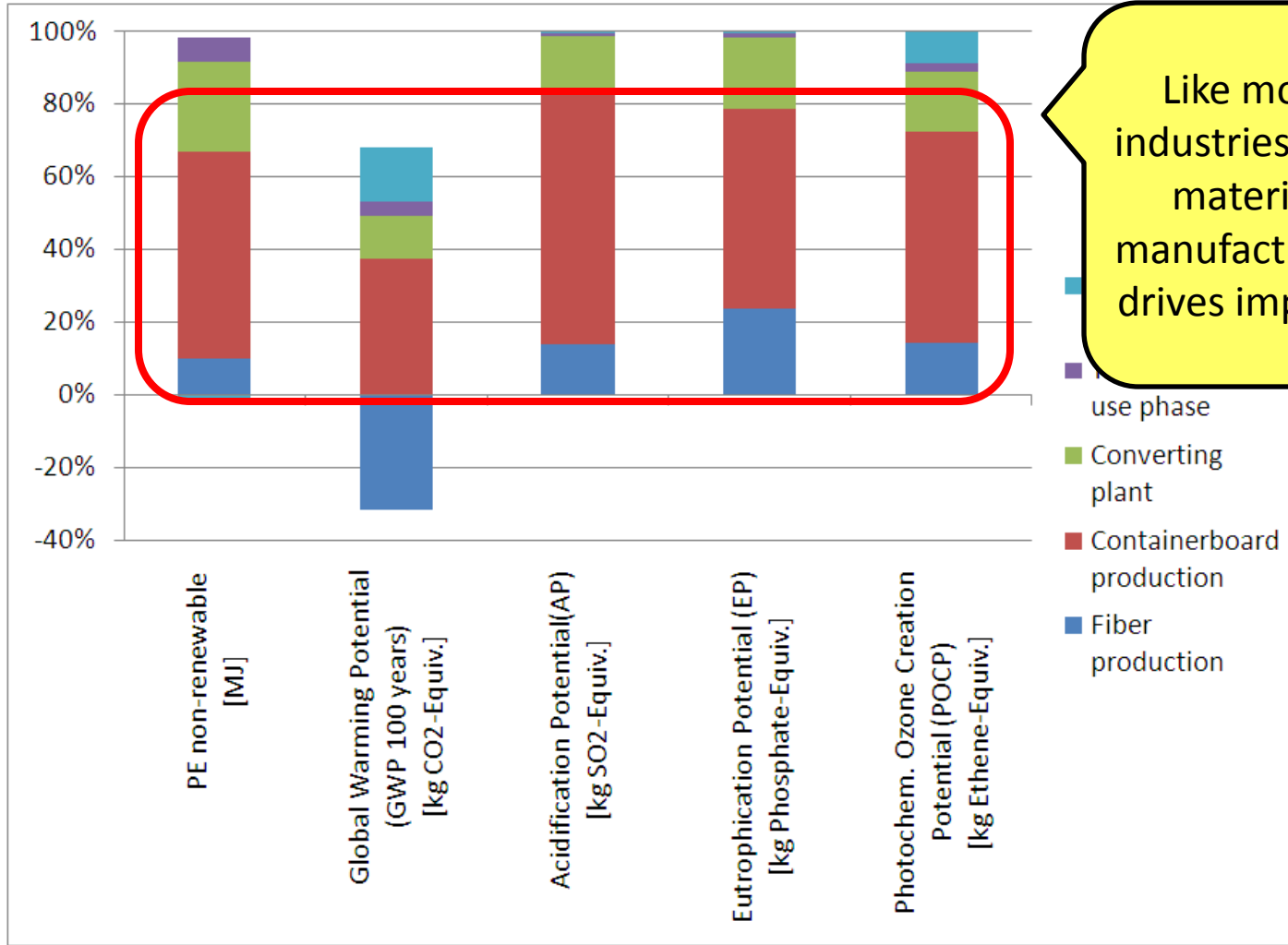
Global Warming Potential (GWP)



Life-cycle Stage Contribution to Impact Categories



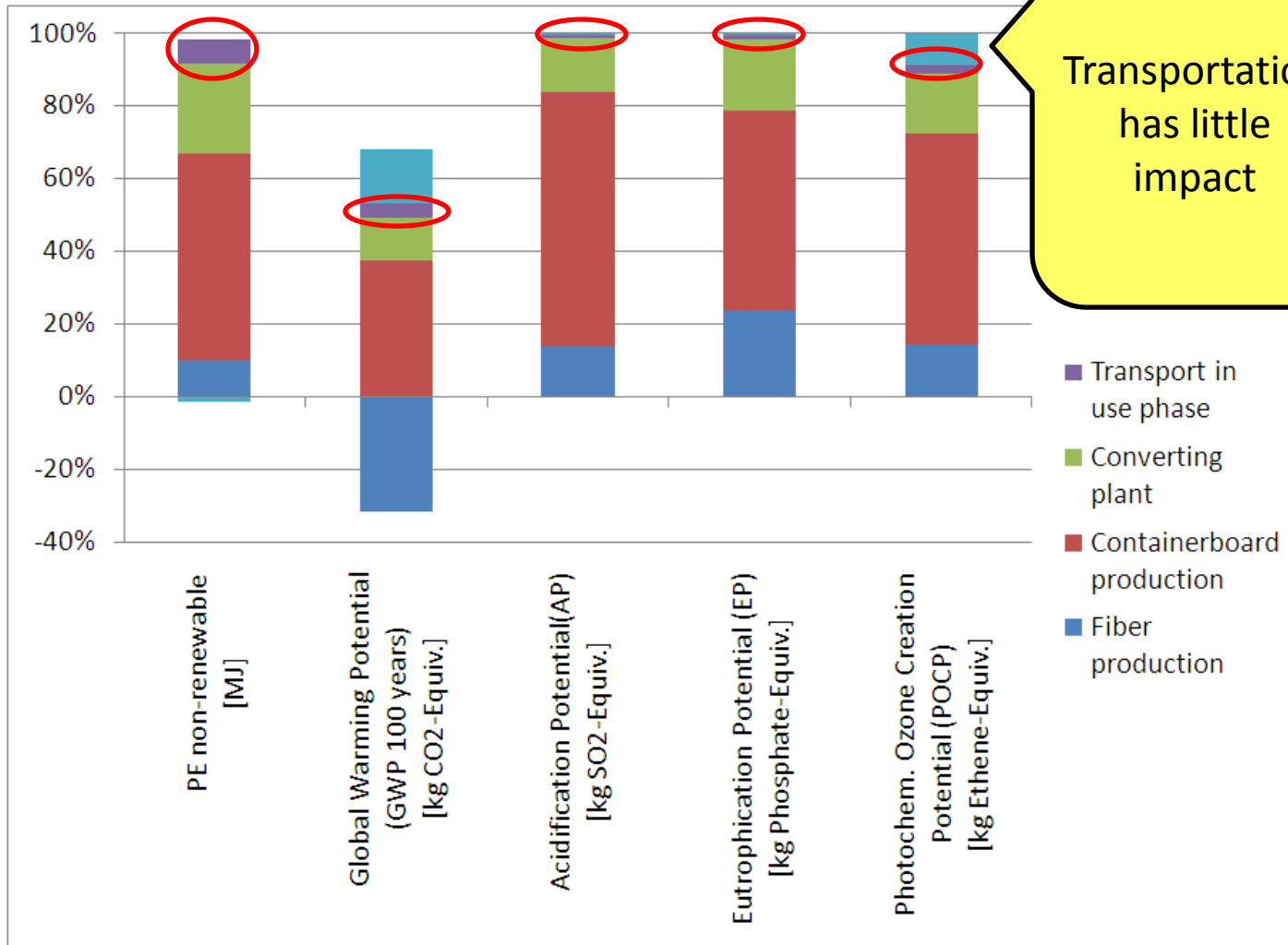
Life-cycle Stage Contribution to Impact Categories



Like most industries, raw material manufacturing drives impacts



Life-cycle Stage Contribution to Impact Categories

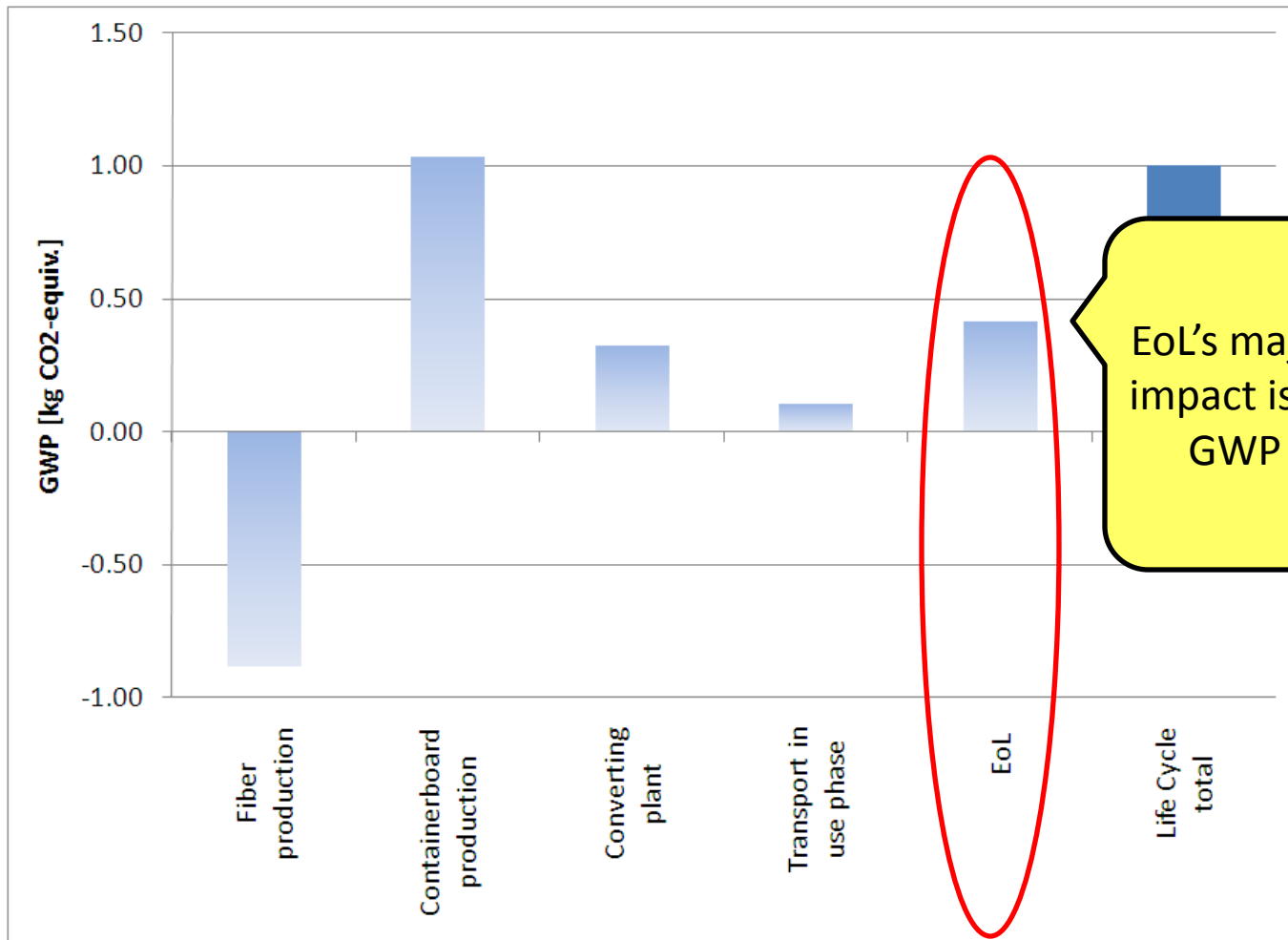


Transportation has little impact



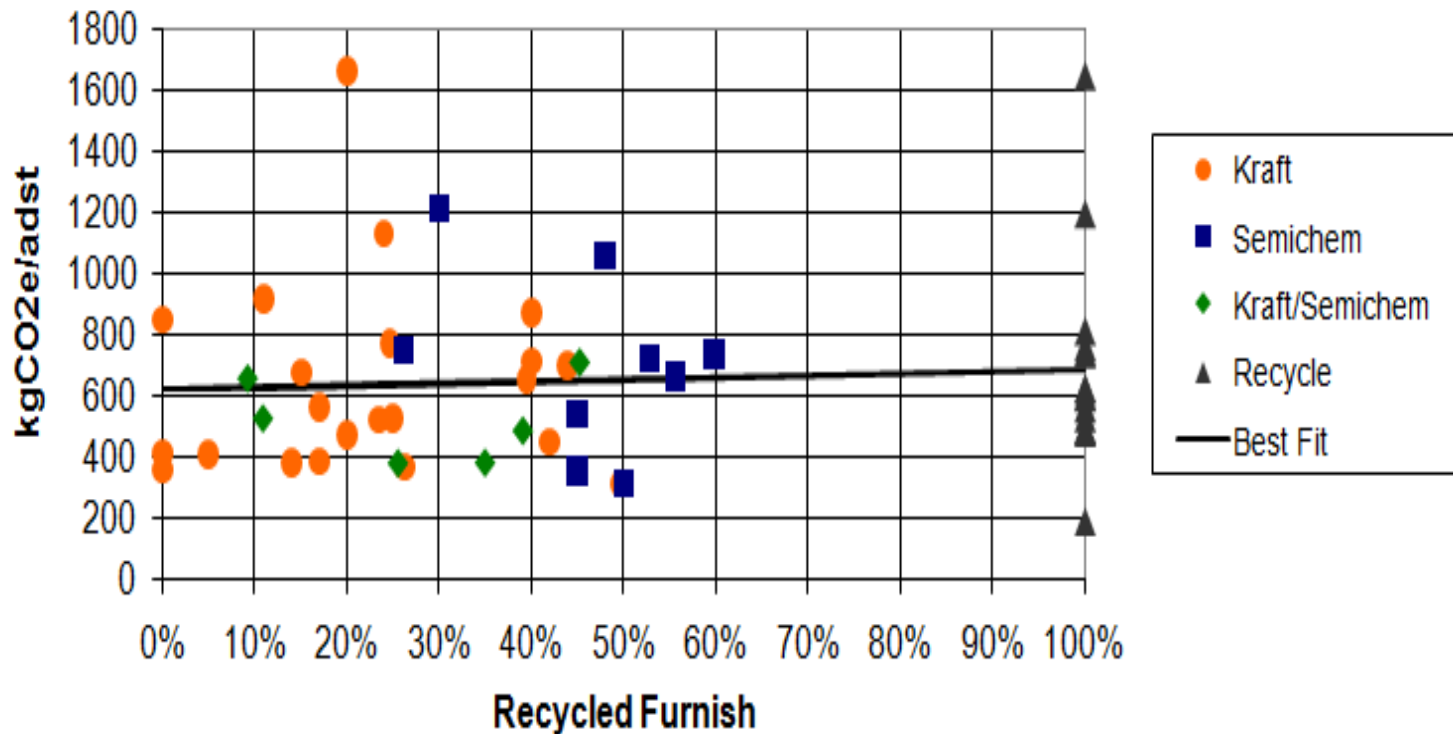


Global Warming Potential (GWP)





GHG from Fossil Fuel Combustion On Site & Purchased Electrical and Steam Energy (Scope 1 & 2)



There is no statistically significant relationship between recycled content and GWP on an industry-wide basis





Next Steps

Steve Young
President

Association of Independent
Corrugated Converters (AICC)





What are we going to do with the results?



- Populate US Life Cycle Inventory (LCI) Database, Sustainable Packaging Coalition (SPC) Compass tool, EPA WARM Model
- Develop an on-line carbon and primary energy calculator for members' use
- Benchmarking for industry improvement
 - Model is available for individual companies to run LCA's
 - Overall industry improvement by segment
- Baseline from which to launch future LCA studies
- Foundation for communications with customers



CPA carbon footprint and energy calculator for corrugated containers

A carbon footprint is a measure of the greenhouse gases associated with the production, use and disposal of product. It includes emissions associated with raw material extraction, manufacturing, transportation, reuse, disposal and all other significant activities that are part of the product's life cycle.

This calculator estimates the carbon footprint, the non-renewable energy and renewable energy associated with the life cycle of corrugated containers constructed from the average containerboard produced in the United States.

What is the weight of your corrugated container in pounds?

The life-cycle results for this corrugated product are:

Carbon footprint	Non-renewable energy	Renewable energy
<input type="text"/> Lb. CO ₂ -eq.	<input type="text"/> 1000 BTUs	<input type="text"/> 1000 BTUs
<input type="text"/> Kg CO ₂ -eq.	<input type="text"/> Megajoules	<input type="text"/> Megajoules

The calculations performed by this calculator are based on information developed in a life-cycle assessment (LCA) study performed by PE-Americas and Five Winds International for the Corrugated Packaging Alliance. The study was reviewed by a peer review panel consisting of experts in life-cycle assessment and forest products industry carbon flows. The study revealed that the average corrugated product produced and used in the United States has the following attributes:

- Life cycle greenhouse gas emissions (carbon footprint) = 1.0 kg CO₂-eq. / 1 kg of corrugated product
- Life cycle non-renewable energy = 21.3 MJ / 1 kg of corrugated product
- Life cycle renewable energy = 25.0 MJ / 1 kg of corrugated product

A summary report of the study is available on request from the Fibre Box Association at fba@fibrex.org.

<http://corrugated.theresponsiblepackage.org/carboncalc.aspx>



What do we recommend you do with the results?



- Don't get caught up in the science...just know that this information is now required to discuss sustainability and we have the latest and most comprehensive study of any packaging material...our credentials are in order.



- Use this information internally to measure and improve your company's own sustainability performance
- LCA Summary Report is available for use with interested customers



- Use this credential to initiate discussions and/or expand on your sustainability marketing efforts with your customers





Communicating Sustainability



Rachel Kenyon

Director of Member & Industry Relations

Fibre Box Association (FBA)





Where we've been



Spring 2008

Summer

Fall



Winter 2009



Spring -
Winter 2010

- Work began with Artemis Strategy Group
- Artemis completed message strategy research
- Identified need for creative resources
- Concept development - creative, communications plan based on:
 - Message strategy research
 - LCA, NCASI additional data +
- Program implementation



Artemis Strategy Work

- Directional framework for messages.
 - Nearly 50 in-depth interviews (18 industry; 28 packaging purchasers and specifiers)
 - Strategy presentation in 4 sections (definition, vision, promise and supporting elements)
- Proof points are important. What we say about sustainability requires evidence.
 - Environmental Examples:
 - Forest management performance
 - Energy use and recapture
 - Air quality





Message Development



Credibility

(science, ethics)

+

Relevance

(emotion)

= Message Development





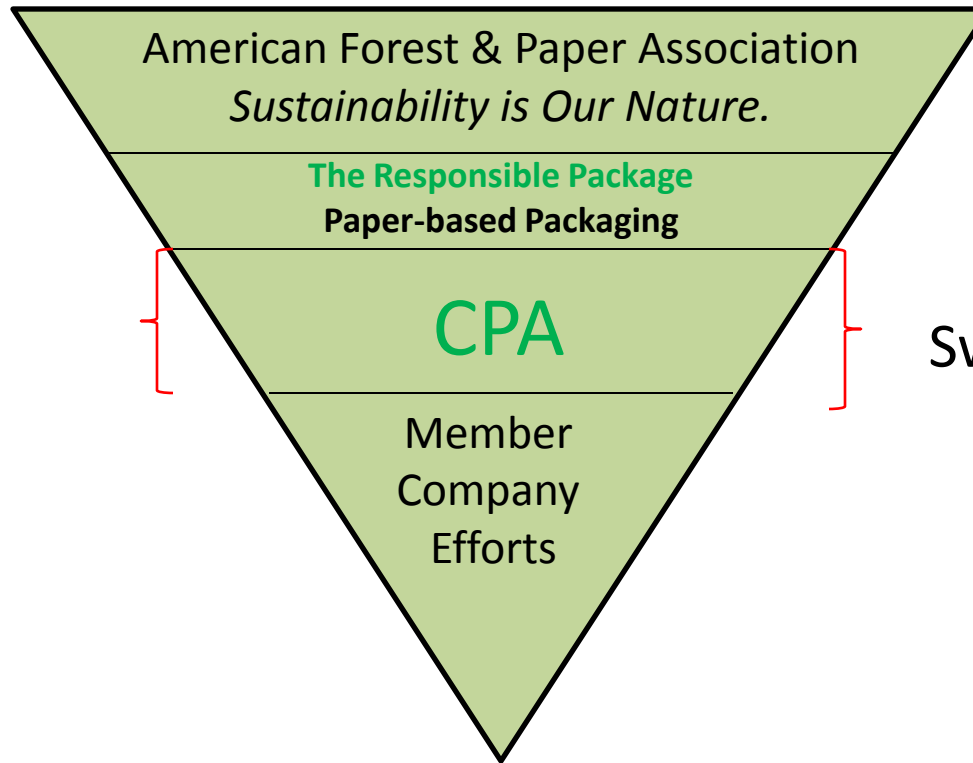
Message Layering

Proof Points

Broad /
General



Specific



Sweet Spot

Sustainability





Packaging that gives back.

When you look at a package, what do you see? With paper-based packaging, you can see into the future. You can see a tree that will be replaced with five more, giving us healthy forests and cleaner air. You'll see versatile, cost-effective containers that are recycled more than any other. You'll see a responsible idea that gives you more ways to protect your products and our world.

Take a closer look at www.theresponsiblepackage.com.

the **Responsible** package™
Paper-based Packaging

The Responsible Package paper-based packaging

- Highest, broadest level of communication
- Paperboard, Corrugated and Paper Bags





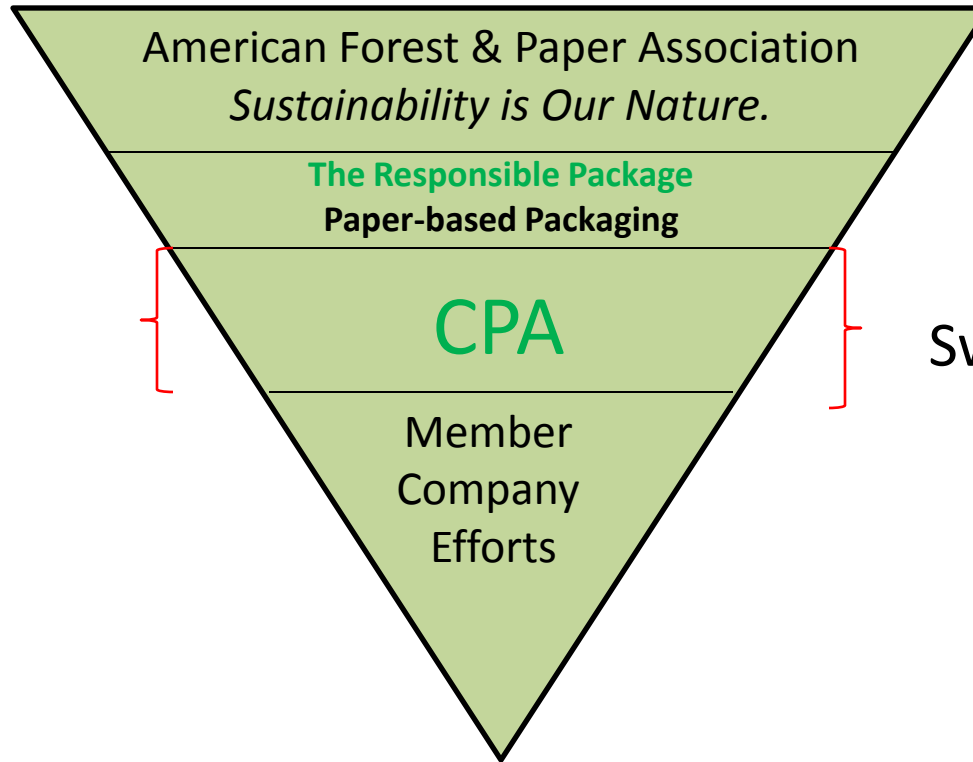
Message Layering

Proof Points

Broad /
General



Specific



Sustainability

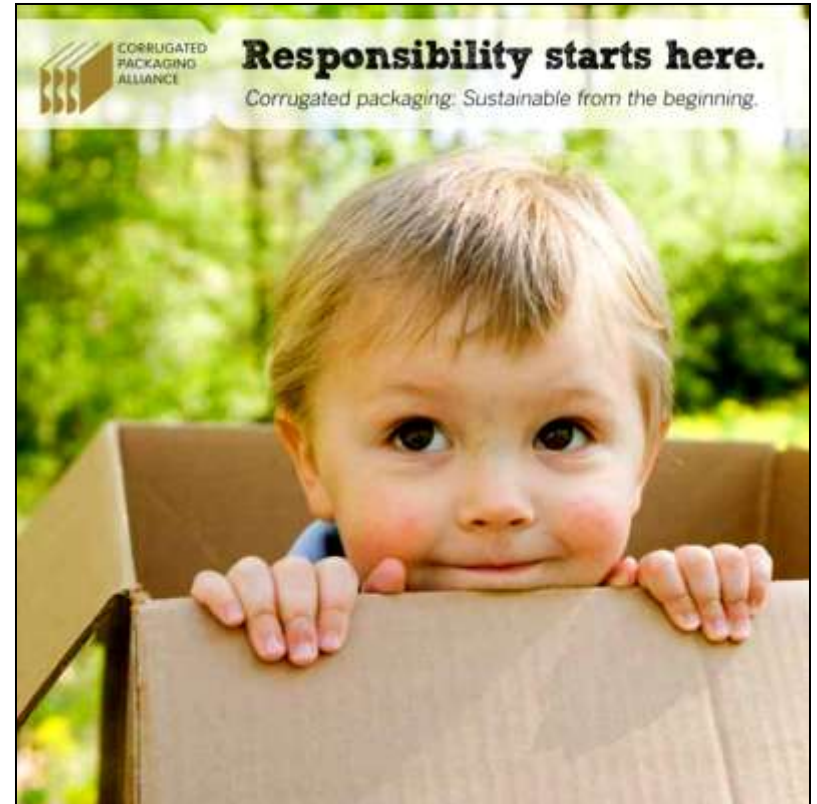




Responsibility Starts Here



- First in our new family of materials
- Content based on strategy – top line messages coupled with proof points
- Established the look and feel; design elements





Communications Tools

Corrugated Packaging Life-cycle Assessment Summary Report



- Another set of proof points
- 20 pg. condensed report
- Webinar participants receive a copy. Additional copies available through sponsoring associations.





Communications Tools



- Give member companies tools to discuss LCA with their customers, retailers, NGO, other interested stakeholders
 - PowerPoint Presentation
 - Question and Answer Fact Sheet



CORRUGATED PACKAGING ALLIANCE

Corrugated Packaging Life-cycle Assessment Q&A

1. What is an LCA?

Life-cycle assessment (LCA) is a standardized, scientific method for systematic analysis of flows (e.g., mass and energy) associated with the life cycle of a specific product, technology, service or manufacturing process system. In the case of a product system, the life cycle includes raw materials acquisition, manufacturing, use and end-of-life (EoL) management.

From 1996-2000, LCA guidelines were standardized by the International Organization for Standardization (ISO) (www.iso.org) in its 14040 series, and have been used by thousands of companies across a range of sectors to guide product and process improvements. Today, LCAs are increasingly being used to inform public policy; assist in research and development; and aid in decisions surrounding waste management, food versus fuel, biofuels, renewable energy and public policy.

According to ISO 14040/44 standards, an LCA study consists of four phases:

- **Determining scope:** (What you specifically want to study) and system boundaries (what is included and what not).
- **Life-cycle inventory:** Data collection of all process inputs and outputs, modeling and analysis.
- **Impact assessment:** Analysis of inputs and outputs using previously developed indicators to arrive at a score of impact magnitude.
- **Interpretation:** Sensitivity analysis around key variables, comparisons to prior results, etc.

2. What is CPA?

The Corrugated Packaging Alliance (CPA, www.corrugated.org) is a cooperative effort between the American Forest & Paper Association (AF&PA, www.afandpa.org), Association of Independent Corrugated Converters (AICC, www.aicc.org), and Fibre Box Association (FBA, www.fibrebox.org). Its purpose is to address corrugated material and industry issues, growing containerboard manufacturing through loss co-covering operations, by providing factual information with a coordinated industry focus that effectively acts on industry matters that cannot be addressed by individual members alone.

3. What are Five Winds and PE Americas?

Five Winds International (www.fivewinds.com) is a management-consulting firm that helps organizations improve the business, environmental and social performance — the sustainability — of their operations, products and services.

PE Americas is a joint venture between PE INTERNATIONAL and Five Winds that is focused on providing sustainability solutions for North American clients. PE INTERNATIONAL (www.pe-international.com) is the international market leader in strategic consultancy, software solutions and scientific services in the field of sustainability. Serving market leaders around the world, PE has offices in Stuttgart, Vienna, Copenhagen, Manchester, Tokyo, Taipei, Perth, Boston and Kuala Lumpur.

4. Why did the CPA conduct the LCA?

Since a total industry study of corrugated products had never been conducted, the CPA had a desire to understand the environmental impact of its products for current benchmarking and to measure improvement with subsequent studies. It would also allow the industry to respond to the increasing number of inquiries from product manufacturers and retailers for information that would allow them to select environmentally preferable packaging options. The study's goal was to generate high-quality, up-to-date information on the environmental impacts of corrugated packaging.



Where can I find these items?

Responsibility Starts Here.

Corrugated packaging: Sustainable from the beginning.



Renewable



Sustainable



Reliable



Viable



Recyclable

Corrugated
Recycles

Responsibility has always been a smart business plan.

For over a century, we've built a business philosophy dedicated to responsibility — from energy and water conservation to forest management to source reduction. That's what makes us the leaders in sustainable packaging, and what gives us the expertise to help you make the most responsible choices for your business and the environment.

We've also been a leader in recycling initiatives in our communities, "closing the loop" to reduce the environmental impact of every product we make. And through domestic sourcing of raw materials and manufacturing, we're helping to provide jobs and benefits to more than 30,000 employees and their families.² These families can in turn contribute to the economy through their product purchases.

Today, tomorrow and in the years to come, we'll continue to lead the way in creating responsible, sustainable products — so you can feel even better about choosing corrugated packaging.



- New sustainability pages (corrugated.theresponsiblepackage.org)





Watch our Family Grow



- New materials in the coming months
 - Corrugated Sustainability Report
 - Our Planet video
 - Additional PowerPoint presentations and fact sheets

... all based on messages with proof, a completed first-ever life-cycle assessment of corrugated products to back them up.





Questions and Answers



To ask a question use the Q&A function in the bottom right-hand corner of your screen.





Conclusion



- **Recommendation:** Companies should have a point person to access industry information and determine how it fits company sustainability strategy/story
- To order materials contact your trade association or CPA
- Please call 1-800-886-5255, with any questions
- For additional information and/or to hear a recording of this session please visit AF&PA, AICC, FBA or CPA websites



www.corrugated.org

