

NDCEE

National Defense Center for Energy and Environment

Promoting Sustainability Through BioPreferred Purchasing

Joint Services Environmental Management (JSEM)
Conference and Exposition
May 5-8, 2008

Mr. Peter Arbuckle, NDCEE/CTC



DoD Executive Agent

Office of the
Assistant Secretary
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(Installations and
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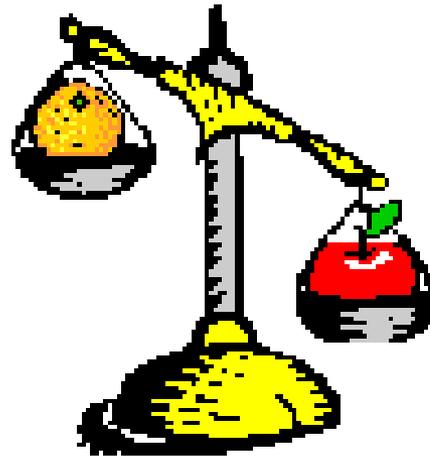
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Overview

- Life Cycle Assessment (LCA) as an approach to defining or evaluating trade-offs for sustainability
- BEES as an LCA tool for sustainability in BioPreferred Procurement

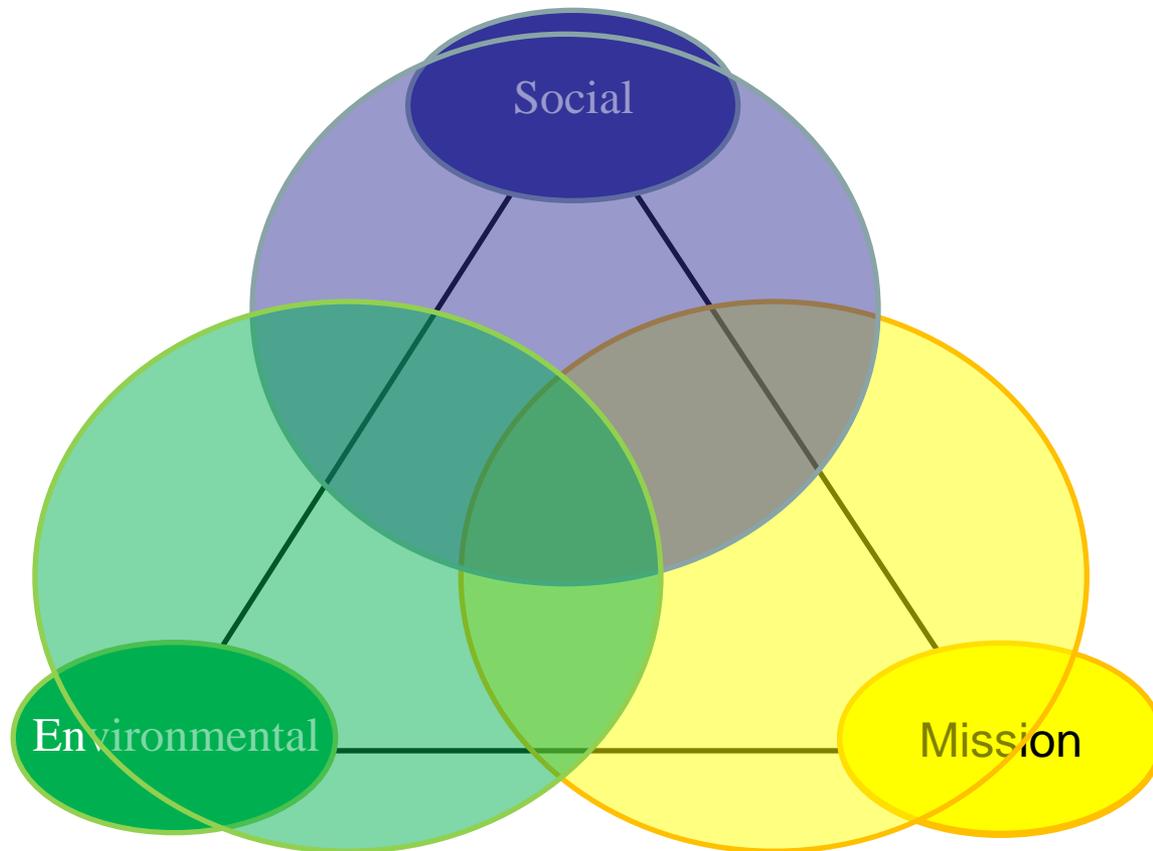
What is Sustainable?

YOU Decide!!!

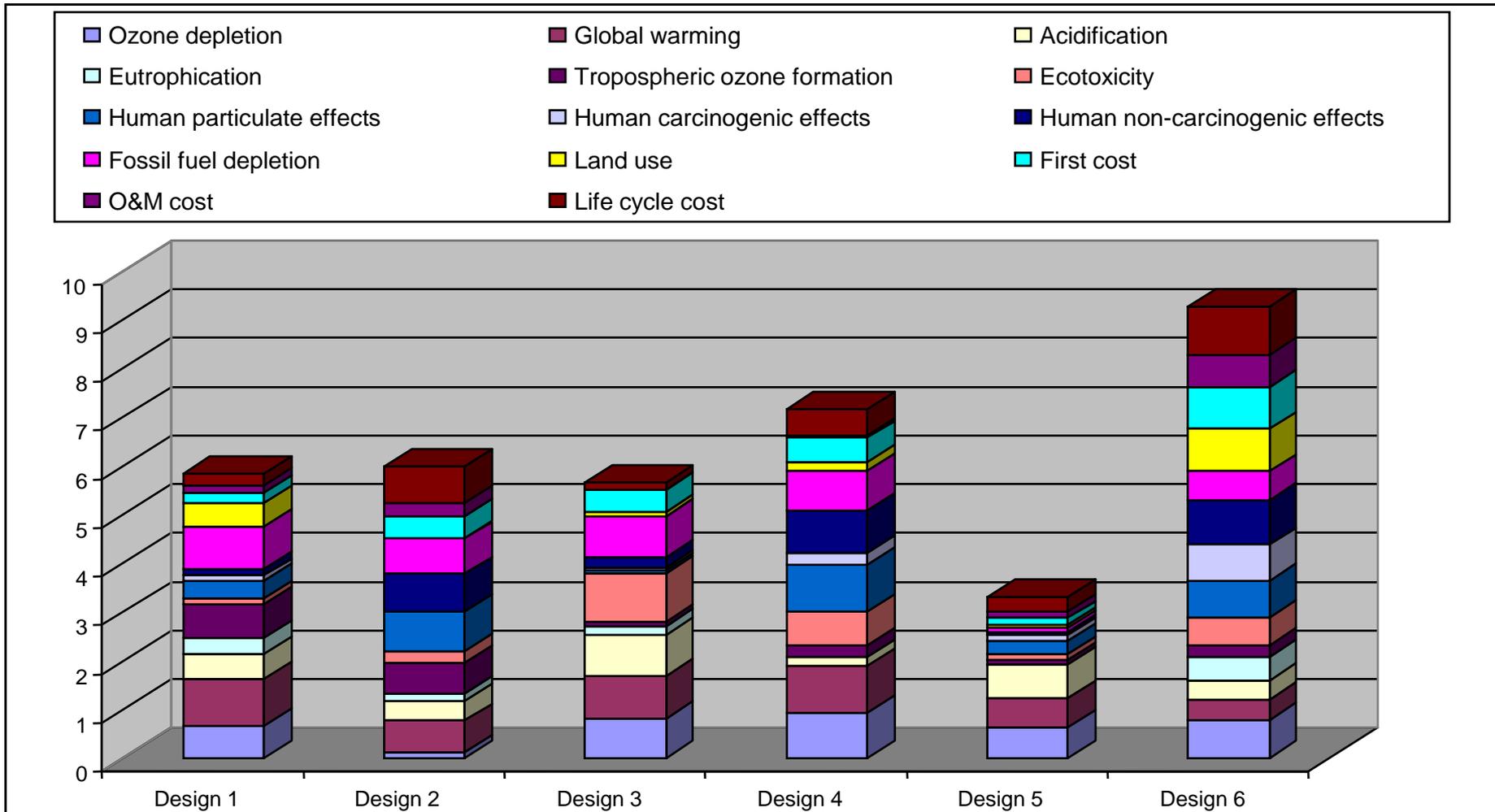


Life-Cycle Assessment (LCA)

- LCA supports decision making for Sustainability



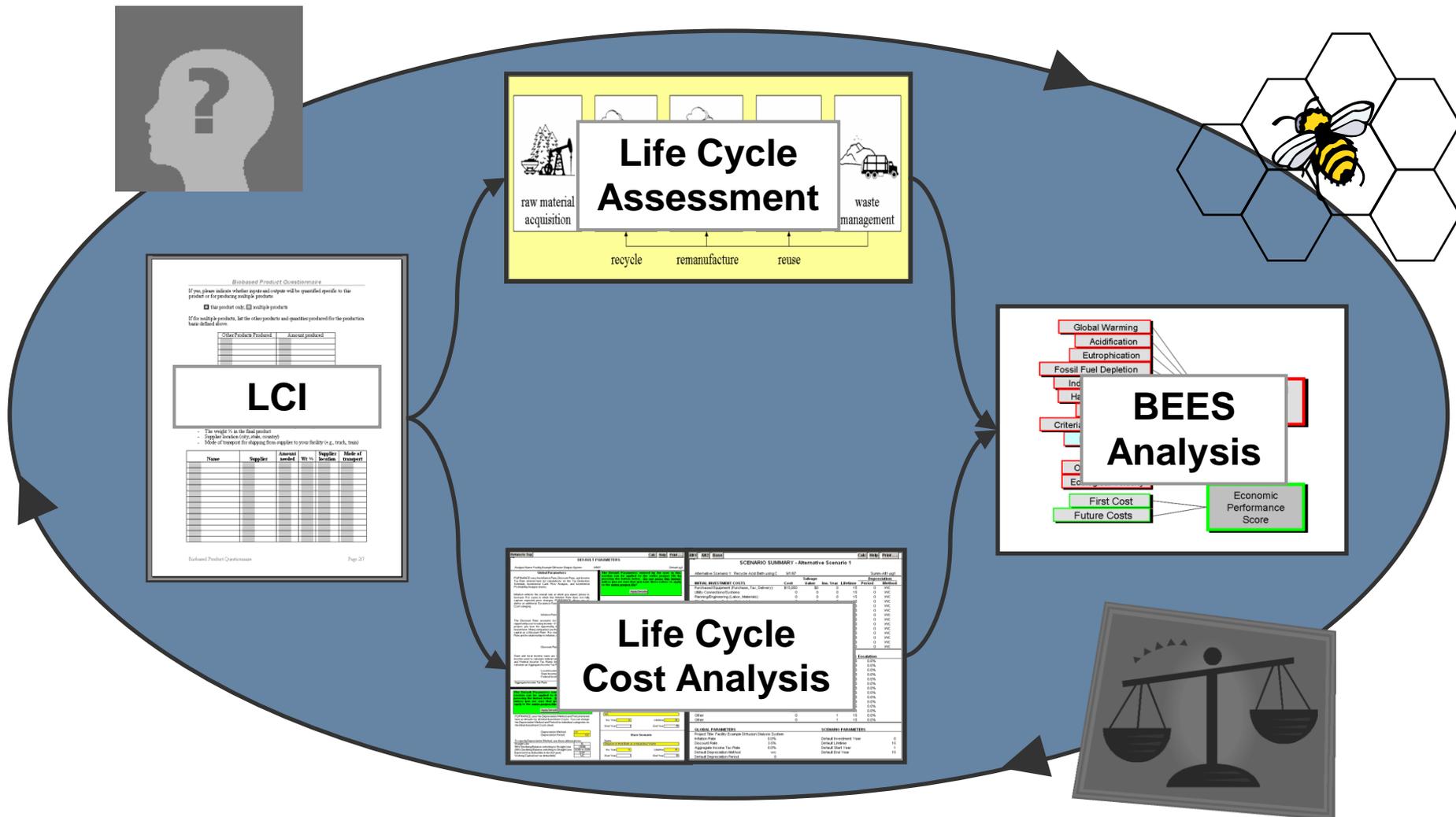
Evaluating Trade-Offs



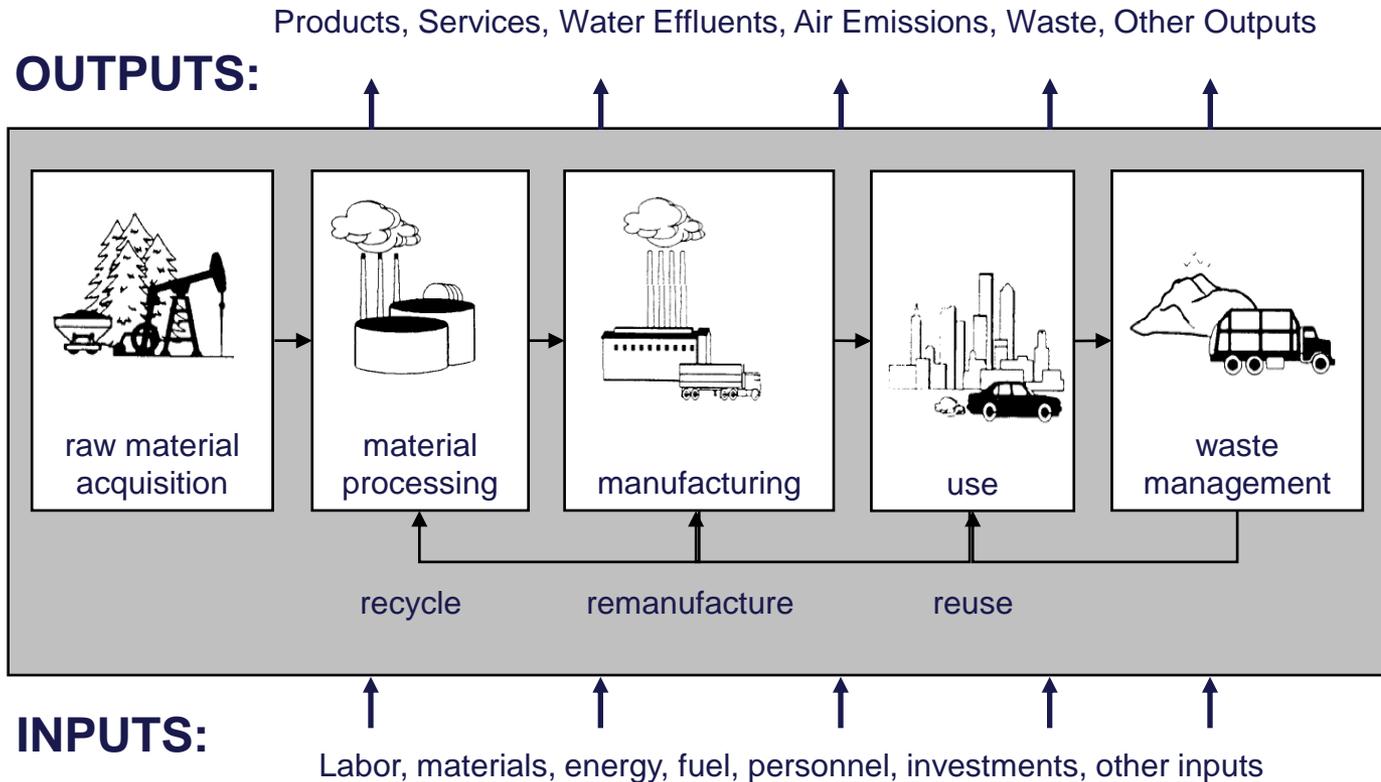
LCA for BioPreferred Procurement

- Decision Support for Procurement Officers in Evaluating Alternatives
 - Bio-Content Testing
 - Iowa State University
 - ASTM D6866-04
 - Life-Cycle Assessment
 - National Institute of Standards and Technology (NIST)
 - Building for Environmental and Economic Sustainability (BEES)
 - » Using existing industry standards

Framework – Evaluating Alternatives

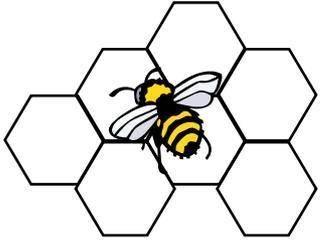


Life Cycle Assessment



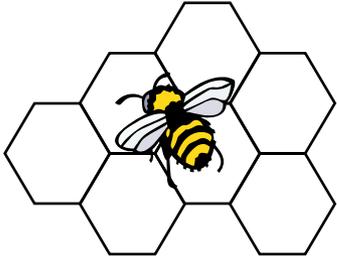
Life Cycle Cost Analysis

- An economic evaluation tool for estimating the total cost of acquisition and ownership of a system over its full life, including the cost of acquisition, installation, operation, support, decommissioning, and disposal.

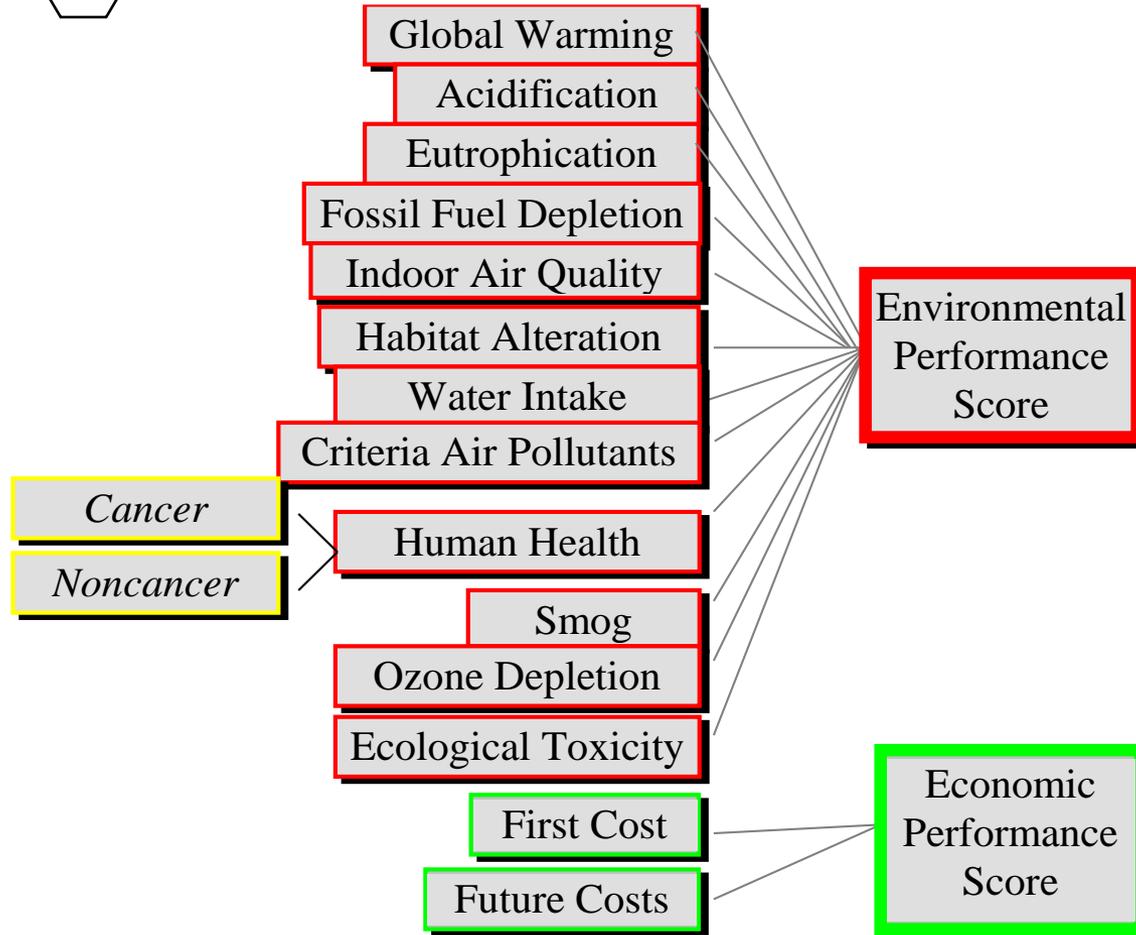


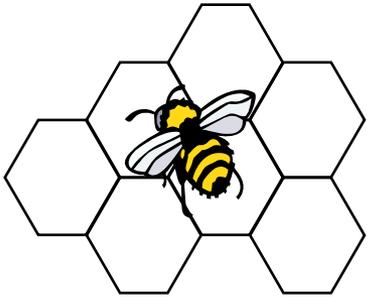
The BEES Model

- BEES = Building for Environmental and Economic Sustainability
- Developed by National Institute of Standards and Technology (NIST)
 - Systematic methodology for selecting building projects
 - Methodology now applied to evaluate biobased materials
- Based on Consensus Standards
 - Life-Cycle Costing (ASTM E917)
 - Environmental Life-Cycle Assessment (ISO 14040)
 - Multi-Attribute Decision Analysis (ASTM E1765)
 - Evaluating and Reporting Environmental Performance of Biobased Products (ASTM D 7075)



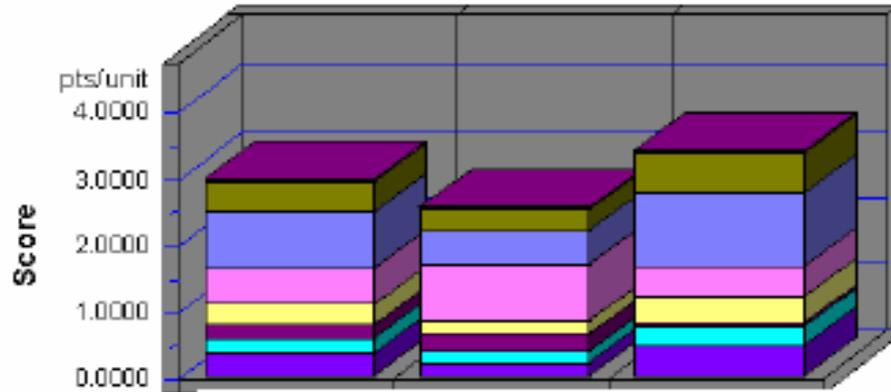
The BEES Model



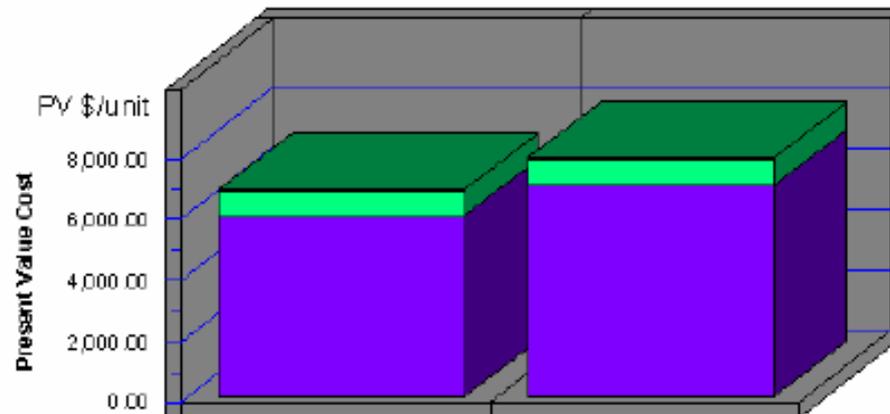
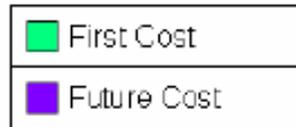


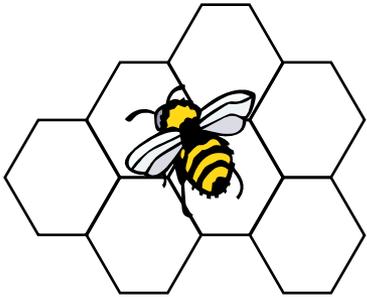
BEES Results

Environmental Performance



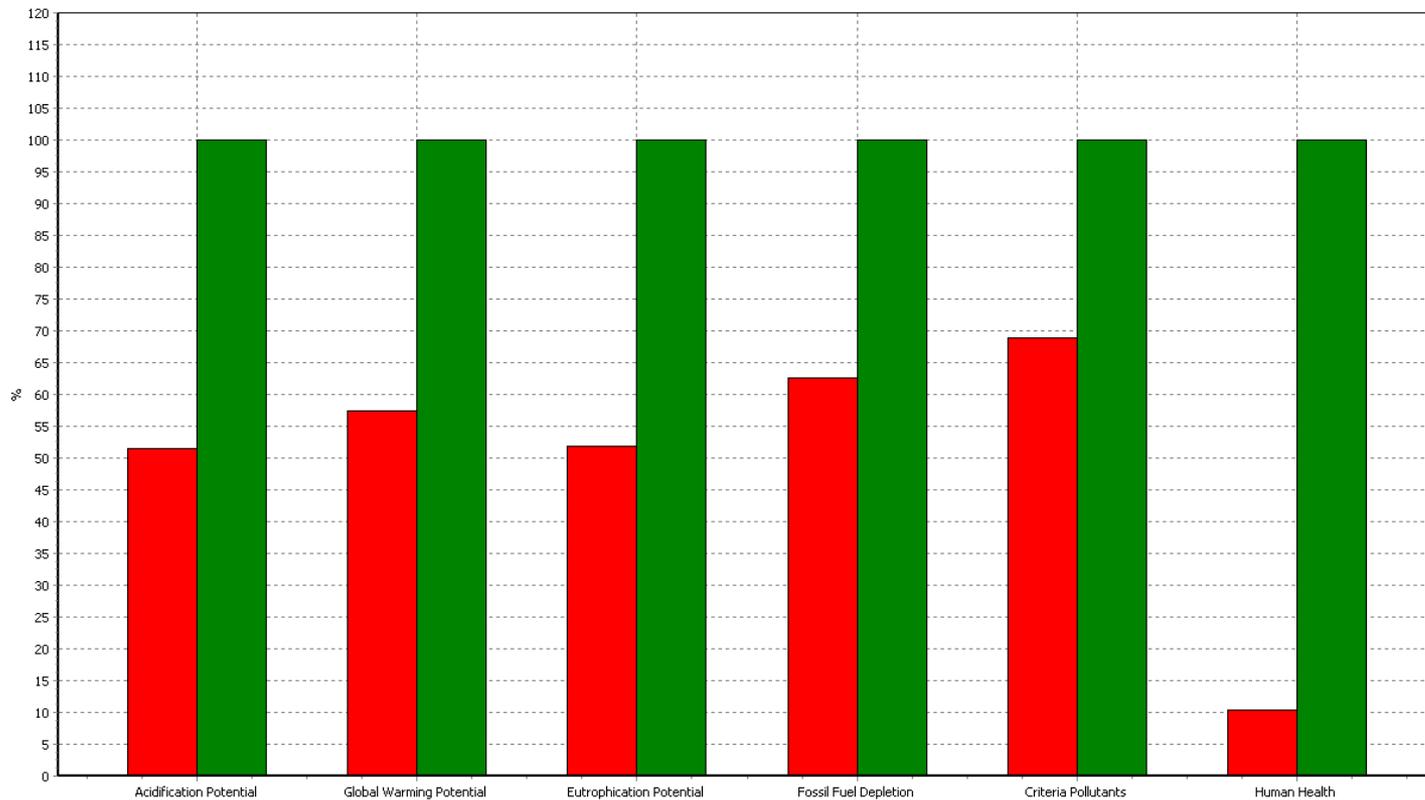
Economic Performance

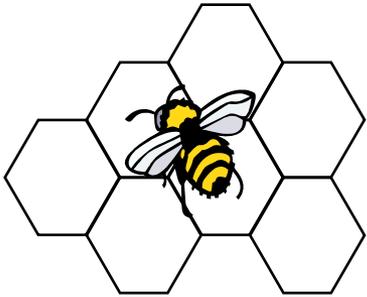




Anecdotal Case-Procurement Perspective

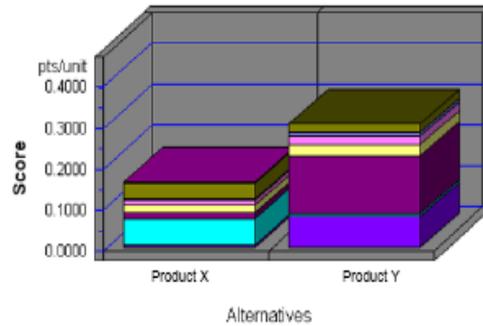
 Product X  Product Y



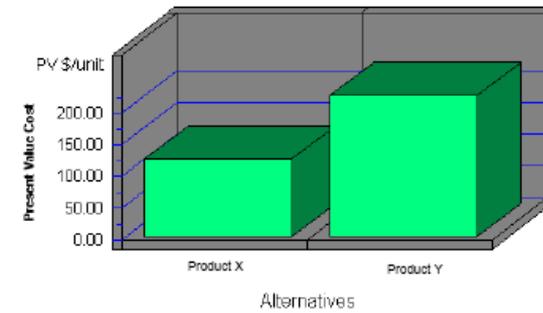


Anecdotal Case

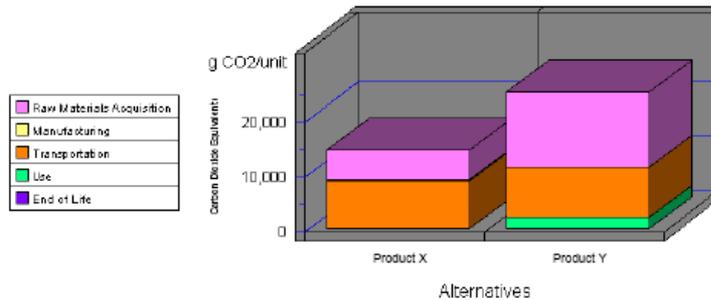
Environmental Performance

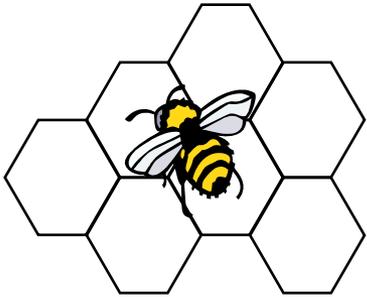


Economic Performance*



Global Warming by Life-Cycle Stage





Summary

- LCA is a powerful decision making tool
- BEES is an LCA tool that can help federal procurement officers make better decisions.
- It is difficult to accurately forecast life cycle impact
- There are usually trade-offs between different alternatives

Questions

Evaluating the Environmental Impact, Cost, and Performance of Biobased Alternatives

Contact Information

NDCEE Technical Monitor

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