



Life Cycle Assessment (LCA) FAQ

Table of contents

What is a LCA?	03
What is the purpose of an LCA?	03
Why conduct an LCA?	03
Who can benefit from an LCA?	03
What are the stages of an LCA?	04
What environmental impact categories are considered?	05
What products can be assessed?	06
What stages are used for an LCA?	07
Can I assess my company or organization, rather than just my product?	08

How is an LCA done?	09
LCA process, featuring an EPD	09
What do I need to provide?	10
What advantages does an LCA offer my company?	10
How else can I use my LCA?	11
Why choose UL Solutions for your LCA?	12
How can I contact UL Solutions if I have additional questions on LCA?	12

What is a life cycle assessment?

A life cycle assessment (LCA) is a standard methodology for evaluating the environmental impacts of a product, process or service throughout its entire life cycle, from raw material extraction to final disposal. It's a comprehensive analysis that helps understand and minimize environmental burdens associated with a product or process.

What is the purpose of an LCA?

LCAs help identify and quantify environmental impact so organizations can make informed decisions to reduce their overall environmental footprint.

Why conduct an LCA?

LCAs can help businesses identify opportunities to reduce their environmental footprint, improve efficiency and meet sustainability goals. An LCA can also help with transparent communication to buyers that can build trust and position you as a leader in the marketplace.

Who can benefit from an LCA?

Different teams across an organization find value in LCAs. They can help sustainability leads connect results to business goals, marketing teams communicate progress to protect and grow brand value, and product managers meet requirements for environmental impact initiatives like Leadership in Energy and Environmental Design (LEED), Carbon Border Adjustment Mechanism (CBAM), and Buy-Clean Acts.

LCAs also support supply chain teams in aligning with buyer expectations, executives in shaping strategy and trade associations in setting industry benchmarks. Across these groups, LCAs provide data to guide decisions and demonstrate sustainability performance.

What are the stages of an LCA?

An LCA can include a cradle-to-grave assessment of a product's potential impact on the environment.

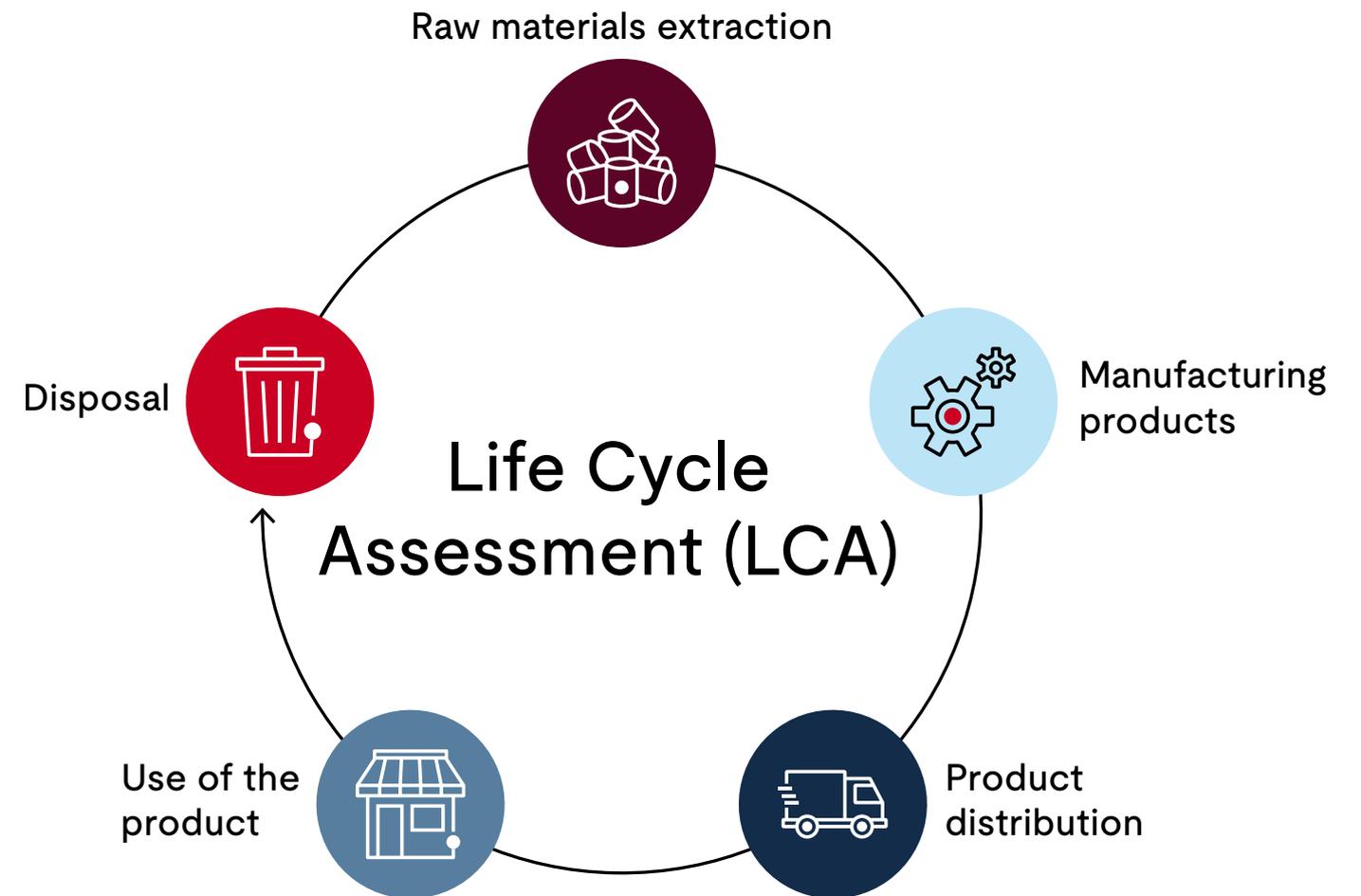
This includes:

- Extracting, processing and transporting raw materials to the pre-production or manufacturing facilities
- Manufacturing products
- Distribution and transportation of products to customers
- Use of the products
- End-of-life product treatment, including recycling and final disposal

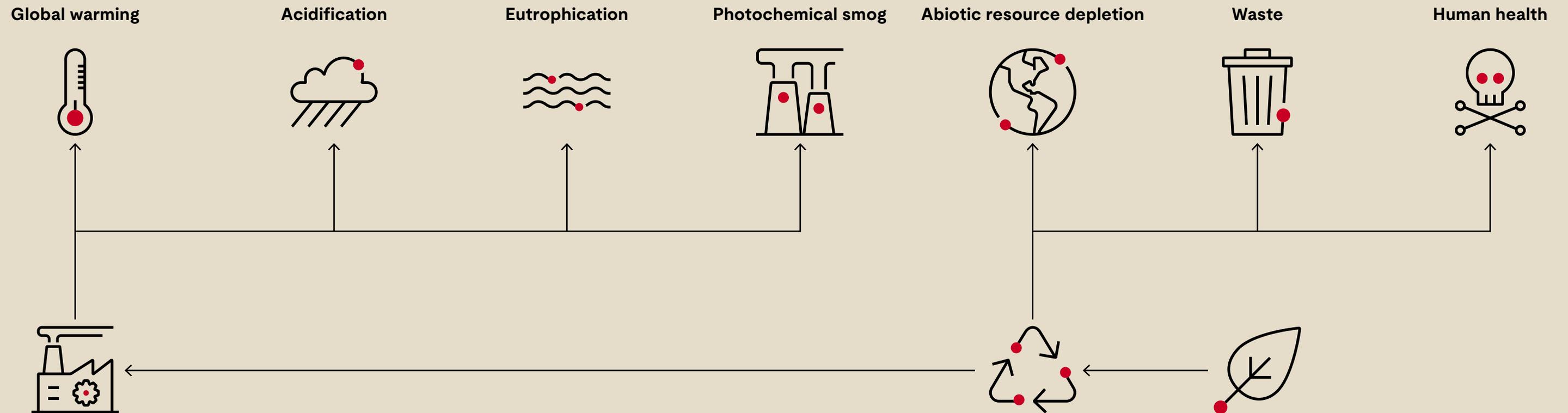
Data related to each of these phases is collected as part of the LCA. Calculations are performed based upon ISO standards to quantify the relevant inputs (e.g., energy, raw materials, other products) and outputs (e.g., emissions to air, discharges to water and soil) of a product or system.

These inputs and outputs are then associated with specific environmental impact categories, such as global warming potential, to develop a product's specific environmental profile.

Stages of an LCA - Cradle to Grave



What environmental impact categories are considered?



What products can be assessed?



Building materials and construction products



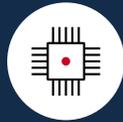
Plastics



Electronics



Consumer products



Electrical materials



Metals



Chemicals



Renewable energy technologies



What stages are used for an LCA?

Each stage represents part of the product life cycle, with system boundary modules described in the table below. The scope of the engagement and the product category rule (PCR) determine which phases are included and excluded.

- 1. Product stage (Modules A1-A3)** – Raw material and manufacturing
- 2. Construction stage (Modules A1-A4)** – Transportation and installation
- 3. Use stage (Modules B1-B7)** – Use, maintenance, repair and replacement
- 4. End-of-life stage (Modules C1-C4)** – Demolition and waste

Description of the system boundary modules

EPD Type	Product stage			Construction process stages		Use stage							End of life stage				Benefits and loads beyond the system boundary
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
	X	X	X	X	X	X*	X	X*	X*	X*	X*	X*	X*	X	X*	X	N/A

An aerial photograph showing a large solar farm with rows of blue photovoltaic panels. To the left of the solar farm is a dense green forest. A white car is parked on a dirt road between the solar panels and the forest.

Can I assess my company
or organization, rather
than just my product?

Yes,
a company can conduct an LCA.

It can help companies:

- Understand their environmental footprint
- Identify areas for improvement
- Make more informed decisions about product development, manufacturing and sustainability strategies

How is an LCA done?

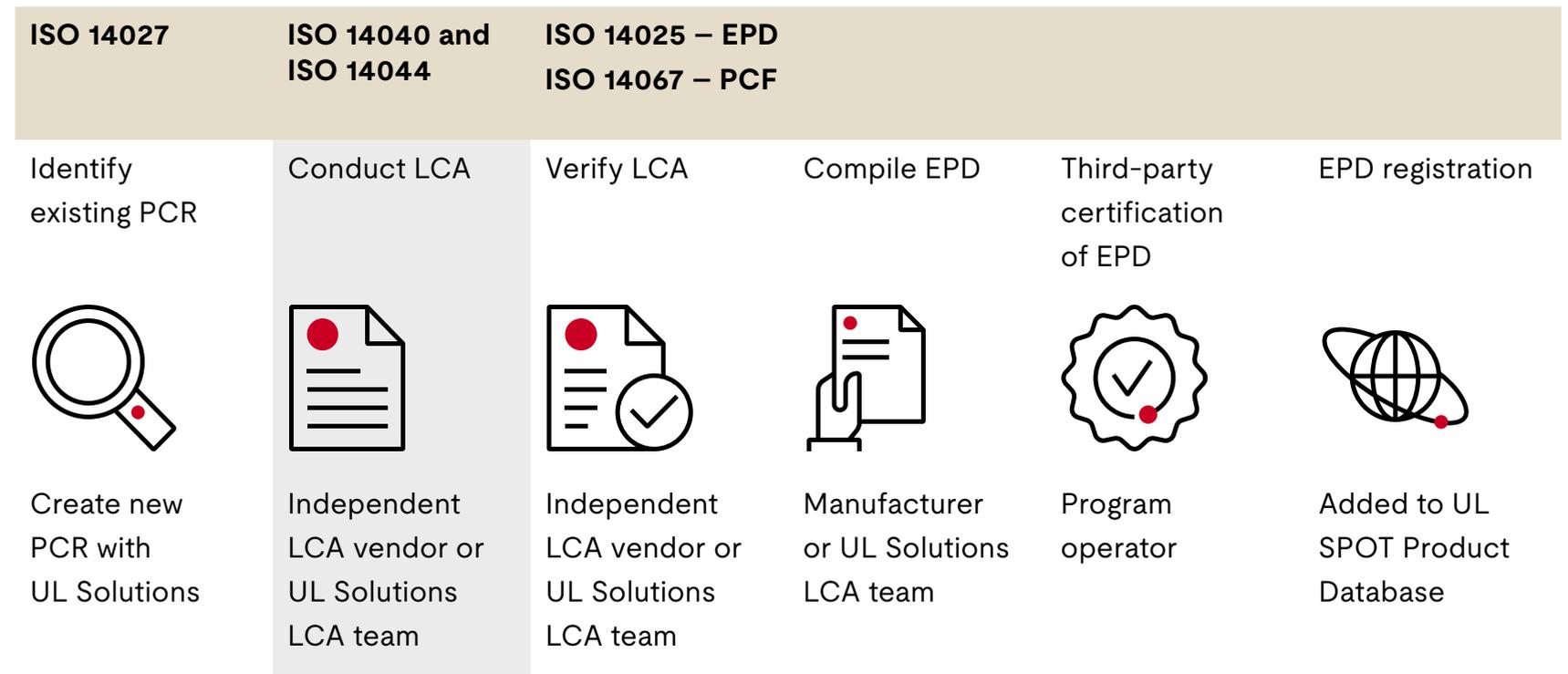
The procedure for an LCA is based on International Standards Organization (ISO) 14040 and 14044.

It consists of four project phases:

- 1. Scope and goal** – We define the goal and scope of the study together.
- 2. Life cycle inventory** – The life cycle inventory documents all input and output data.
- 3. Impact assessment** – The environmental effects of the input and output data are integrated into the life cycle inventory results as additional information. This serves as the basis for the fourth and final phase.
- 4. Interpretation** – The results of the impact assessment are summarized as a basis for recommendations in accordance with the goal and scope definition. You will receive the results in the form of a final report.

LCA process, featuring an EPD

Additional sustainability assessments, such as the product carbon footprint and the Product Carbon Footprint Measured label also requires third-party verification.



*All Life Cycle Assessments (LCAs) offered through this service are subject to independent third-party verification. The LCA creator and verifier are separate entities to ensure impartiality and compliance with ISO 14040/14044 standards. Environmental Product Declarations (EPDs) and Product Category Rules (PCRs) are developed and/or verified in accordance with applicable international standards and program operator requirements.

What do I need to provide?

You will need to provide a **point of contact for data collection**.

The contact does not require any LCA experience or technical expertise; UL Solutions can provide support.

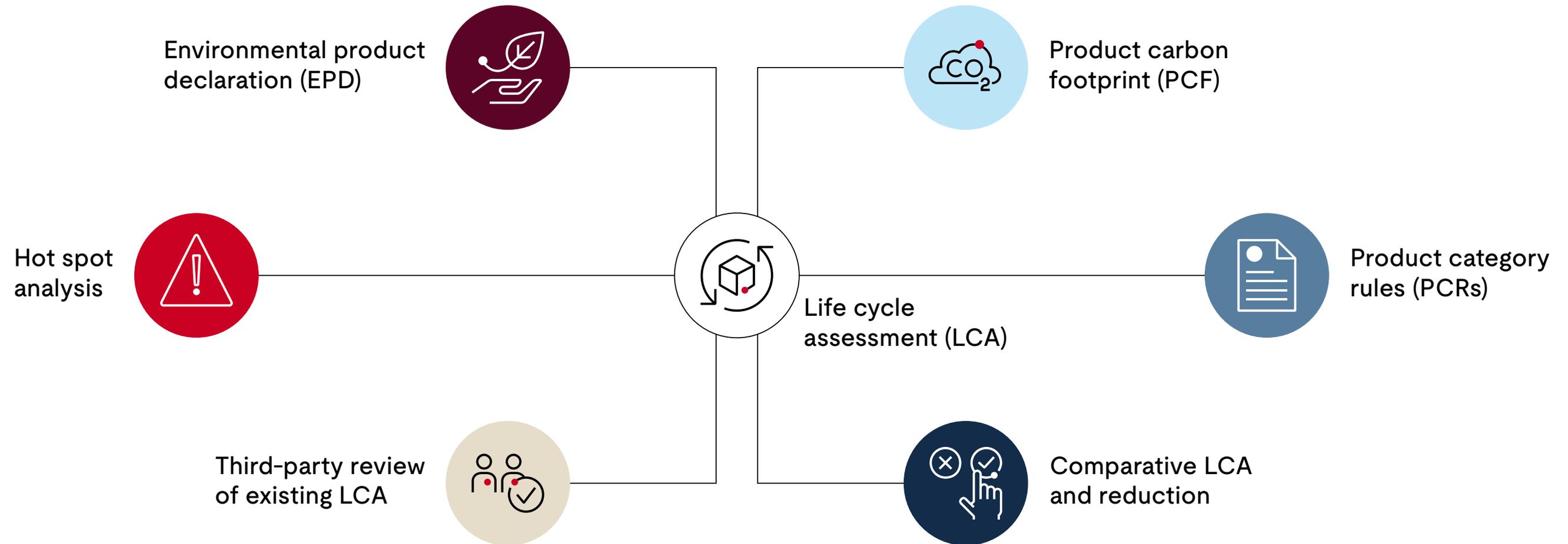
What advantages does an LCA offer my company?

How LCAs help manufacturers and brand owners demonstrate measurable progress:

- Provide comprehensive assessments of a product's environmental impact
- Enable transparent communication that buyers can understand
- Support verification against environmental regulations, standards and customer criteria
- Identify opportunities to optimize resource use
- Help meet customer and supply chain sustainability expectations
- Build trust that can lead to a competitive advantage

How else can I use my LCA?

An LCA is the central point of a broader product decarbonization strategy. The LCA helps facilitate other environmental impact verification and validation services, such as those that appear below.





Why choose UL Solutions for your LCA?

UL Solutions brings deep expertise in sustainability science to help you better understand your product's environmental performance.

We offer a wide range of LCA services, including third-party review and verification of existing assessments.

Partnering with UL Solutions can help you gain actionable insights to strengthen your sustainability strategy and demonstrate measurable progress toward your goals.

How can I contact UL Solutions if I have additional questions on LCA?

You can visit our Life Cycle Assessment service page on UL.com: www.ul.com/LCA and click on Contact Us button. Fill in the form with the required information and a UL Solutions representative will contact you directly.



[UL.com/Solutions](https://www.ul.com/solutions)

© 2025 UL LLC. All rights reserved.

RCP25CS2476881