Key Questions & Observations

• Advantages and disadvantages of making data public
  – Why an LCI program for plastics industry?
  – Plastics contribution to US LCI Database

• Value of a central, standard, public database
  – What are customer and stakeholder interests in plastics industry LCI data

• Lesson’s learned from the plastics data
  – Data collection issues
  – Data comparison to regional (global) databases
What are customer and stakeholder interests in plastics industry LCI data?

• Responding to stakeholders
  – Customers (auto, packaging, building & construction)
  – Government Agencies – EPA EPP program, USDA Biobased Products Procurement Preference Program
  – Local & state policy makers – landfill diversion/waste management policy
  – U.S. Green Building Council “LCA in LEED” Program
  – Critics

• Tool to promote plastics role in a sustainable future
  – Allows sound sustainability decisions to be made

• Benchmarking within the plastics industry
  – Areas for improvement compared to the industry
Plastics Division of ACC Contribution to US LCI Database Project - www.nrel.gov/lci

- Develop unit process data for all steps from raw material extraction through production of resin or precursor
  - Primary data provided by member companies and suppliers
  - Secondary data from public sources
- Utilize fuels and energy data developed under NREL contract
- Cradle-to-resin linked process trees will be developed
- PD of ACC LCI data converted to “Ecospold” for ease of integration

Elements of US LCI Database

- Common processes (energy production, energy use, end-of-life modules)
- Commodity level manufacturing for commonly used materials and products (unit process data; cradle-to-gate scope)
- Standard transformation processes (casting, stamping, pressing, painting, etc.)
Plastics Division of ACC Contribution of Data to U.S. Life Cycle Database Project (http://www.nrel.gov/lci)
Polymer & Polyurethanes Precursors LCI Database
Plastics are Essential(2) Sustainable Development

Adapted from PlasticsEurope document
Wal-Mart Sustainability Exhibit

- Only 1.5% of the energy consumed in the U.S. is used to produce plastic packaging.

- Plastic packaging scores high on sustainability:
  - **Material Value**: The value of recyclable scrap plastic film continues to grow as new markets emerge.
  - **Product-Package Ratio**: Plastics’ high recycling capabilities help to maximize the product-to-package weight ratio, a significant indicator of sustainability.
  - **Cube Utilization**: Plastic stretch wrap helps reduce the volume of secondary packaging, helping minimize recycled or discarded material.

- Transportation:
  - For every seven trucks needed to deliver paper bags, only one truck is needed for the same number of plastic bags, helping to save energy and reduce emissions.

- Recycling:
  - In 2005, more than 21 billion pounds of plastic bottles were recycled. Approximately 90 percent of Americans have access to plastics recycling programs.

- Energy Recovery:
  - The BTU value of plastics for waste-to-energy recovery is equivalent to fuel oil.

- Innovation:
  - American plastics producers are committed to delivering innovative products, processes and technologies that help to build a more sustainable society.
Lessons learned from plastics data project

• Data Collection
  - Be as comprehensive in # of plants (we used minimum of 3/resin)
  - Data collection takes time (competing against other plant operation priorities) – build in sufficient time in project for data collection/review

• Regional vs. Global
  - For a global commodity like plastics, take time to compare regional data (e.g., U.S. vs. Europe) and be prepared to address/explain differences in results

• Education of Full Value Chain
  - ACC Plastics Division provided cradle-to-pellet data
  - Seminars (like this) and meetings with downstream groups (e.g., SPI) needed to encourage development of full product life cycle information