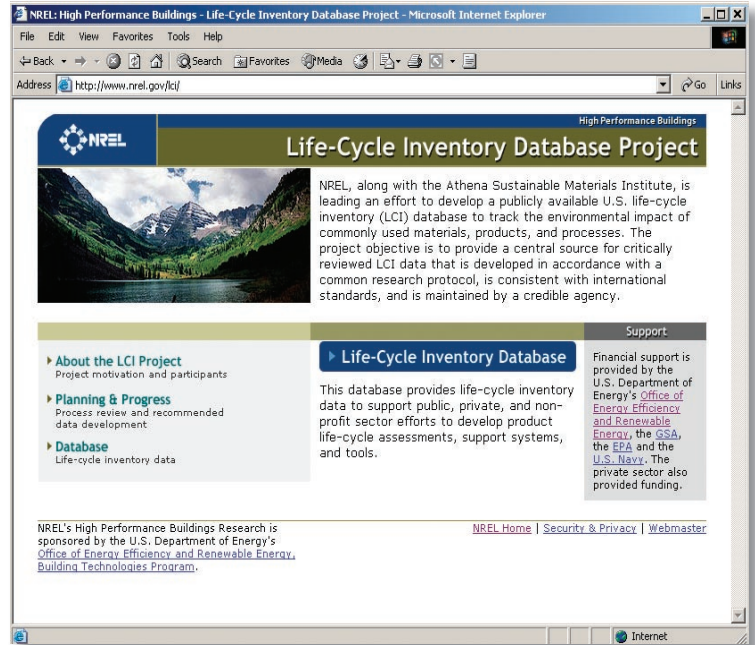


Project Supporters:

- U.S. Department of Energy
- General Services Administration
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture
- National Institute of Standards and Technology
- U.S. Navy
- Consortium for Research on Renewable Industrial Materials
- U.S. Car Project (Ford, General Motors, DaimlerChrysler)
- American Plastics Council

The U.S. Life-Cycle Inventory Database Project — Helping Us Find Answers to Environmental Impact Concerns

Which has the least impact on the environment, plastic or paper, cellulose insulation or fiberglass insulation, carpet or wood flooring? There are no straightforward answers to these questions because each product has advantages and disadvantages when it comes to its environmental impact. The science of sustainability is not exact, but we are working on tools to give us better answers to environmental impact questions. The U.S. Life-Cycle Inventory (LCI) Database project is providing essential data to support those tools.



Life-Cycle Inventory Database Project						
Module Name: Diesel-Fueled Combination Truck Transportation						
Flow Info						
Explanations	Name	Category	Sub Category	Infrastructure Process	Unit	Unallocated Data
Infrastructure Process						No
Inputs from Technosphere	Barge			No	ton-miles	7.37E+01
	Combination truck			No	ton-miles	1.36E+01
	Diesel			No	gal	1.00E+03
	Pipeline			No	ton-miles	1.07E+02
	Rail			No	ton-miles	8.70E+00
Outputs to Nature	Carbon dioxide	air	unspecified	No	lb	2.45E+04
	Carbon monoxide	air	unspecified	No	lb	3.89E+01
	Methane	air	unspecified	No	lb	3.95E-01
	Nitrogen oxide	air	unspecified	No	lb	6.11E-01
	NOx (unspecified)	air	unspecified	No	lb	1.63E+02
	Particulates (PM10)	air	unspecified	No	lb	2.82E+00
	SO2 (unspecified)	air	unspecified	No	lb	5.39E+00
VOC (unspecified)	air	unspecified	No	lb	8.06E+00	
Product Outputs	Combination Truck Diesel Combustion			No	gal	1.00E+03

What is the LCI Database project?

NREL, along with the Athena Institute, is leading the development of a publicly available LCI Database to collect information on the environmental impact of commonly used materials, products, and processes. The LCI Database provides a central source for critically reviewed LCI data that is developed in accordance with a common research protocol, is consistent with international standards, and is maintained by NREL. We are populating the database in cooperation with our industry partners, and we anticipate most of the expansion of the database will occur over the next two years.

Why is the LCI Database important?

Credible and accurate LCI data is very important to life-cycle assessment (LCA). LCA tracks a product's environmental impact from resource extraction through disposal. It can be used in the design of a new product or the evaluation of an existing product. It examines the energy use and pollution that results from resource extraction and product manufacturing. It also

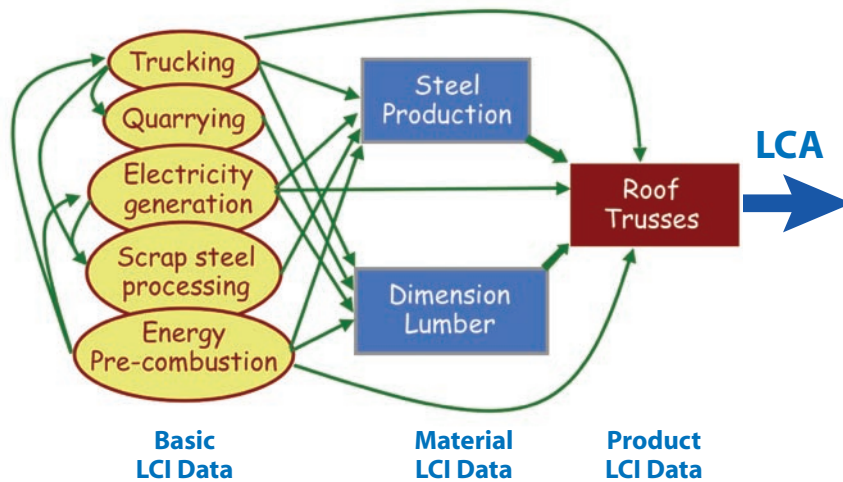
Working With the LCI Database

Primary Users

- LCA Experts
- Tool Developers
- Manufacturers

Secondary Users

- Architects
- Builders
- Government Agencies
- Environmental Preferable Purchasing Programs



Impact Potentials

- Global Warming
- Ozone Depletion
- Fossil Fuel Depletion
- Water Pollution
- Air Pollution
- Etc.

accounts for environmental harm that might occur during the distribution and use of the product. Finally, it considers the solid and liquid wastes that enter the environment following final use of the product. LCI data is the starting point for LCA. However, reliable LCI data is usually not available. The LCI Database is solving this problem by providing a central source of critically reviewed data. We are working closely with the Athena Institute, The National Institute of Standards and Technology, and the U.S. Green Building Council to support their LCA activities.

Where can I find the database?

The LCI Database is freely available through the project Web site at www.nrel.gov/lci. One of the major objectives of this project is to keep the process and data transparent. Users can access project documentation via the Web site. The LCI data is available in different formats to fit different user needs. There is a streamlined spreadsheet, EcoSpold format spreadsheet, EcoSpold XML file, and a detailed spreadsheet with all the calculation details. The data can be imported into major LCA tools.

**U.S. LCI Database
Web site:**
www.nrel.gov/lci

Contacts for more information:

Michael Deru, PhD
NREL
michael_deru@nrel.gov
303-384-7503

Wayne Trusty
Athena Institute
wayne.trusty@athenasmi.ca
(613) 269-3795

**National Renewable
Energy Laboratory**
1617 Cole Boulevard
Golden, Colorado 80401-3393
303-275-3000 • www.nrel.gov

Operated for the U.S.
Department of Energy Office
of Energy Efficiency and
Renewable Energy by Midwest
Research Institute • Battelle

NREL/FS-550-37661 • March 2005

Printed with a renewable-source
ink on paper containing at least
50% wastepaper, including 20%
postconsumer waste



Oak Ridge National Lab/PIX01749

**The U.S. LCI Database
project is collecting
information on
the environmental
impact of energy
resources such as
biofuels.**