

Federal LCA Commons



Peter Arbuckle, USDA-Agricultural Research Service
National Agricultural Library

*National Institute for Standards and Technology:
Data Harmonization to Improve the Circularity of Plastics*

January 25, 2023

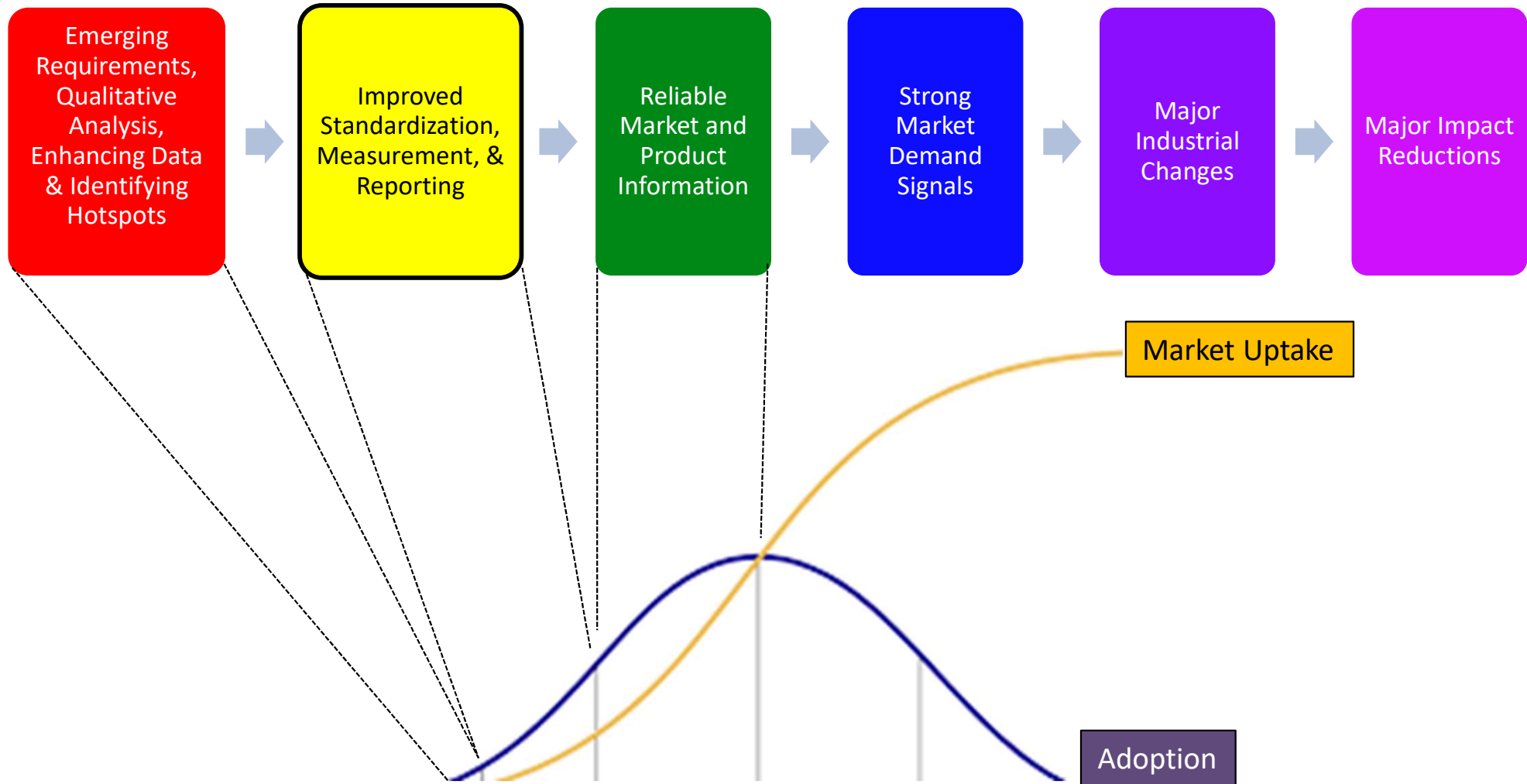


Overview

- Theory of Change and Innovation Diffusion
- What is the Federal LCA Commons?
- Federal LCA Commons Data Repository
 - Data management and access infrastructure
 - LCA methods consistency
 - Consistent reference models and data

Theory of Change and Innovation Diffusion

Context of Environmental Information



The Nutrition Label Analogy



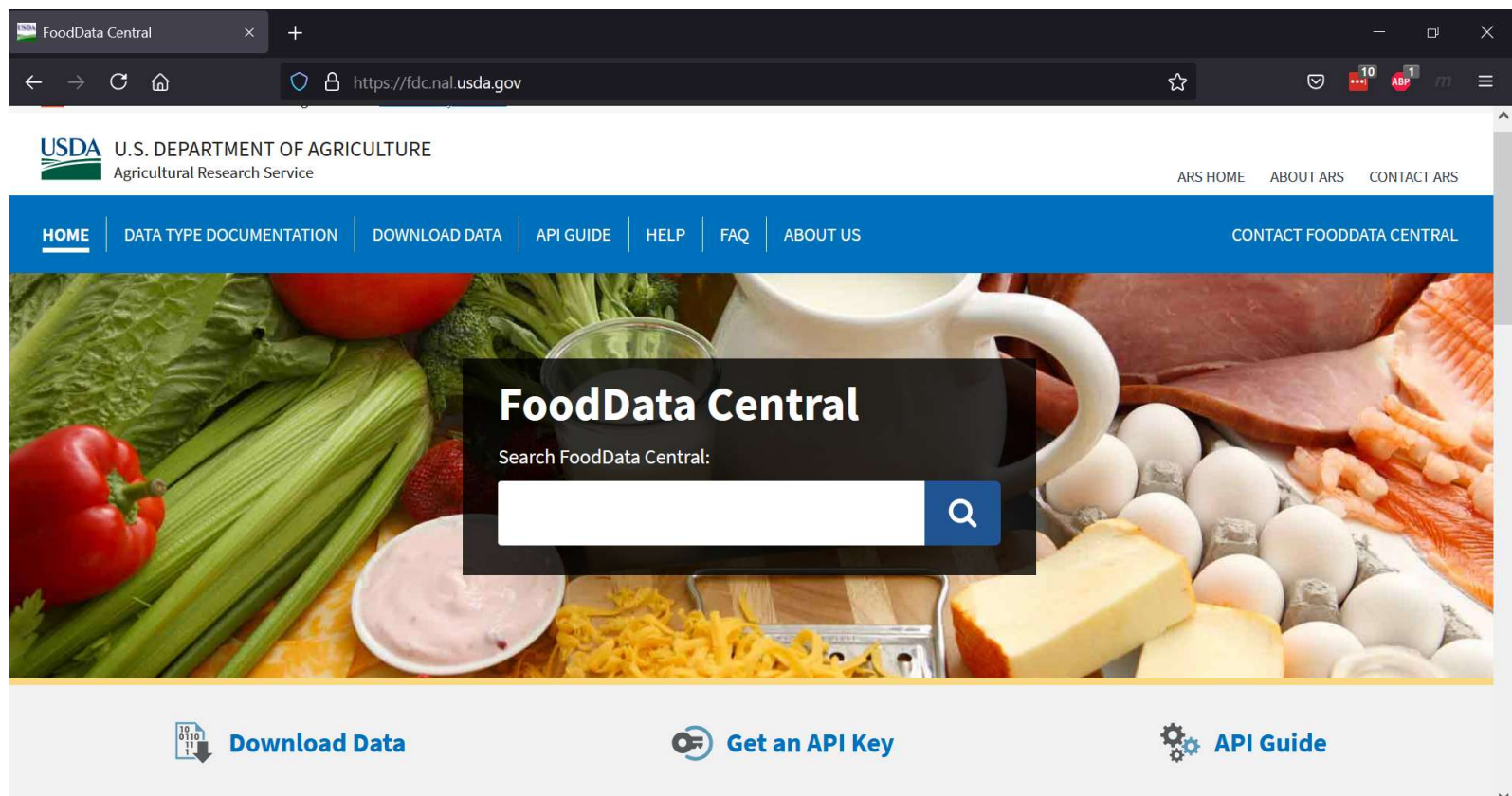
Nutrition Facts	
Serving Size 1 Package (326g)	
Servings Per Container 1	
Amount Per Serving	
Calories 320	Calories from Fat 35
% Daily Value*	
Total Fat 4g	6%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Polyunsaturated Fat 1.5g	
Monounsaturated Fat 1g	
Cholesterol 10mg	3%
Sodium 570mg	24%
Potassium 540mg	15%
Total Carbohydrate 55g	18%
Dietary Fiber 4g	16%
Sugars 8g	
Protein 15g	
Vitamin A 10%	Vitamin C 10%
Calcium 6%	Iron 10%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Calories: 2,000 2,500	
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Potassium	Less than 3,500mg 3,500mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

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The Nutrition Label Analogy: *Why does this work?*

Inter-agency collaboration

Collaboration: FDA, USDA, NIST and Industry on Policy, Science, Standards and Measurement, and Data Management



The screenshot shows a web browser window displaying the FoodData Central website. The browser's address bar shows the URL <https://fdc.nal.usda.gov>. The website header includes the USDA logo and the text "U.S. DEPARTMENT OF AGRICULTURE Agricultural Research Service". A navigation menu contains links for "HOME", "DATA TYPE DOCUMENTATION", "DOWNLOAD DATA", "API GUIDE", "HELP", "FAQ", "ABOUT US", and "CONTACT FOODDATA CENTRAL". The main content area features a large image of various food items (vegetables, dairy, meat, and seafood) with a search bar overlay. The search bar contains the text "FoodData Central" and "Search FoodData Central:". Below the search bar are three buttons: "Download Data", "Get an API Key", and "API Guide".

<https://fdc.nal.usda.gov/>

The Federal LCA Commons

Collaboration between Federal Agencies to advance LCA

Our Mission:

- Advance LCA data, research and information systems
- Improve modeling methods consistency
- Enhance public access to Federal LCI data



U.S. Department of Transportation
Federal Highway Administration



NIST
National Institute of
Standards and Technology
U.S. Department of Commerce



**Lawrence Livermore
National Laboratory**



N E T L NATIONAL
ENERGY
TECHNOLOGY
LABORATORY

Argonne
NATIONAL LABORATORY

<https://www.lcacommons.gov/memorandum-understanding-0>

Community of Practice



Research and Methods

Model and Data development

- Energy supply chains
- Energy generation and transmission
- Transportation systems
- Waste management
- Environmental impacts
- Construction materials
- Carbon capture and storage
- Agricultural production



Policy and Deployment



Knowledge Management

- Whole building LCA analysis tools
- Open access data repositories and publication workflows
- Tools and resources for interoperability and data reuse

Knowledge Management

LCA Deployment and Policy Support

- Use of LCA in pavement design and procurement through FHWA LCA PAVE tool
- Guidance and technical reviews of LCA in support of Internal Revenue Service 45Q tax credit
- Conduct LCAs for DOE, Loan Program Office greenhouse gas analysis loan requirements



Work Products to Increase Consistency and Access

- **US Electricity Baseline:**
Consistent Background Models
- **Elementary Flow List:**
Consistent Elementary Flows and LCIA
- **Data Portal**
www.lcacommons.gov

The Federal LCA Commons
Collaboration between Federal Agencies to advance LCA

- Leverage individual agency mission activities to:
 - Advance LCA data, research and information systems
 - Improve modeling methods consistency
 - Enhance public access to Federal LCI data



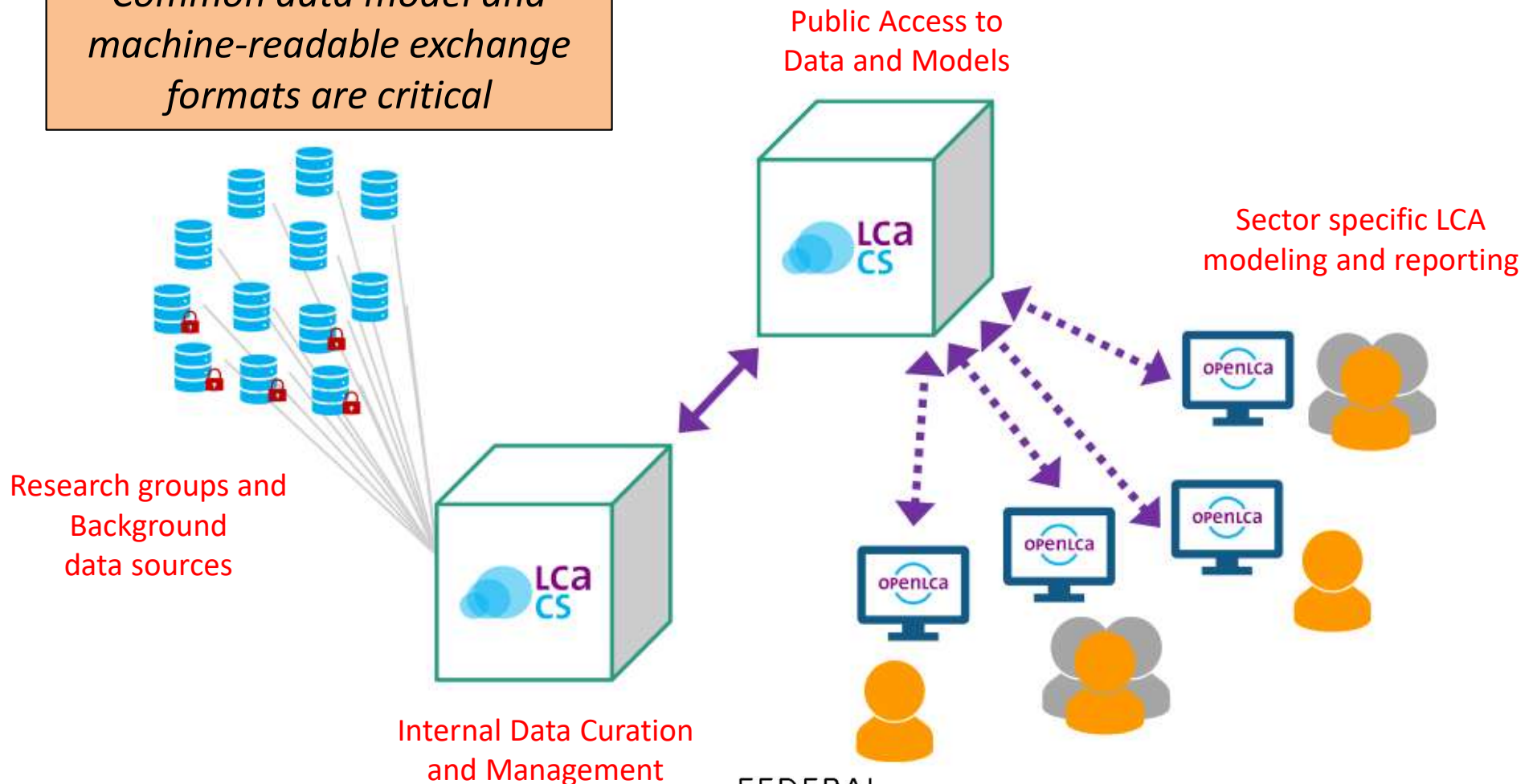
Formalized with a MOU signed by USDA, DOE, USEPA
<https://www.lcacommons.gov/memorandum-understanding-0>

FEDERAL
LCA
COMMONS

Federal LCA Commons Knowledge Management *Open Data Services*

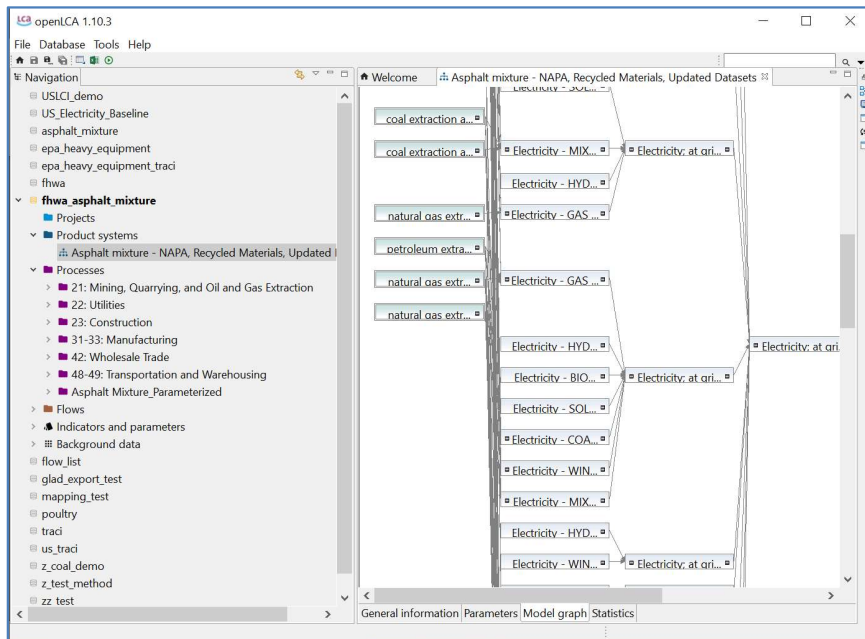
Managing community data and reference models

Common data model and machine-readable exchange formats are critical



Federal LCA Commons Knowledge Management *Open Data Services*

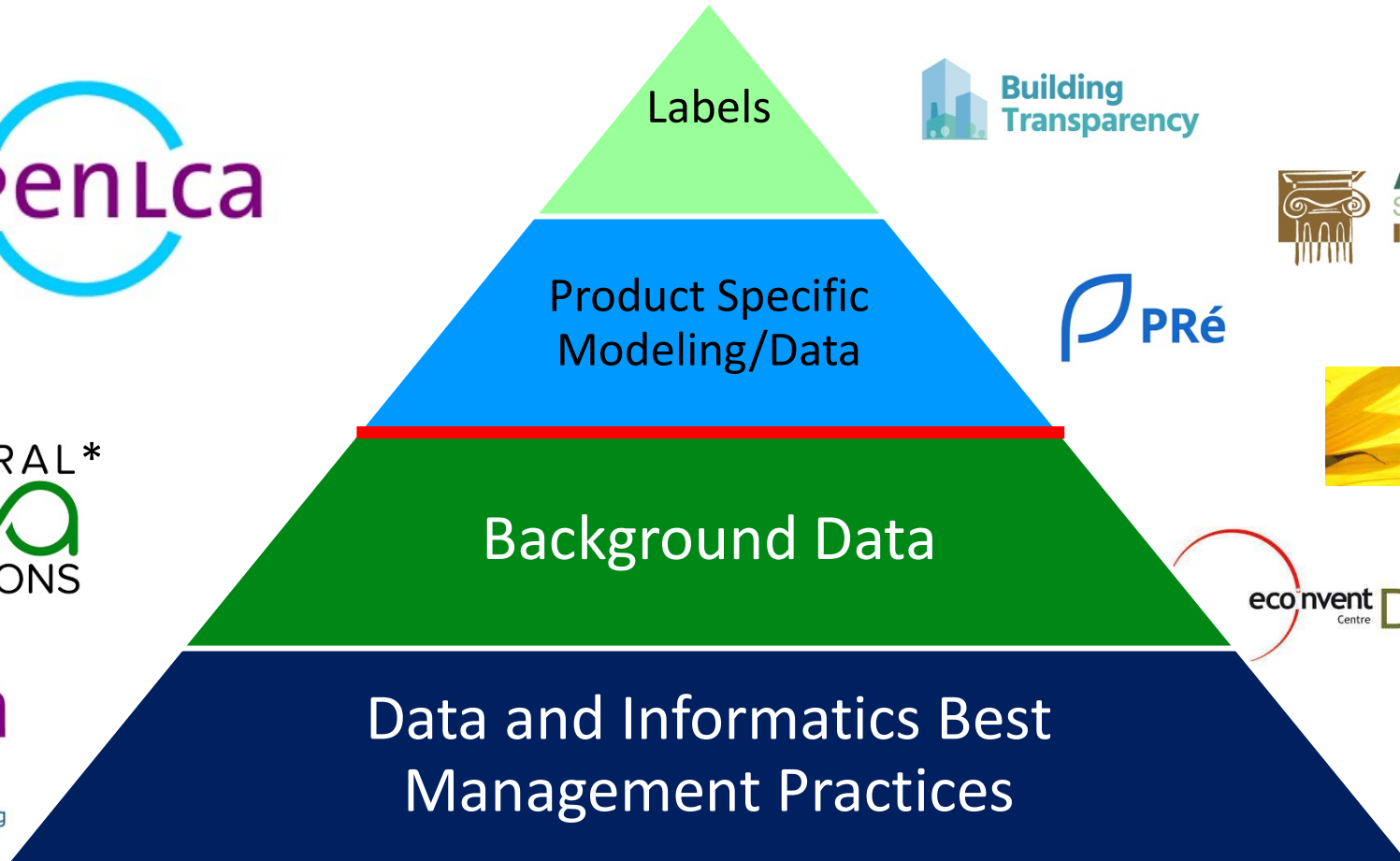
- Integrated open data workflow
- Metadata services
- Interoperability and reuse guidance and standards



The screenshot shows the Federal LCA Commons website homepage. The header includes the logo and navigation links: Home, About Us, Documentation, Contact, and Sign In. Below the header is a search bar with the text 'Search across all public repositories' and a 'Search' button. The main content area features a grid of nine data set categories, each with a 'Browse' button:

- Federal LCA Commons/US electricity baseline (3169 data sets)
- National Renewable Energy Laboratory/USLCI (6047 data sets)
- Federal LCA Commons/ReCiPe (168004 data sets)
- Federal LCA Commons/Elementary flow list (278788 data sets)
- US Forest Service Forest Products Laboratory/Woody biomass (79 data sets)
- Federal LCA Commons/Federal LCA Commons core database (692 data sets)
- National Energy Technology Laboratory/Coal extraction (651 data sets)
- US Environmental Protection Agency/TRACI (159577 data sets)
- US Environmental Protection Agency/Heavy equipment operation (163 data sets)

LCA Commons Role



*US LCI is part of the Federal LCA Commons.



Summary

- Federal LCA Commons plays a key role in laying the foundation for more consistent use of life cycle assessment in markets and policy.
- At this stage, collaboration is critical to coordinate policy, standards, data, and infrastructure to support applications.

Thank you!

Questions?



Peter.Arbuckle@usda.gov

