About The Event:
This workshop will provide a critical examination of various perspectives in Life Cycle Assessment (LCA) methodology and identify the pros & cons relative to the use of LCA and LCA criteria in standards.

LCA is a fundamental concept in sustainability. More and more, industry is expected to develop LCA for use by product purchasers, rating programs (eco-labeling schemes) and governmental entities. The demand is strong. But, there is little guidance as to how best to implement LCA. There is a range of understanding and perspectives. While many workshops present the theory of LCA and may even review one or more LCA software programs, there remains a critical need to clarify the appropriate use of LCA in standards.

This workshop will explore current evolution in LCA theory and application. The first part of the workshop (Sunday afternoon) will discuss state-of-the-art LCA practice and associated opportunities / challenges. The second part (Monday morning) will discuss the use of LCA in product development, product selection, and product standards.

This workshop will benefit product manufacturers, institutional purchasers, governmental representatives, standards developers, and professionals interested in sustainability.

Note: Preliminary information will be provided to participants in advance. It is recommended that participants review this information prior to the workshop.
Brief History of LCA

1969: Multicriteria study for Coca-Cola (By Harry E. Teastley Jr.) of beverage packaging is performed using Resource and Environmental Profile Analysis (REPA). (Similar contemporary studies in UK, Germany, Sweden). REPA, a quantitative methodology, formed the beginnings LCA.

- Taking into account of the whole environmental impacts, from the raw material extraction to the waste disposal (what is called from the cradle to the grave approach)
- Clear objectives to:
  - choice between glass and plastic for the product bottling,
  - choice between internal or external bottle production,
  - end of life options (recycling or one-way) for the chosen bottle

The study concluded that the plastic bottle was the best choice. The study has never been published in its complete version. A summary published April 1976 in Science Magazine prompted discussions on validity of comparisons & led the scientific community towards standardization.

1980: Little public interest in LCAs. However, work on product LCA methodologies and frameworks continued on a small scale. Growing use of LCA, applied to packaging.

1991: The term “LCA” was defined & used by SETAC

1997: ISO introduces series of standards defining the different stages of the LCA methodology

2001: American Center for Life Cycle Assessment is formed.

2009: Market expectations for use of LCA in product development and selection increase substantially; ASTM Workshop responds to demand for critical review of current developments in LCA methodology.

Preliminary Information:

- U.S. Life Cycle Inventory Database Roadmap (Brochure) [http://www.nrel.gov/docs/fy09osti/45153.pdf](http://www.nrel.gov/docs/fy09osti/45153.pdf)
Welcome Remarks
Chuck Bell

LCA Methodology – Jane Bare
- Goal and scope
- Inventory analysis
- Impact assessment
- Interpretation

LCA Practice – Rita Schenck, John Jewel, and Wayne Trusty
- State-of-the-Art
- Programs

WORKSHOP ADJOURNS FOR THE DAY

SUNDAY EVENING RECEPTION (cash bar)
Workshop on Life Cycle Assessment: Methodology, Current Development, and Application in Standards, continues

MONDAY, OCTOBER 19, 2009

8:15AM  
**Introductions** – Chuck Bell and Amy Costello

8:30AM  
**LCA Applications** – Manufacturers (Amy Costello, panel facilitator, and panelists: John Jewel, Jim Hoff, Jim Lewis, and Stanley P. Rhodes) intro presentations
   - product development
   - product marketing

9:15AM  
**Questions and Answers**

9:45AM  
BREAK

10:00AM  
**LCA Applications** – Customers/Users (Amy Costello, panel facilitator, and panelists: John Carmody, Wayne Rifer, and Jane Bare) intro presentations
   - product selection
   - product purchasing

10:30AM  
**Questions and Answers**

11:00AM  
**LCA Incorporation into Standards** (Amy Costello, panel facilitator, and panelists: Rita Schenck, Wayne Trusty, Micheal Deru, Stanley P. Rhodes, and Wayne Rifer) with Questions and Answers
   - referencing LCA standards/methods
   - citing LCA parameters
   - defining LCA criteria

12:00PM  
**Closing Remarks**
Chuck Bell

12:15PM  
**WORKSHOP ADJOURNS**
Confirmed Speakers:

**Jane Bare** is a chemical engineer with 23 years of experience within the U.S. EPA. She is one of 14 recognized international experts on the U.N. Environment Program (UNEP) Society of Environmental Toxicology and Chemistry (SETAC) International Life Cycle Panel. She is the developer of the US EPA’s Tool for the Reduction and Assessment of Chemical and other environmental Impacts (TRACI) which has been distributed to over 25,000 users and has been selected and/or used by: the USGBC, BEES, the U.S. Marine Corps’ EKAT (Environmental Knowledge and Assessment Tool), SimaPro, and GaBi. Her TRACI research earned her the individual Gold Medal for Exceptional Service – the highest EPA honor award.

**Charles “Chuck” Bell** is a partner in Standard Development LLC, a research and development firm. He is also a founding principal of theGreenTeam Inc., a strategic environmental consulting firm. He has extensive experience in development of novel technologies, including strategic business planning for new product development, trending/forecasting, and monitoring programs. He is an architect and a LEED Accredited Professional with over 3 million square feet (278,709 square meters) of LEED certified projects and an additional 2.5 million square feet (232,258 square meters) of LEED registered project in progress. He serves on the Advisory Board of the Oklahoma State University Environmental Institute.

**Michael Deru** has been working with the National Renewable Energy Laboratory in Golden, Colorado, since 1994 and is currently a Senior Engineer with the Center for Buildings and Thermal Systems. He has completed extensive research on building thermodynamics including heat and moisture transfer in the ground. His current work includes design, analysis, and monitoring of integrated energy efficient measures in commercial buildings and project manager for the U.S. Life Cycle Inventory Database.

**Paul Firth** has over 10 years experience in sustainability, focusing on LCA implementation and application within a corporate setting. Currently at The Green Standard, Paul is responsible for the development and oversight of all programs and services focused on providing education, technology and training resources to manufacturers to support sustainable product design, manufacture, packaging, evaluation and certification.

**John Jewell** is a Senior Consultant for PE Americas. John has managed and worked on LCA projects from industry-wide Life Cycle Inventory creation to detailed product LCAs. Prior to joining PE, John worked as an LCA practitioner and sustainability manager at one of PE’s clients, Interface carpet, where he redesigned their LCA program to guide business decision-making for US, Canadian, Australian, and Thai divisions. John received a BS in Industrial Engineering from Georgia Tech.

**Rita Schenck** is the founder and executive director of IERE, the Institute for Environmental Research and Education, a not-for-profit that supports fact-based environmental decision-making. IERE’s flagship program is the American Center for Life Cycle Assessment, the professional Society for LCA in the US. Rita represented the US in negotiating the international standards on LCA. Rita was trained as an oceanographer, focusing on ecotoxicology and biogeochemistry.
Wayne Trusty is President of the ATHENA Sustainable Materials Institute and Athena Institute International, an Adjunct Associate Professor, University of Calgary Faculty of Environmental Design, a member of the GBI board, Chair of the GBI Green Globes ANSI Committee, a member of the CaGBC Metrics and LCA task force and of the USGBC MRTAG. Wayne is a member of ASTM E60.

Confirmed Panelists:

Amy Costello, panel facilitator, is a Senior Environmental Scientist with Armstrong World Industries, responsible for the technical aspects of the Sustainability Program within the building products division. She conducts life cycle assessments of products, materials and packaging and makes recommendations accordingly. Amy is a member of the USGBC’s Material and Resource Technical Advisory Committee, leads an ASTM effort to develop Product Category Rules for Building Products and Systems, and is a member of the Committee developing an ANSI standard for Type III Life-Cycle Impact Profile Declarations for Materials, Products, Services and Systems. Amy holds a Master of Science from Virginia Commonwealth University and a Bachelor of Science from Randolph-Macon Woman’s College. She is a LEED Accredited Professional and a Life Cycle Assessment Certified Professional.

John Carmody is the Director of the Center for Sustainable Building Research at the University of Minnesota. He has worked in building-related research for over 30 years and is the author of several books on building design and construction. He is part of the team that developed the Athena EcoCalculator to be used for life cycle assessment of materials in the LEED and Green Globes rating systems. His work also includes research on sustainable guidelines and standards, window and façade design, affordable housing, post occupancy evaluations, and the development of decision-making tools for designers.

Jim Hoff is an experienced executive in the building materials industry, currently serving as research director for the Center for Environmental Innovation in Roofing in Washington, DC. Jim also serves as president of TEGNOS Research, Inc. a research and consulting organization dedicated to expanding understanding of the building envelope. Dr. Hoff holds undergraduate degrees in psychology and architectural design as well as a Masters and Doctorate in management, and he has published numerous research articles on building system performance, quality management, and life cycle analysis.

Jim Lewis, a 22-year veteran of the architectural construction industry, serves as Director of Architectural Systems for Gate Precast Company. He is a LEED Accredited Professional and a thin brick expert. Mr. Lewis holds multiple degrees in Architecture from the University of Virginia, and serves as chairman of the Precast/Prestressed Concrete Institute (PCI) Sustainability Committee. He is also a member of the PCI Architectural Precast Committee and the Altus Marketing Committee.

Stanley P. Rhodes, Ph.D. Dr. Rhodes is the founder and president of Scientific Certification Systems. As a U.S. expert in the ISO-14000 environmental management standards setting process, he established standards for life-cycle impact assessment, environmental labeling, and environmental aspects of product standards. Dr. Rhodes led SCS into the field of LCA in 1991. Helping corporations, government agencies and the public evaluate the environmental impacts, and helping manufacturers identify strategies for continuous environmental improvement, he developed the LCSEA methodology.
**Wayne Rifer** initiated and managed the stakeholder process to develop EPEAT – Electronics Product Environmental Assessment Tool – a procurement tool for environmentally preferable electronics (www.epeat.net). He is co-chair of the IEEE environmental assessment standards committee and is the EPEAT Manager of Conformity Assessment and Standards. Mr. Rifer is a member of the Boards of Directors of the Rechargeable Battery Recycling Corporation (RBRC) and of the National Center for Electronics Recycling (NCER).

9/23/09