LCA Commons

Nexus version 2025.1

Database release note for openLCA

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1 Background

The LCA Commons provides LCA data in the form of unit or system processes for life cycle inventories and input-output(I/O) repositories. These repositories have been accessed from their website[1] and have been provided as a whole database in zolca format, in which the various repositories have been made compatible for use together.

Since the previous release of LCA Commons by GreenDelta, the LCA Commons team has released several new updates, all of which have now been incorporated into the latest release of the database on Nexus. These include, a new elementary flow system v130 (12.2024), updated LCIA methods for TRACI 2.2 (released 05.2025), ReCiPe 2016, TRACI 2.1, IPCC Global Warming Potential, Cumulative Energy Demand and FEDEFL Inventory Methods. Updated process repositories have been incorporated for the USLCI database (03.2025), the Cement and Concrete repository from Argonne National Laboratory (02.2025) and the Forestry and Forest Products Database (05.2025). All of these repositories have been made compatible with each other and have been combined in our LCA Commons database release for May 2025.

The database from the 2023 release was maintained for most of the repositories, so please refer to this documentation to follow the updates were made in the past. Updates in this version were mainly made to the USLCI database, Cement and Concrete repository, the elementary flow system v130 incorporation and the LCIA methods.

2 Repositories included in the LCA Commons database

2.1 Repositories and Elementary flow systems – v1.2.2 and v1.3.0

The table below provides an overview of all the repositories in the LCA Commons database. We have updated the repositories released in 2024 and made minor validation fixes.

Table 1: Overview of repositories and the corresponding elementary flow list (FEDEFL version) and LCIA formatter they are associated with

Repository	Last Update	FEDEFL elementary flow list
Forestry and Forest Products Database	30.05.2025	This repository contains unit- and system-level processes related to the production of

[1] https://www.lcacommons.gov/lca-collaboration/

		traditional and novel forest products from the forest resource stage (A1) to the production of primary and secondary forest products (A3).
National Renewable Energy Laboratory/USLCI – library by NREL	31/03/2025	Updated. New release, but unsure of the FEDEFL version
Federal LCA Commons/US Electricity Baseline	06/27/2024	Updated from library - elci_library present in USLCI repository
Argonne National Laboratory/Cement and Concrete	27/02/2025	Updated. Federal Elementary Flow List (v1.3.0), LCIA Formatter (v1.1.4)
Federal LCA Commons/Elementary Flow List	05/08/2024	Updated. Federal Elementary Flow List (v1.3.0)
US Environmental Protection Agency/Construction and Demolition Debris (CDD) Management	04/18/2023	Retained from 2023 release with no updates
US Environmental Protection Agency/USEEIO v2.0	05/10/2022	Retained from 2023 release with no updates
US Environmental Protection Agency/Heavy Equipment Operation	04/01/2022	Retained from 2023 release with no updates
National Renewable Energy Laboratory/CED Method	10/04/2021	Retained from 2023 release with no updates
Federal Highway Administration/MTU Asphalt Pavement Framework	10/26/2021	Retained from 2023 release with no updates
CORRIM/Forestry and Forest Products	12/30/2019	Retained from 2023 release with no updates
US Forest Service Forest Products Laboratory/Forestry and Forest Products	11/25/2019	Retained from 2023 release with no updates

Federal LCA Commons/Federal LCA Commons Core Database	09/09/2019	Retained from 2023 release with no updates
NC State Department of Forest Biomaterials/Kraft Pulp	07/24/2018	Outdated legacy repository that is not maintained. All datasets are marked with xx
University of Washington Design for Environment Laboratory/Field Crop Production	07/24/2018	Outdated legacy repository that is not maintained. All datasets are marked with xx
University of Arkansas/Swine	05/31/2018	Outdated legacy repository that is not maintained
University of Arkansas/Beef Production	08/08/2018	Outdated legacy repository that is not maintained. All datasets are marked with xx
National Energy Technology Laboratory/Coal Extraction	08/01/2018	Retained from 2023 release with no updates

2.2 LCIA Methods from LCA commons

Federal LCA Commons/TRACI2.2	30/05/2025	Updated. Federal Elementary Flow List (v1.3.0), LCIA Formatter (v1.2.0)
Federal LCA Commons/ReCiPe 2016	12/27/2024	Updated. Federal Elementary Flow List (v1.3.0), LCIA Formatter (v1.1.4)
Federal LCA Commons/FEDEFL Inventory Methods	12/27/2024	Updated. Federal Elementary Flow List (v1.3.0), LCIA Formatter (v1.1.4)
Federal LCA Commons/IPCC Global Warming Potential 8 Impact categories	12/27/2024	Updated. Federal Elementary Flow List (v1.3.0), LCIA Formatter (v1.1.4)
Federal LCA Commons/Cumulative Energy Demand	12/27/2024	Updated. Federal Elementary Flow List (v1.3.0), LCIA Formatter (v1.1.4)
Federal LCA Commons/Impact World	12/27/2024	Updated.

		Federal Elementary Flow List (v1.3.0), LCIA Formatter (v1.1.4)
Federal LCA Commons/TRACI 2.1	06/28/2024	Updated. Federal Elementary Flow List (v1.1.3), LCIA Formatter (v1.2.3)
ISO21930-LCIA-US (v0.1)	01/06/2024	Updated. Federal Elementary Flow List (v1.2.2), LCIA Formatter (v1.1.3)

3 Known issues

The issue with having elementary flows as input and output was intentionally left as is for now.

Data set	Message
Water, fresh	elementary flow is used as input and output of processes
Water	elementary flow is used as input and output of processes
Water, fresh	elementary flow is used as input and output of processes
Water, fresh	elementary flow is used as input and output of processes
Coal, lignite	elementary flow is used as input and output of processes
Lead	elementary flow is used as input and output of processes
Halon 1301	elementary flow is used as input and output of processes
Chromium	elementary flow is used as input and output of processes
Natural gas	elementary flow is used as input and output of processes
Manganese	elementary flow is used as input and output of processes

Oxygen	elementary flow is used as input and output of processes
Copper	elementary flow is used as input and output of processes
Methane	elementary flow is used as input and output of processes
Phosphorus	elementary flow is used as input and output of processes
Thallium	elementary flow is used as input and output of processes
Quartz, sand	elementary flow is used as input and output of processes
Zinc	elementary flow is used as input and output of processes
Chloride	elementary flow is used as input and output of processes
Chloride	elementary flow is used as input and output of processes
Coal, anthracite	elementary flow is used as input and output of processes
Sodium(I)	elementary flow is used as input and output of processes
Water, saline	elementary flow is used as input and output of processes
Sodium chloride	elementary flow is used as input and output of processes
Chromium(III)	elementary flow is used as input and output of processes
Crude oil	elementary flow is used as input and output of processes
Sodium sulfate	elementary flow is used as input and output of processes
Water	elementary flow is used as input and output of processes

Hydrogen cyanide	elementary flow is used as input and output of processes
Carbon dioxide	elementary flow is used as input and output of processes
Salts, unspecified	elementary flow is used as input and output of processes
Sodium chloride	elementary flow is used as input and output of processes
Biomass	elementary flow is used as input and output of processes

The processes were downloaded as provided by the repositories on the website and only fixed for issues that make them incompatible with the software. However, certain issues were left behind. Some of these are detailed here.

- Some supply chains in the database are truncated and are meant to be completed with datasets from ecoinvent. In the present database, with a system not fitting to the ecoinvent flow system, these supply chains are not completed, and left as they are.
- When processes with no linked providers are calculated, these truncated product/waste flows will show up in the inventory calculations instead of characterized elementary flows. When it is important to the user, they can consider completing the supply chain.
- When a user runs a calculation, they should ensure that they choose an appropriate allocation method

4 Contact

Nexus is run by GreenDelta GmbH, and LCA Commons on Nexus is provided by GreenDelta. For contact and inquiries, please refer to:

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