**Project Supporters:**
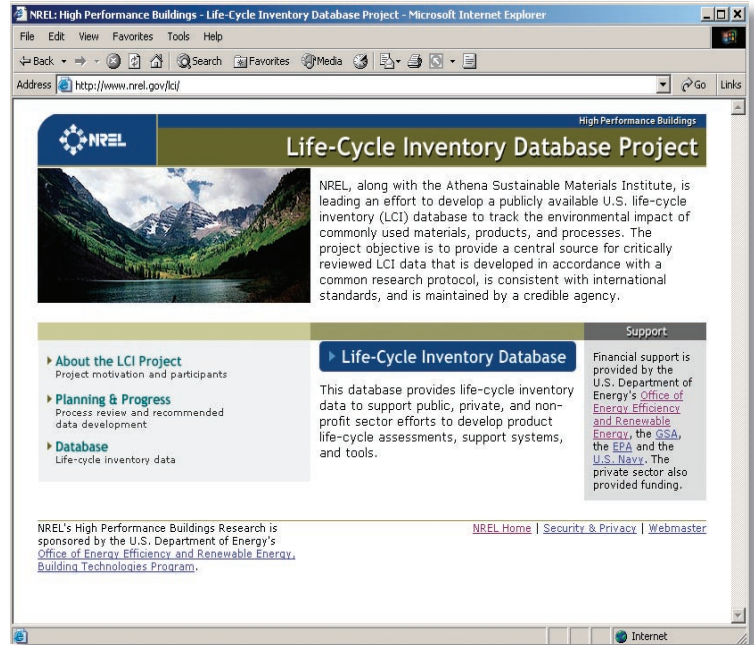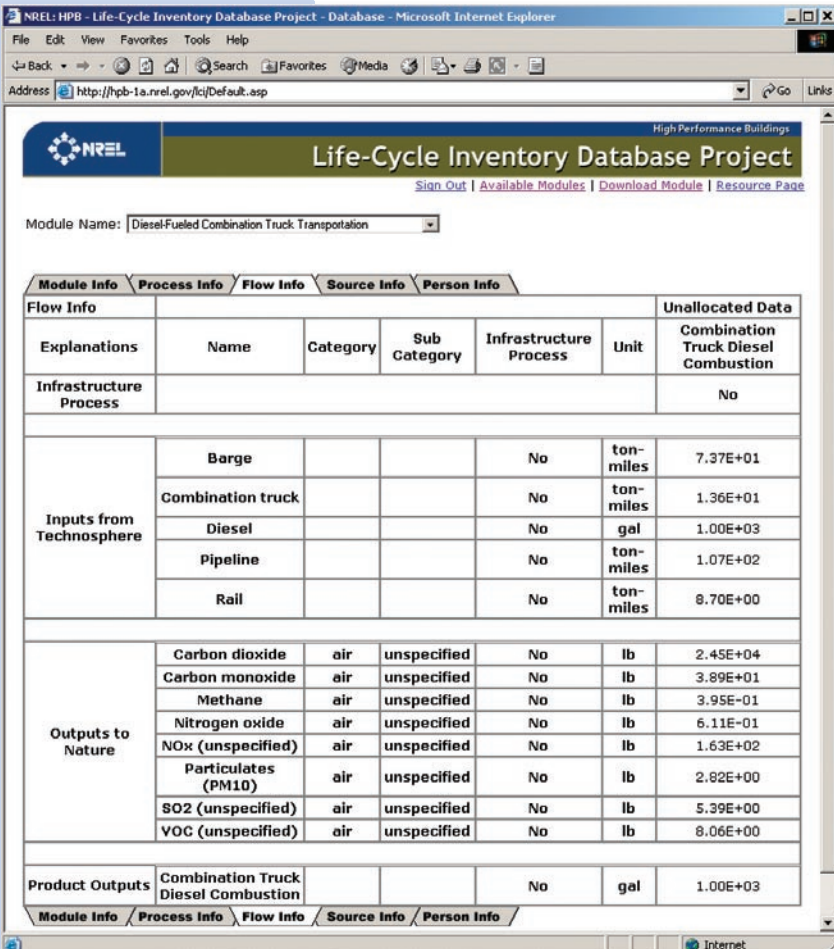
U.S. Department of Energy

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.



## 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
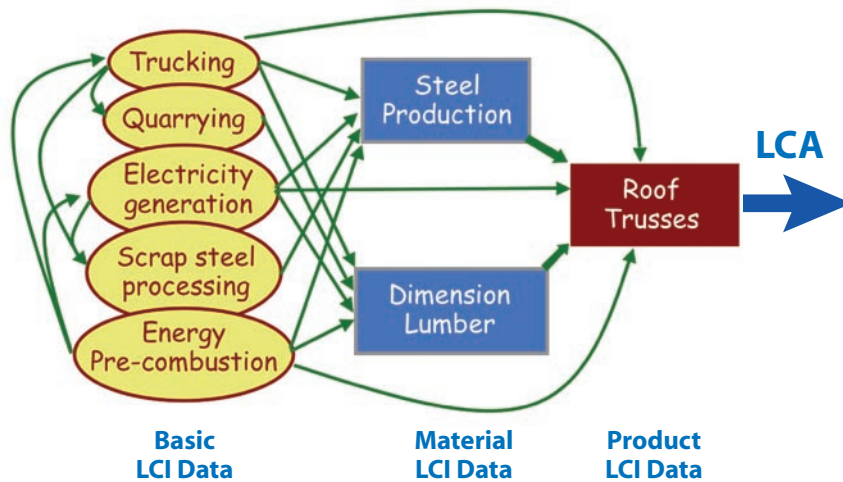
## Working With the LCI Database

### Primary Users

- **LCA Experts**
- **Tool Developers**
- **Manufacturers**

### Secondary Users

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



**Basic LCI Data**   **Material LCI Data**   **Product LCI Data**

### Impact Potentials

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

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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**

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Oak Ridge National Lab/PIX01749

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