Life Cycle Assessment Presentation

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Schneider Electric, the most local global company

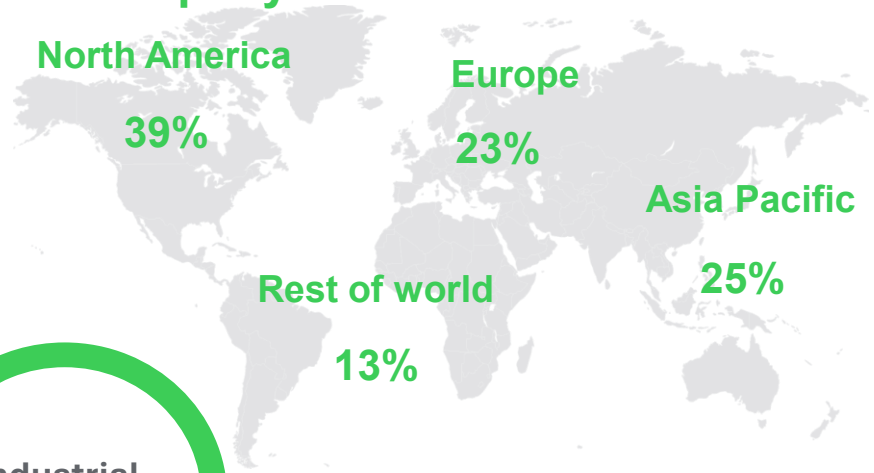
2025

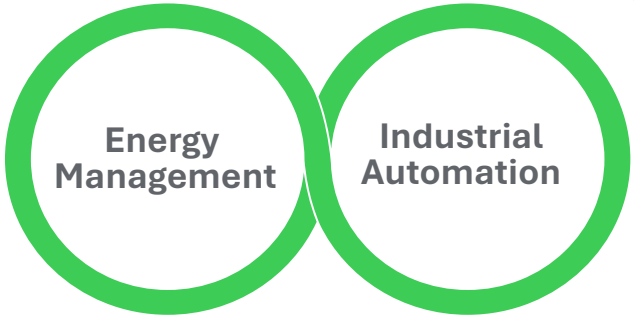
40 Mld €
turnover

160.000+
employees

5%
R&D investments

100+
Countries





Energy Transition + Digital Transformation

Buildings	Data Center	Infrastructure	Industry
29 %	30 %	14 %	27 %

General

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About SE Advisory Services

Who we are

Together with our clients, we act to put climate and nature centre stage to drive sustainable corporate transformation within planetary boundaries.

SE Advisory Services is an international sustainability consultancy and project developer with 18+ years of industry experience and 360+ climate experts globally.

SE Advisory Services' core purpose is to lead the way in developing sustainable business solutions that deliver true value for both climate and client. Data is the cornerstone of our consulting practice, supported by our dedicated Climate Data Analytics and Research & Innovation teams.

At SE Advisory Services we are driven by a shared purpose to make a difference. To help businesses implement positive change in response to climate and environmental sustainability challenges, whilst also driving commercial performance.

What we do

5,000+	120+	420+
Climate and sustainability projects since 2015	Climate risks and opportunities assessments	Low-carbon Projects supported

What we offer

Sustainability Consulting	Extensive experience in net-zero transitions, climate change risk management and sustainability projects
Climate & Nature Finance	Dedicated team of specialists focused on voluntary carbon market development and project sourcing
Climate Data Analytics	Expert team integrating climate science, climate modelling and data analytics for actionable insights
Research & Innovation	Interdisciplinary team focused on turning world-leading science into solutions for climate and nature

Our clients

NatWest, sage, L'ORÉAL, itv

Our partners

CDP GOLD ACCREDITED PROVIDER 2023, SCIENCE BASED TARGETS DRIVING AMBITIOUS CORPORATE CLIMATE ACTION, ICROA International Carbon Reduction & Offsetting Accreditation, ISO, Gold Standard for the Global Goals

Our unique advisory model turns your

ambition into operational reality

Strategic Advisory

We translate complexity into clarity, combining global expertise and governance insight to deliver clear, actionable strategies across your entire enterprise and supply chain.

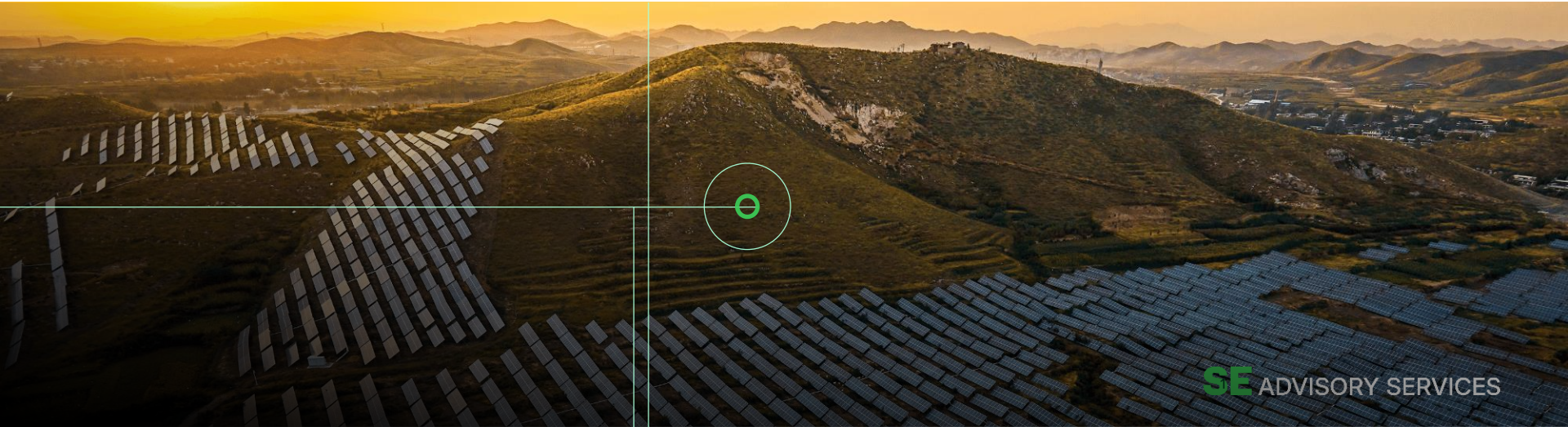
Intelligent Technology

Powered by AI and deep domain expertise, we co-create solutions with clients to enhance performance, mitigate risk, and build long-term resilience.

Seamless Implementation

Our end-to-end delivery model ensures seamless execution—from planning to transformation—accelerating outcomes across energy, sustainability, and digital operations.

Overall context



Emission Scopes Defined

SCOPE 1

Direct Emissions

Sources: All direct emissions within the operational control of an organization.

SCOPE 2

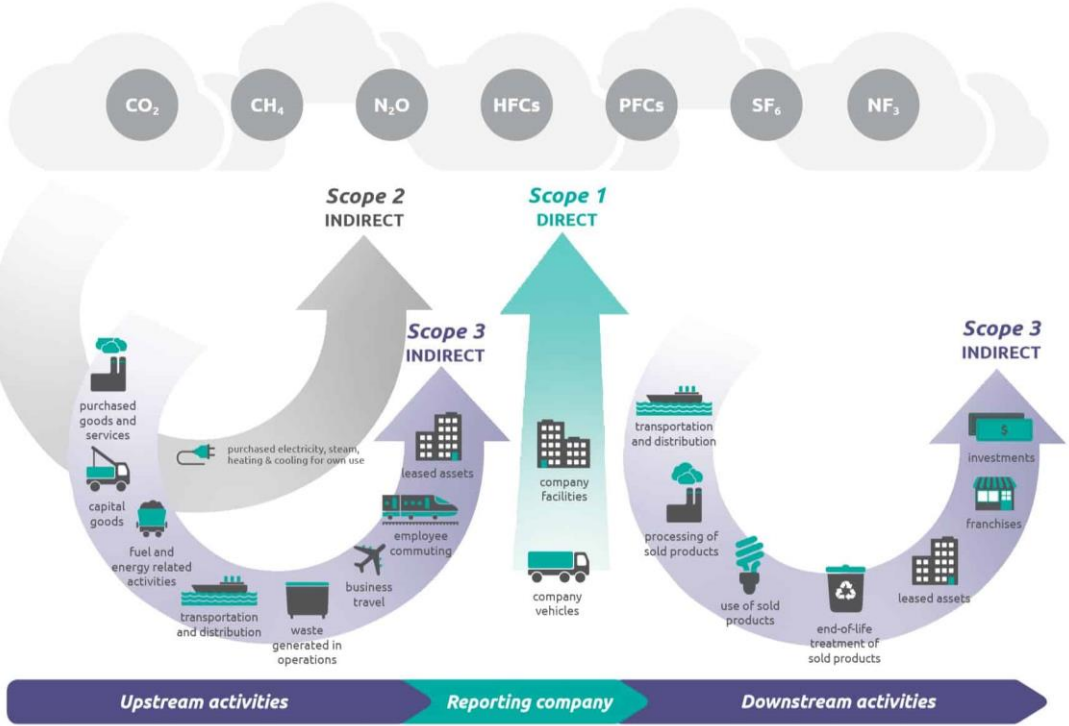
Indirect Emissions

Sources: Indirect emissions generated from purchased electricity, heat, steam or cooling

SCOPE 3

Indirect Emissions

Sources: All other indirect emissions from upstream and downstream value chain emissions (15 total categories)



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What is Scope 3?

Scope 3 emissions account for the **indirect GHG emissions** resulting **from sources owned or controlled by other entities** in the reporting company's value chain (e.g., third-party suppliers, travel suppliers, franchises, lessees and lessors, investments, employees and customers).

- This accounts for indirect emissions, not included in scope 1 or 2, covering production of purchased products, transportation of purchased products, or use of sold products.
- Scope 3 Emissions are categorized into **15 distinct categories** to systematically organize and report on the diversity of scope 3 activities.

Scope 3 Upstream Emissions

Scope 3 Upstream emissions are indirect GHG emissions related to **purchased or acquired** goods and services. They are typically understood as emissions produced by your supply chain.

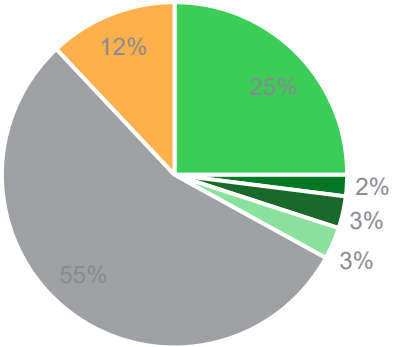
Scope 3 Downstream Emissions

Scope 3 Downstream emissions are indirect GHG emissions related to **sold** goods and services. They are typically understood as emissions produced by your customer activity and product use.

Source: GHG Protocol, Corporate Value Chain (Scope 3) Accounting and Reporting Standard

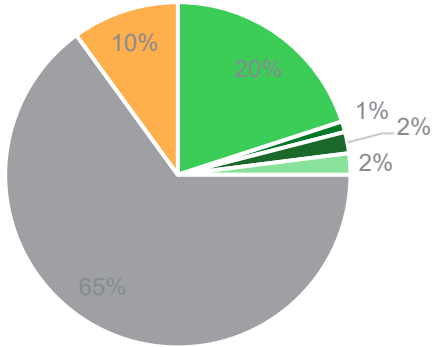
Typical Scope 3 breakdown among some industries

Technology (Hardware) Industry



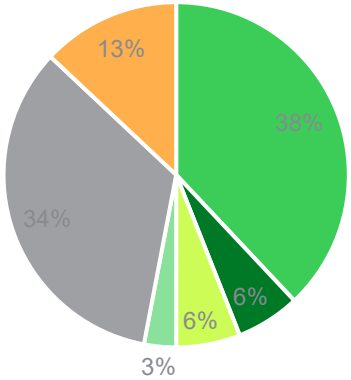
- Purchased Goods and Services
- Capital Goods
- Upstream T&D
- Downstream T&D
- Use of sold products
- Other

Electrical Equipment and Machinery



- Purchased Goods and Services
- Capital Goods
- Upstream T&D
- Downstream T&D
- Use of sold products
- Other

Construction & Engineering Industry



- Purchased Goods and Services
- Capital Goods
- Fuel and energy related activities
- Downstream T&D
- Use of sold products
- Other

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LCA looks at Scope 3 emissions of a particular product lifecycle, and addresses major categories

Scope 3 Emissions: an industry example

Category 1:
Purchased Goods & Services

PCFs from suppliers

Category 2:
Capital Goods

Category 3:
Fuel and energy related activities

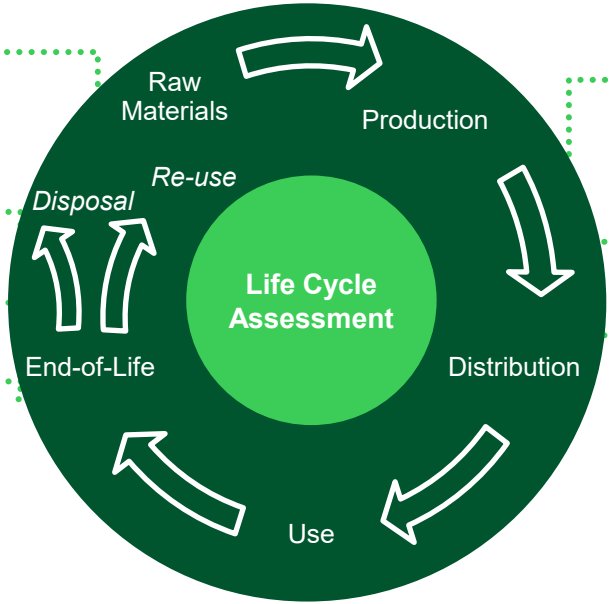
Category 4:
Upstream Transportation & Distribution

Category 5:
Waste generated from operations

Category 6:
Business travel

Category 7:
Employee commuting

Category 8:
Upstream Leased Assets



Category 9:
Downstream transportation and distribution

Category 10:
Processing of sold products

Category 11:
Use of sold products

Category 12:
End-of-life treatment of sold products

Category 13:
Downstream leased assets

Category 14:
Franchises

Category 15:
Investments

Scope 3 emissions linked to Product life-cycle

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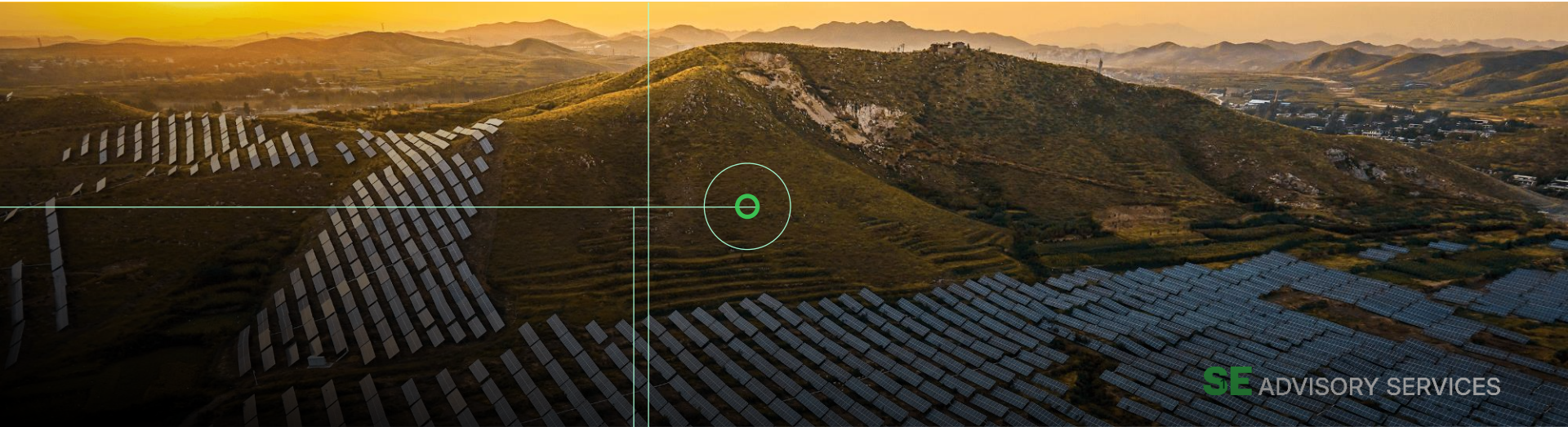
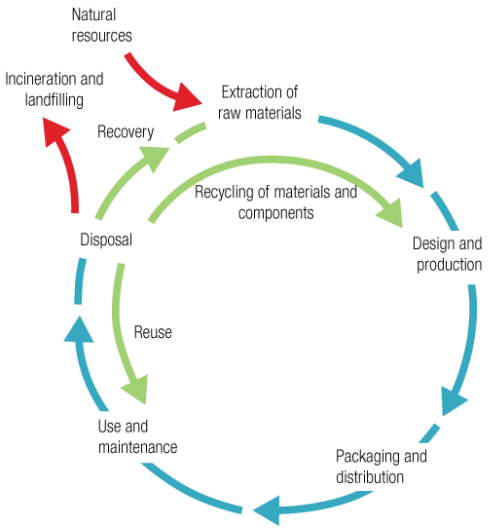
What is LCA?



Life Cycle Thinking

To understand what an LCA is, we must first learn about the concept of Life Cycle Thinking



Source: Life Cycle Initiative

What is Life Cycle Thinking?

- It is the practice of considering **the entire life cycle** of a product when assessing the **environmental, social and economic impacts** of the product.
- The idea is to consider **inputs and outputs** throughout each life cycle stage with the goal of **reducing impacts at each stage**, rather than only at the production stage.
- Life cycle approaches **avoid shifting problems** from one life cycle stage to another, from one geographic area to another and from one environmental medium to another.

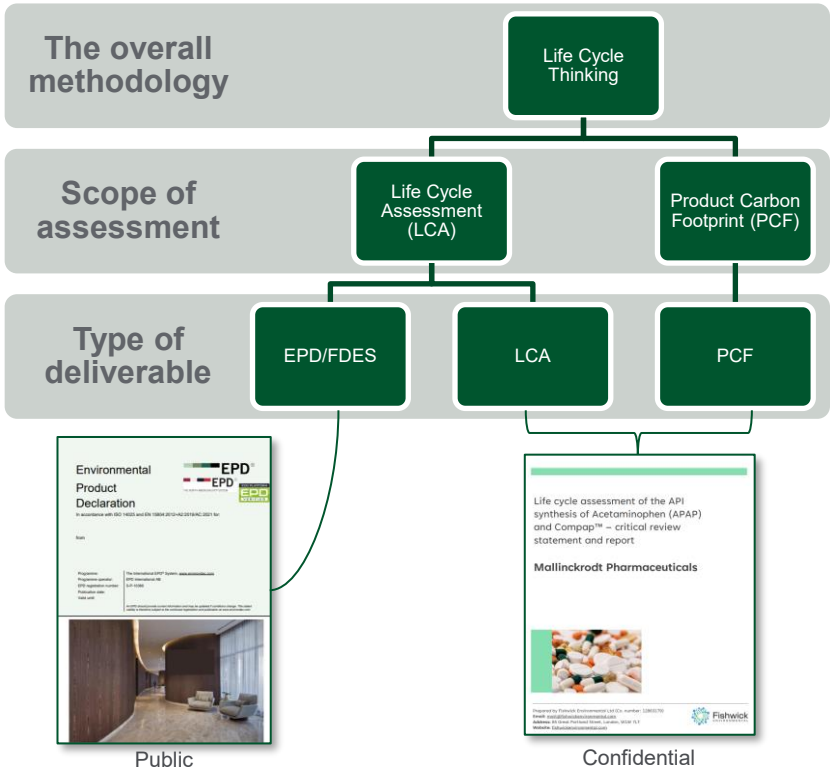
Aim of Life Cycle Thinking

- To develop a **holistic understanding** of a product in order to improve its environmental and socio-economic performance of a product and **reduce its adverse impacts**.
- To **enable decision-making** regarding policy and product development, consumption and production patterns and management strategies.

Life Cycle Thinking forms the conceptual basis for all sorts of **Life Cycle Assessments** which can include **environmental impacts (E-LCA)**, social impacts (S-LCA), and life cycle costing (LCC).

Key terms and definitions

In the world of LCA, it is important to know the differences between frameworks and outputs



Scope of assessment

- LCA is an umbrella term for product-level assessment
- PCF is a "**Single Issue LCA**", focusing on the carbon impact of products (or services)
- An LCA should consider all **Impact Categories** deemed relevant to the product under study.
- This is determined by sector specific guidance when available. Otherwise, it is flexible if well founded.

Type of deliverable (verification & Critical Review)

- Environmental Product Declaration (EPD): Specific report format
- LCA: ISO 14040/44 compliance
- PCF: ISO 14067 & 'GHGp Product Life Cycle Accounting and Reporting Standard'

What is an LCA?

LCAs uses Life Cycle Thinking to assess the overall impact of a product

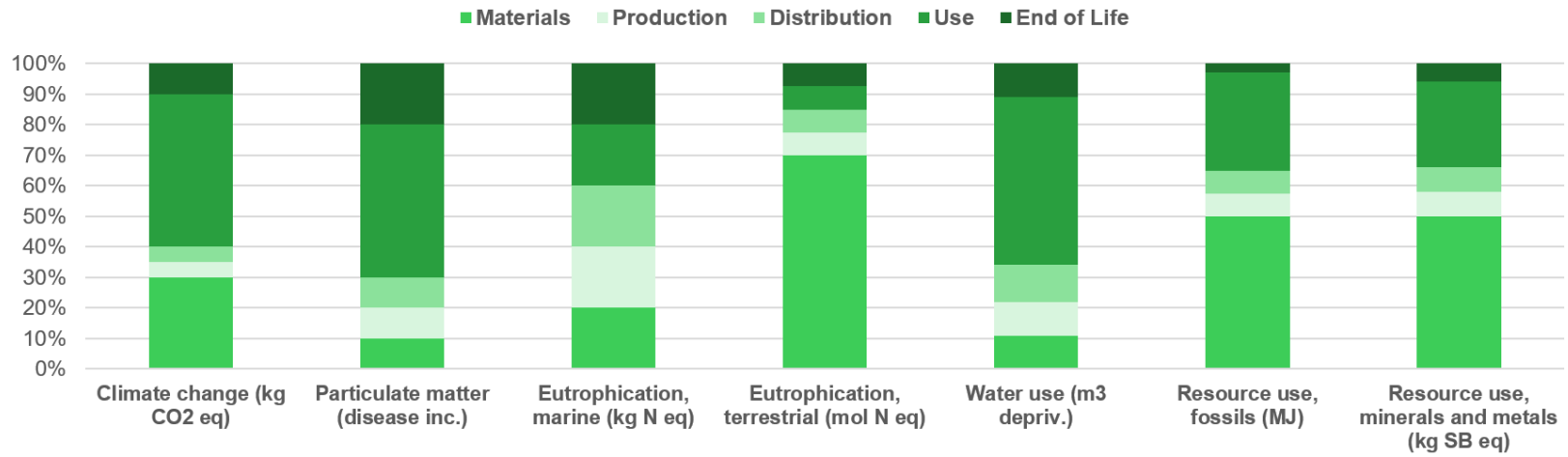
- A **Life Cycle Assessment (LCA)** is an internationally recognized, science-based methodology used to assess impacts of a product or service throughout its life.
- This includes all impacts from raw material extraction (**cradle**) over processing, manufacture, distribution and use, to end-of-life disposal, recycling or reuse (**grave**).
- **Cradle to gate** boundaries are also common, including impacts from cradle to any point along the value chain.
- All **inputs to the system** (raw materials, energy, land, etc.) are considered, as well as all types of outputs. This typically includes emissions to the air, land, and water.
- **Product Carbon Footprint (PCF)** is a type of LCA that focuses on just the carbon footprint (or GHG emissions) associated with a product.

Lifecycle impact categories

Looking beyond carbon emissions

A complete view of a product's environmental impact requires **looking beyond the emissions impact**

An LCA typically includes several **impact categories**, which enable you to reduce the risk of **burden shifting,** which occurs when efforts to reduce the impact of one category lead to an increase in another. For example, replacing plastics with paper alternatives to reduce the emissions footprint may result in increased water consumption).



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Why LCA: benefits and client use cases

Strategic Management
- Understand supply chain risks
- Explore alternative business models e.g., store vs online subscription
- Meeting GHG targets
- Stay ahead of regulation

Marketing & Sales
- Meet consumer expectations
- Substantiate claims
- Product differentiation
- Enhance climate change

Research & Development
- Drive emissions reductions
- Enhance innovation
- Support sustainable product design

Supply Chain & Procurement
- Understand supply chain
- Evaluate suppliers
- Improve traceability
- Enable supplier engagement

TYPES OF LCA PROJECTS

Product Assessment
Case study of one or few selected products or services

Comparative Analysis
Evaluation of alternative options (e.g. materials)

EcoDesign Tool
Tool enabling user evaluation of new designs and products

Organisational Life Cycle Assessment
Bottom-up assessment of portfolio of products, e.g. for Sc3

Product Deep Dives
Detailed analysis of top products, e.g. part of SBT or Sc3

Environmental Product Declaration
Communication of environmental credentials

EXAMPLES

Huel®
*Full understanding of product emissions & supporting external communication**

Charlie Bigham's
*Protecting brand identity; wood vs. plastic trays analysis**

DeLaRue
Showing carbon improvement on labels for key clients

JTI
*Packaging portfolio analysis**

THE J.M. SMUCKER Co
Confident SBT setting with new insight into specific products

BIOCARBON LAMINATES · BREATHING SUSTAINABILITY ·
*Confidently promoting carbon neutral laminate, for See Ltd**

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Existing European and international referential

The 16 life cycle phases of the European Standard EN 15978 et EN 15804 as a foundation for our data architecture

Phase	A1-A3. Manufacture			A4-A4 Distribution and Installation		B1-B7. Use phase							C1-C4. End-of-life phase			
Sub-phase	A1. Sourcing of raw materials	A2. Distribution	A3. Manufacture	A4. Distribution	A5. Installation	B1. Usage	B2. Maintenance	B3. Repair	B4. Replacement	B5. Rehabilitation	B6. Energy consumption during use	B7. Water consumption during use	C1. Demolition and deconstruction	C2. Transport	C3. Waste transport	C4. Disposal

In integration with carbon declarative frameworks at 2 levels

Product-related GHG declaration norms

- ✓ ISO 14025
- ✓ ISO 14040
- ✓ ISO 14044

PE — Europe

EPD® — International

PEP ecoPASSPORT® — International

Organisational-reated GHG frameworks

Normed by
- ✓ ISO 14064

GREENHOUSE GAS PROTOCOL — International

Bilans GES Organisation — France

OEF — Europe

CSRD — Europe

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Regulations & standards impacting the industry

Not an exclusive list

ESPR

The ESPR, effective since July 2024, is the EU's flagship regulation to make **sustainable products** the norm by setting **ecodesign requirements** for nearly all physical goods (excluding food, feed, and medicinal products). It replaces the 2009 Ecodesign Directive and expands its scope beyond energy-related products to include broader sustainability criteria.

Mandatory Digital Product Passports (including env performance)

PAS 2090

PAS 2090:2025 is a specification that defines Product Category Rules (PCRs) for performing LCAs on pharmaceutical products. It aims to **ensure consistency, transparency, and comparability** in how environmental impacts—especially greenhouse gas emissions—are assessed and reported across the pharmaceutical sector.

Upcoming requirement for all suppliers to the NHS

CPR

The Construction Products Regulation (EU) 305/2011, now updated as Regulation (EU) 2024/3110, sets **harmonized rules** for the marketing of **construction products** across the EU. Its core aim is to ensure that products can move freely within the EU single market while meeting consistent safety, performance, and **environmental standards.**

Mandatory Environmental Product Declarations (EPDs)

ECD

The EU Empowering Consumers Directive (Directive (EU) 2024/825), effective from September 2026, amends existing laws to **fight greenwashing** and premature obsolescence. It **bans vague environmental claims** (e.g., "eco-friendly") and unverified sustainability labels, forcing companies to provide verified data on product durability, reparability, and environmental impact.

Mandatory LCA to claim environmental benefits

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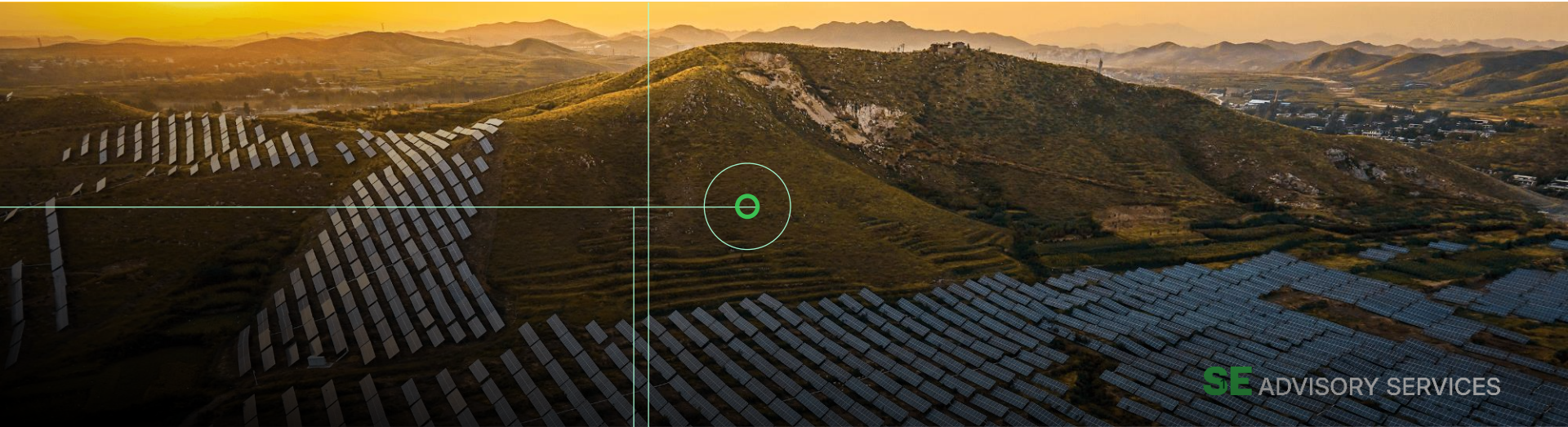
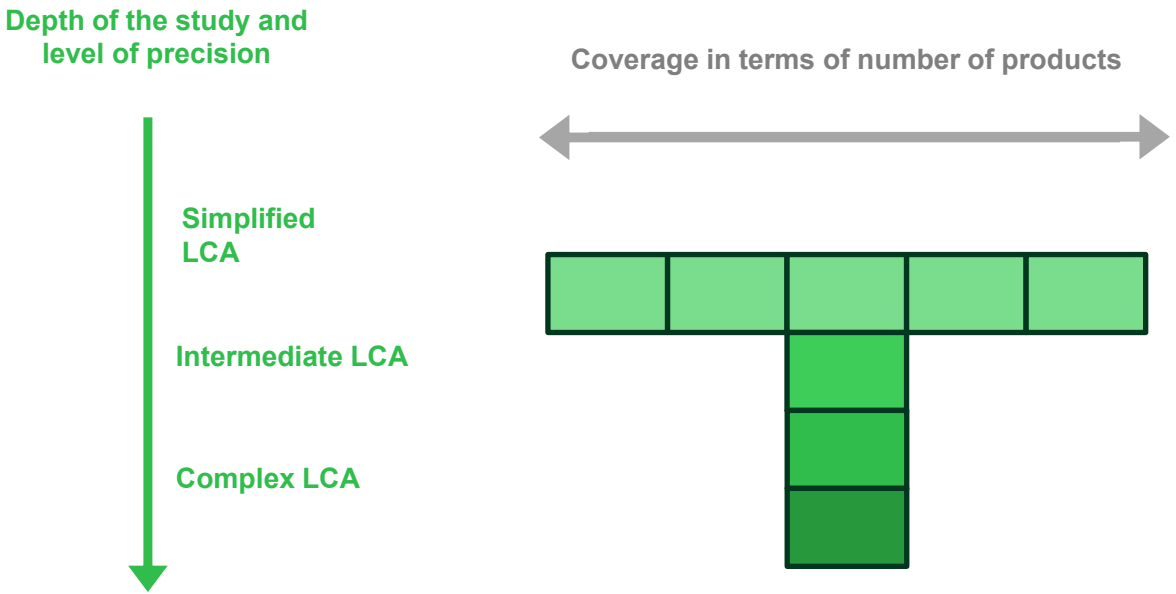
A practical approach for LCA



The crux of Lifecycle Assessment

Striking the right balance between precision and exhaustiveness will allow to answer the need of LCA in the supply chain



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Some LCA approaches

Stand-alone LCA services

Standard / Streamlined LCA

Assess and understand **product portfolio**
Conduct **analysis** at product or brand level
Provide **cascaded data** to brand teams, product R&D and sales teams
Environmental Product Declaration (EPD) including verification by 3rd party
Organizational LCA with product groupings

LCA Automation

Scale LCA to product portfolios, **automate assessments** and improve target tracking
Compliance-driven measurements; understand gaps versus net zero requirements
Evaluate changes in product performance
Set up **governance** for considering sustainability in product development process

Product Improvements / EcoDesign

Tools enabling **evaluation of products** to make improvements and reduce emissions
Scenario assessments of technology choices
Alternative material evaluation
Supplier **engagement** to help identify emissions reduction opportunities
Improve **inventory data quality**

LCA+ as part of broader decarbonization program

LCA as part of Scope 3

LCA to fill data gaps on specific products / raw material archetypes / scope 3 categories, or **drive product improvements** (hotspot, emission savings quantification)

LCA as part of net zero strategy

Connect LCA calculations with client's **path to net-zero**; derive impact on products from net zero strategy and relevant strategic initiatives

LCA as part of compliance

Growing number **of regulations requiring product data:** CBAM; Circular Economy Action Plan (CEAP); Ecodesign for Sustainable Products Regulation (ESPR); CSRD and more

Life Cycle Assessment (+ Critical Review)

Here is an example of a **4-phased approach** to support product level sustainability objectives.

The assessment will utilize and align with information already available where possible while aligning the LCA to industry best practice following the ISO 14025/40/44/67 standard and relevant guidance.

The **Critical Review** consists of 2 stages: the first to sign off on the LCAs goal and scope, the second to review the final deliverable and provide the review statement.

Phase 1

Kick-off, confirm goal & scope

- 1-hr Kick-off meeting to confirm objectives, boundary, deliverables and key timelines
- Begin discussing key data availability with the client stakeholders
- Confirm functional unit, product types, boundary approach, etc.

Phase 2

Data collection & Inventory Analysis

- Issuance of data collection template for all products and provide ongoing support throughout the data collection period
- Conduct a literature review and research for key industry data, extrapolate relevant information from existing systems
- Sense check data completeness and ensure alignment with the client's product leads via Life Cycle Inventory (LCI) analysis

Phase 3

Impact assessment

- Calculation of carbon impact for the products in scope,
- Quality Assurance of outputs will be conducted by a separate senior EcoAct team member prior to finalising the results

Phase 4

Interpret and present results

- Present results (1hr meeting) and issue final report (PPT in PDF format)
- Final report will include conclusions of impacts, methodology, assumptions, data quality, hotspot, contribution & sensitivity analysis
- Outline high-level opportunities for reductions

Critical Review stage 1: Scoping Agreement

Critical Review Stage 2: Full Report

The calculations will follow the Product Carbon Footprint (PCF) methodology and will be conducted in alignment with principles of the internationally recognised standard **ISO 14025/40/44/67**.

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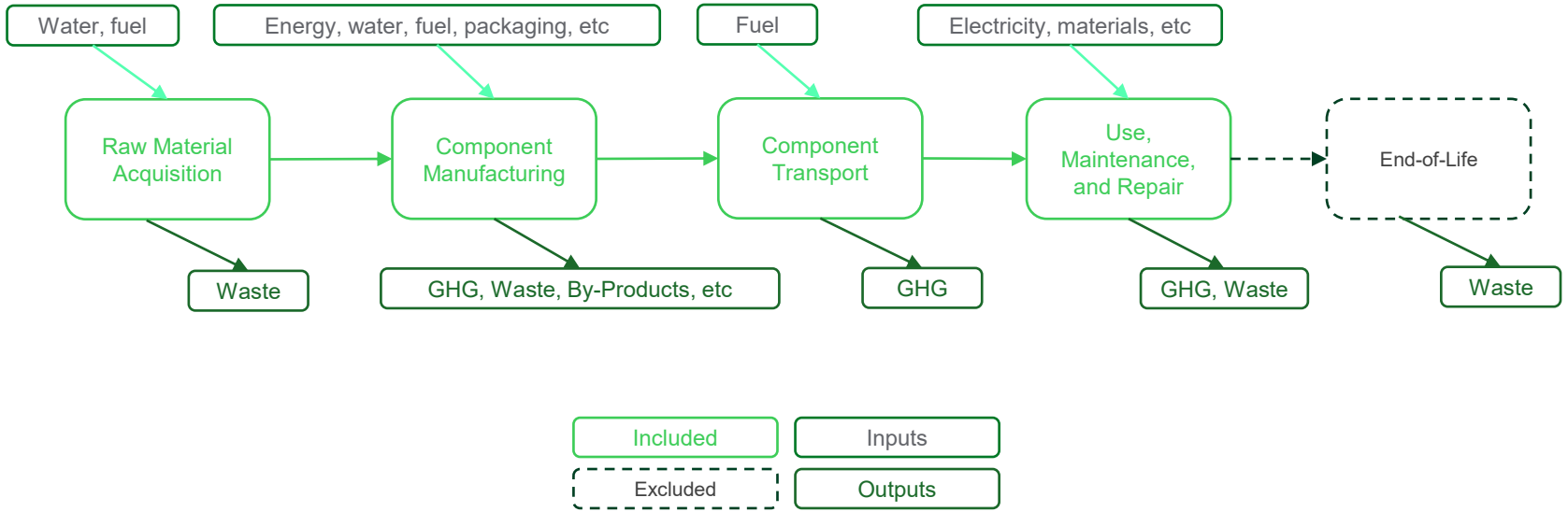
Scoping: preliminary system boundary

Simplified Process Flow Diagram



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Some LCA automation softwares

arbor

- ✓ Product-level carbon footprints
- ✓ Fast PCF generation for large catalogs
- ✓ ISO 14067 aligned, audit-ready

ClimatePartner

- ✓ Automated cradle-to-gate PCFs across portfolios
- ✓ AI emission factor matching
- ✓ GHG Protocol & PACT aligned

climatiq

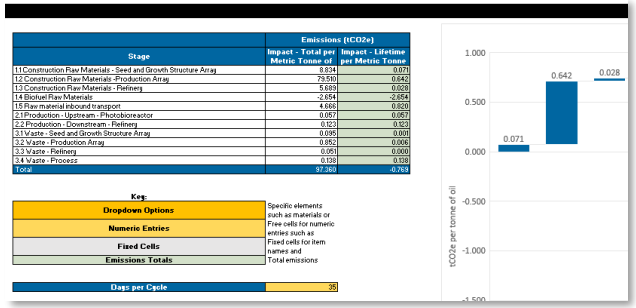
- ✓ API-driven PCF automation
- ✓ AI-based data mapping and gap filling
- ✓ Designed for high-volume references calculation

EcoDesign Tools

In addition to standard LCA project, there are EcoDesign tools (Excel-based or SaaS) to dynamically assess environmental impacts.

These tools support scenario analysis of technologies, materials, and suppliers, offering impact metrics, dashboards, and insights.

Phase 1	Phase 2	Phase 3	Phase 4
Kick-off, confirm goal & scope	Data collection & Inventory Analysis	Impact assessment	Interpret and present results

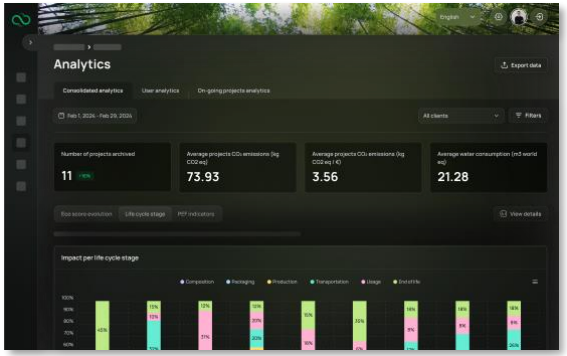


Stage	Emissions (tCO2e)	
	Impact - Total per Metric Tonne of	Impact - Lifetime per Metric Tonne
1.1 Construction Raw Materials - Seed and Growth Structure Array	8.834	0.071
1.2 Construction Raw Materials -Production Array	79.510	0.642
1.3 Construction Raw Materials - Refinery	5.689	0.028
1.4 Biofuel Raw Materials	-2.854	-2.854
1.5 Raw material inbound transport	4.666	0.820
2.1 Production - Upstream - Photobioreactor	0.057	0.057
2.2 Production - Downstream - Refinery	0.123	0.123
3.1 Waste - Seed and Growth Structure Array	0.095	0.001
3.2 Waste - Production Array	0.852	0.006
3.3 Waste - Refinery	0.051	0.000
2.4 Waste - Process	0.138	0.138
Total	97.360	-0.769

Key:

Dropdown Options	Specific elements such as materials or
Numeric Entries	Free cells for numeric entries such as
Fixed Cells	Fixed cells for item names and
Emissions Totals	Total emissions
Days per Cycle	35

From “basic” Excel tools...



To very advanced SaaS solutions: [EcoDesignCloud]

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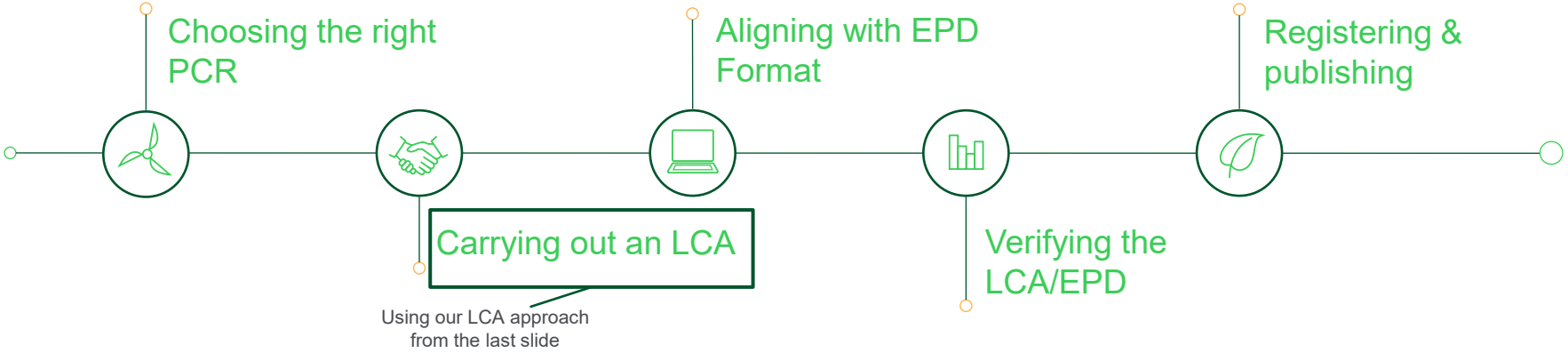
Environmental Product Declaration

Another extension of “Standard LCA” services with an internationally recognized deliverable



An **Environmental Product Declaration (EPD)** is a third-party verified and accredited way to report a company’s commitment to measuring and reducing the environmental impact of its products and services
There are five steps necessary to carry out an EPD

The **Product Category Rules (PCR)** must be listed in the International EPD system and valid at the time of verification

The LCA must comply with **ISO 14040, ISO 14044, ISO 14025** standards and Annex A of the General Programme Instructions, as well as the PCRs
The final EPD should align with guidelines set out in the **ISO 14025** standard, be verifiable, accurate, relevant and not include rating, judgments or direct comparisons
The verification must be carried out by an approved third-party

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Sample deliverables

Data collection template

Manufacturing Data Collection

Primary packaging production

Option 1: Unit specific production metrics

	Unit	Bottle	Closure	Label/decoration
Total electricity used to produce one unit	kWh			
Total natural gas used to produce one unit	kWh			
Total water used to produce one unit	m3			
Total other fuel used to produce one unit	Please provide			

Option 2: Machinery metrics

	Unit	Bottle	Closure	Label/decoration
Machinery 1	**Name**			
Power required (W)	Watts			
Fuel input (Please state fuel here) _____	Please state unit			
Efficiency (%)	%			
Hours run to produce component	Hours			
Machinery 2	**Name**			
Power required (W)	Watts			
Fuel input (Please state fuel here) _____	Please state unit			
Efficiency (%)	%			
Hours run to produce component	Hours			
Machinery 3	**Name**			
Power required (W)	Watts			
Fuel input (Please state fuel here) _____	Please state unit			
Efficiency (%)	%			
Hours run to produce component	Hours			

Option 3

Please give us total consumption for the factory for the following :

	Unit	Bottle	Closure	Label/decoration
Electricity (kWh)	kWh			
Natural gas (kWh)	kWh			
Water (M3)	m^3			
Other fuel input (Please state fuel here)	Please state unit			

Inventory analysis output

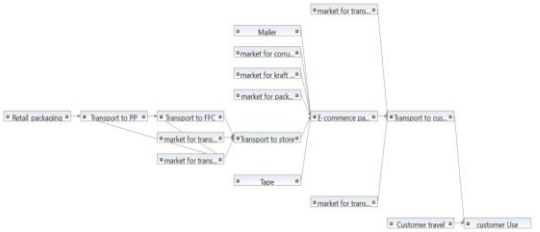
Section 2: Log treatment

Process	Flow	Item	Amount (aggregate)	Unit
LOG	INPUT	LOG	307.73	Tonnes
		WATER*	28,280.00	L
	OUTPUT	LOG	407.73	Tonnes
LOGS TO (1M3=700kgs Avg Value)	INPUT	LOG	407.73	Tonnes
		ELECTRICITY	21,194.71	kWh
	OUTPUT	CANT	203.40	Tonnes
		WASTE MATERIAL (WOC	204.33	Tonnes
LOG COOKING	INPUT	CANTS	203.40	Tonnes
		WATER		L
		ELECTRICITY	8,151.81	kWh
		ENERGY (BOILER*)TOT/	386,872.98	L
	BOILER CAPACITY: 4000kg/h	BIOMASS BOILER	155,640.56	L
	BOILER CAPACITY: 2400kg/h	LNG BOILER	41,232.40	L
		BIOMASS BOILER - Fuel	440.76	Tonnes
		LNG BOILER - Fuel	16.48	Tonnes
	OUTPUT	CANTS	103.40	Tonnes
		WASTE (WATER)	17,280.00	L
VENEER (1M2=160grams Avg value)	INPUT	CANTS	103.40	Tonnes
		ELECTRICITY	71,735.94	kWh
	OUTPUT	VENEERS	56.18	Tonnes
		WASTE (WOOD)	47.23	Tonnes
VENEER	INPUT	VENEERS	56.18	Tonnes
		ELECTRICITY	61,953.77	kWh
		ENERGY (BOILER*)TOT/	185,623.68	L
		BIOMASS BOILER	165,414.48	L
		LNG BOILER	20,209.20	L
		BIOMASS BOILER - Fuel	285.19	Tonnes
		LNG BOILER - Fuel	10.67	Tonnes
	OUTPUT	VENEERS	56.18	Tonnes

Impact assessment output

Outputs

Flow	Category	Amount	Unit
Order		**1.00000**	**Item(s)**
waste paperboard	382:Waste treatment and dispos...	paper_bag_incinerate...	kg
waste paperboard	382:Waste treatment and dispos...	paper_bag_landfill	kg
waste plastic, mixture	382:Waste treatment and dispos...	bOPIS_sticker_landfill...	kg
waste plastic, mixture	382:Waste treatment and dispos...	bOPIS_sticker_incinera...	kg
waste plastic, mixture	382:Waste treatment and dispos...	bOPIS_Label_landfille...	kg
waste plastic, mixture	382:Waste treatment and dispos...	plastic_bag_landfilled	kg
waste plastic, mixture	382:Waste treatment and dispos...	plastic_bag_incinerat...	kg
waste plastic, mixture	382:Waste treatment and dispos...	bOPIS_label_incinera...	kg



Outputs from LCA modeling software

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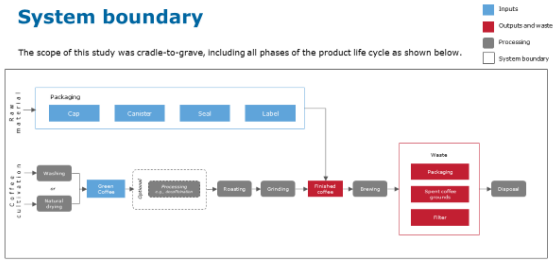
Sample deliverables

Scope calibration

System boundary



Confirm Products

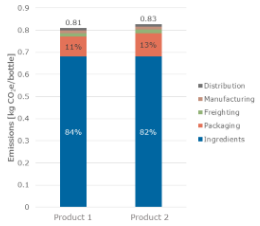
Please provide description for the two products, e.g.,:

- What are they used for?
- What is the manufacturing process for each of the product? Can you provide us the flowcharts?
- What is the main driver for this LCA study?
- What do you see as successful outcomes from this project?
- Who owns the data?

Recommendations

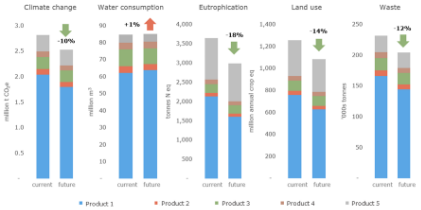
Carbon footprint by product

- Raw materials account for 84% of the emissions of the Product 1 and 82% for Product 2
- Variation in packaging due to additional components in handwash product accounting for increased emissions
- Taking a closer look at the ingredients on the next slide



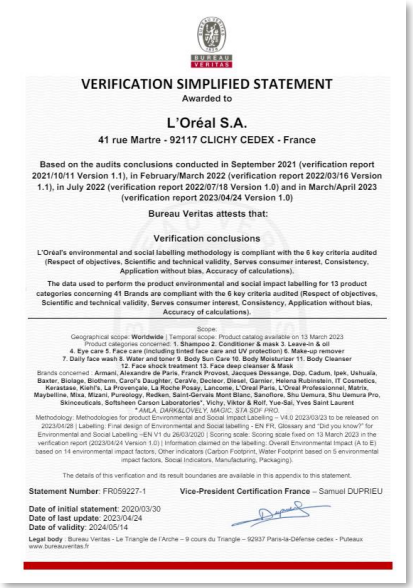
Summary of all environmental impacts

Portfolio level change in environmental impacts



Verification support

Detailed **ISO compliant PCF report**
Responses to verifier's comments and **PCF model update** and report based on comments



VERIFICATION SIMPLIFIED STATEMENT

Awarded to

L'Oréal S.A.

41 rue Martre - 92117 CLICHY CEDEX - France

Based on the audits conclusions conducted in September 2021 (verification report 2021/10/11 Version 1.1), in February/March 2022 (verification report 2022/03/16 Version 1.1), in July 2022 (verification report 2022/07/18 Version 1.0) and in March/April 2023 (verification report 2023/04/24 Version 1.0)

Bureau Veritas attests that:

Verification conclusions

L'Oréal's environmental and social labelling methodology is compliant with the 6 key criteria audited (Respect of objectives, Scientific and technical validity, Serves consumer interest, Consistency, Application without bias, Accuracy of calculations).

The data used to perform the product environmental and social impact labelling for 13 product categories concerning 41 Brands are compliant with the 6 key criteria audited (Respect of objectives, Scientific and technical validity, Serves consumer interest, Consistency, Application without bias, Accuracy of calculations).

Scope:

Geographical scope: **Worldwide** | Temporal scope: Product catalog available on 13 March 2023

Product categories concerned: **1. Shampoo 2. Conditioner & mask 3. Leave-in & oil 4. Eye care 5. Face care (including tinted face care and UV protection) 6. Make-up remover 7. Daily face wash 8. Water and toner 9. Body Sun Care 10. Body Moisturizer 11. Body Cleanser 12. Face shock treatment 13. Face deep cleanser & Mask**

Brands concerned : **Armani, Alexandre de Paris, Franck Provost, Jacques Dessange, Dop, Cadum, Ipek, Ushuaïa, Baxter, Biolage, Biotherm, Carol's Daughter, CeraVe, Decleor, Diesel, Garnier, Helena Rubinstein, IT Cosmetics, Kerastase, Kiehl's, La Provençale, La Roche Posay, Lancome, L'Oreal Paris, L'Oreal Professionnel, Matrix, Maybelline, Mixa, Mizani, Pureology, Redken, Saint-Gervais Mont Blanc, Sanoflore, Shu Uemura, Shu Uemura Pro, Skinceuticals, Softsheen Carson Laboratories', Vichy, Viktor & Rolf, Yue-Sai, Yves Saint Laurent**

*** AMLA, DARK&LOVELY, MAGIC, STA 3DP PRO**

Methodology: Methodologies for product Environmental and Social Impact Labelling – V4.0 2023/03/23 to be released on 2023/04/28 | Labelling: Final design of Environmental and Social labelling – EN FR, Glossary and "Did you know?" for Environmental and Social Labelling –EN V1 du 26/03/2020 | Scoring scale: Scoring scale fixed on 13 March 2023 in the verification report (2023/04/24 Version 1.0) | Information claimed on the labelling: Overall Environmental Impact (A to E) based on 14 environmental impact factors, Other indicators (Carbon Footprint, Water Footprint based on 5 environmental impact factors, Social Indicators, Manufacturing, Packaging).

The details of this verification and its result boundaries are available in this appendix to this statement.

Statement Number: FR059227-1 **Vice-President Certification France** – Samuel DUPRIEU

Date of initial statement: 2020/03/30
Date of last update: 2023/04/24
Date of validity: 2024/05/14

Legal body : Bureau Veritas - Le Triangle de l'Arche – 9 cours du Triangle – 92937 Paris-la-Défense cedex - Puteaux www.bureauveritas.fr

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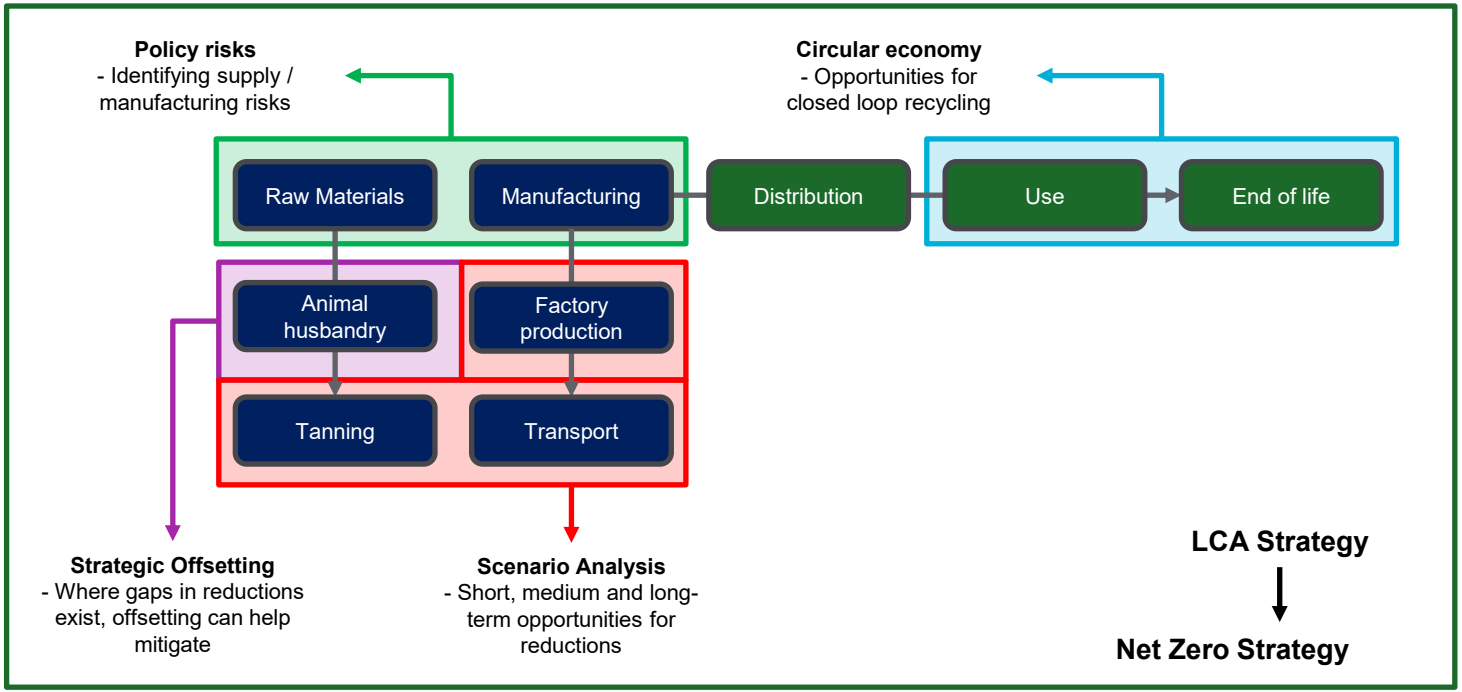
LCA+: What does this concept look like?

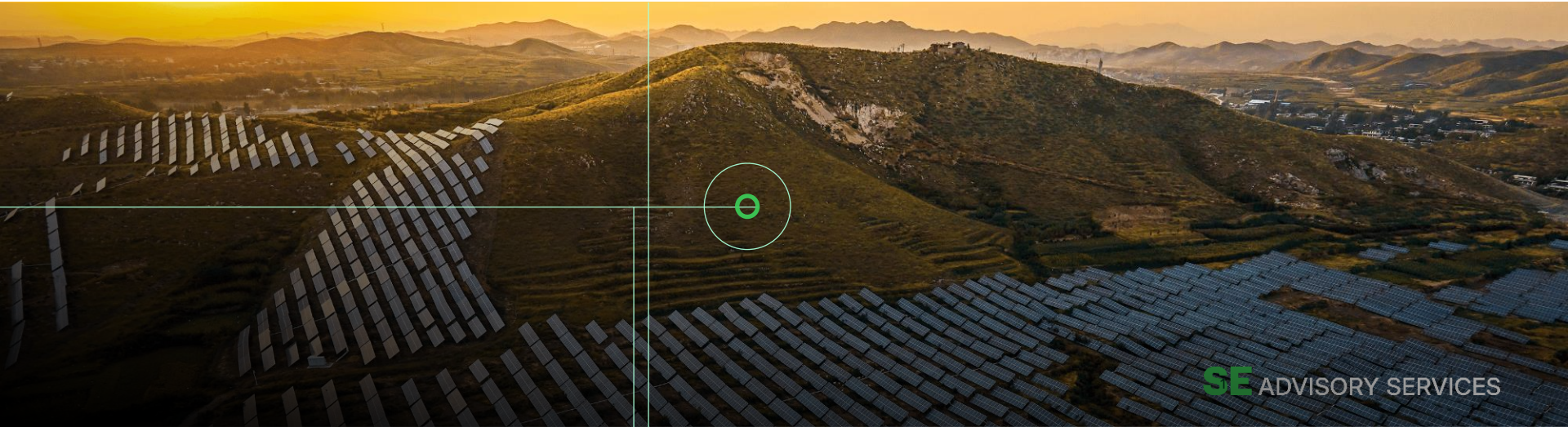
Company A – Leather Retailer, standard LCA has been completed and hotspots in the supply chain identified (dark blue)



LCA+ modules are planned to be introduced in stages

This will allow the LCA team to build capacity and engage with the wider advisory team for collaboration opportunities and support

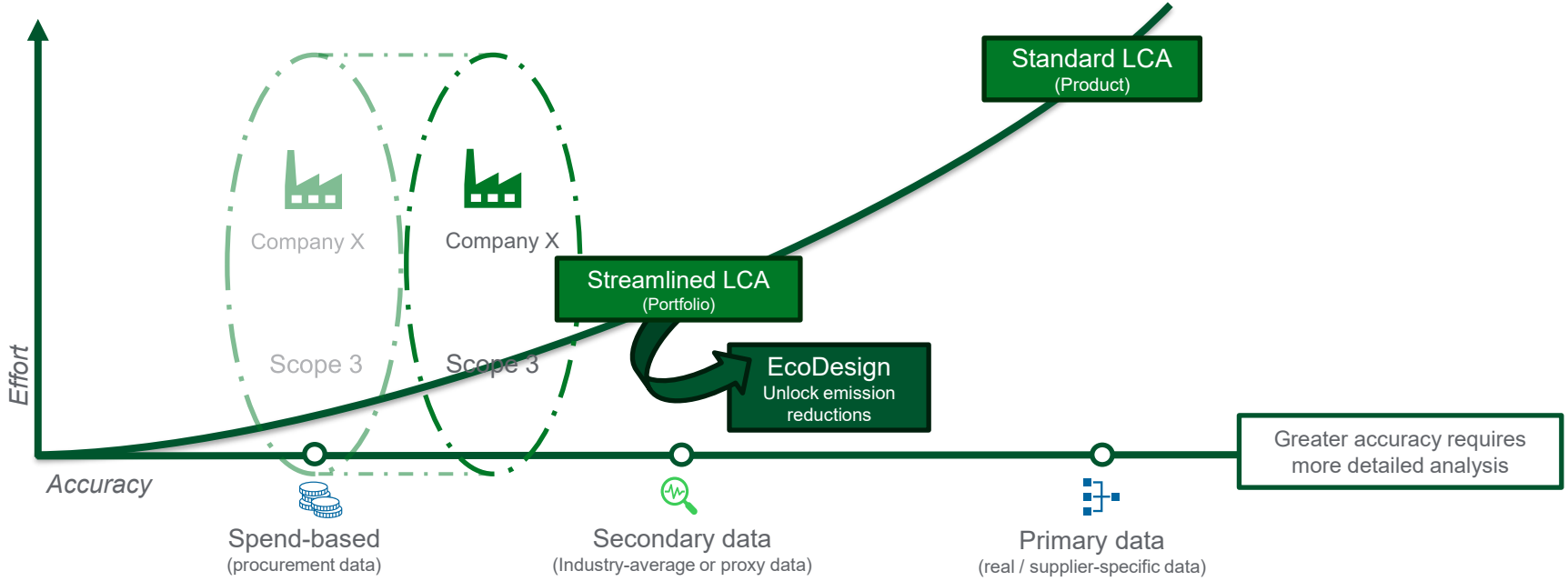
The importance of data



A shift in data and emissions calculation approaches

Most companies use spend based data for corporate reporting and may have some single product LCAs

However, a different approach is required for conducting analysis at scale. A streamlined LCA approach is quicker and enables the entire product portfolio to be assessed. It also provides granular data to proactively make product improvements



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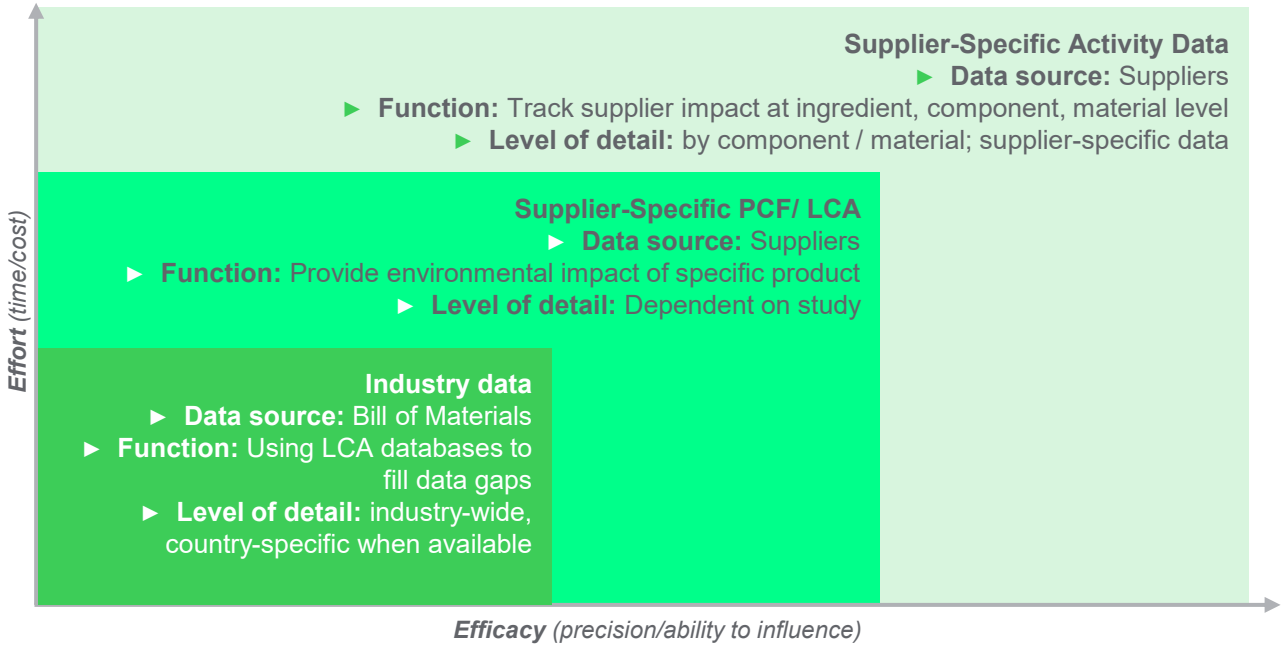
Data hierarchy: supplier-specific data helps on accuracy



Higher quality data ensures a robust lifecycle assessment and accurate calculation of the environmental impact of your product

Gathering supplier-specific data can help maximize the value of the assessment and **stand up to third-party reviews for external claims**

Examples of **supplier-specific data:**

- Energy consumption per unit of product
- Raw material inputs per unit of product
- Waste produced per unit of product
- Waste treatment method(s)
- Production Location
- Transport Method
- Packaging used

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GHG Emissions

Implementing continuous improvement in GHG emissions reporting

Collecting higher quality data to prioritize activities, allows companies to; focus resources on the most significant GHG emissions, track their GHG reductions over time. Set reduction targets more effectively.

1. Prioritize data collection efforts

Identify activities to target to build a comprehensive carbon footprint.

2. Data Selection

Select appropriate methodologies to assess your value chain and product emissions (Spend Based, Industry-Averages, Supplier Outreach, Country Emission factor)

3. Collect data and fill the gaps

Engage and explore existing data across organization and stakeholders

4. Improve data quality over time

Leverage experts and visualizations to translate collected data into high-value reports and robust insights.

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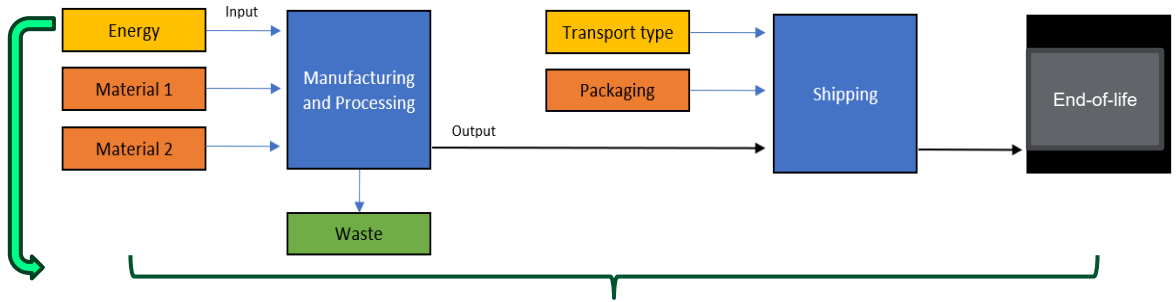
Data collection: sample LCA material supplier template



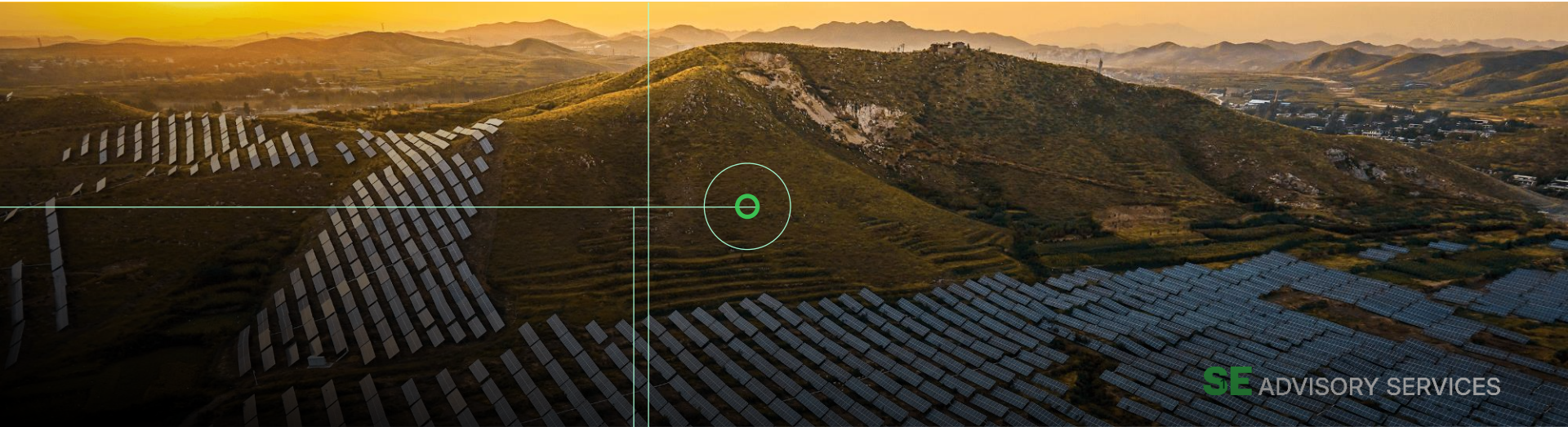
High level supplier form and example data collection template for raw material supplier (paper tape example)

General	*Please edit where you see fit
Input*	Response
Item Name	PAPER TOS 2022 B - Tear Tape
Item description	Paper tear tape
Supplier name	XXXX
Production location	GUANGZHOU,CHINA
Unit of production	1 m^2 or kg of tape

Material (per unit of production)	Material type	Units
Water		m^3, l
Raw material	Paper pulp	m^2, kg
Component 1	Chemical	m^2, kg, %
Component 2	Mechanical	m^2, kg, %
Component 3		m^2, kg, %
Component 4		m^2, kg, %

Input*	Unit (please select)*	Quantity*	Comment
Energy (per unit of production)			
Electricity (source 1: e.g. grid)	kWh, MJ		
Electricity (source 2: e.g. on-site prod.)	kWh, MJ		
Natural Gas	kWh, MJ		
Coal	kWh, MJ, kg		
LPG	kWh, MJ, kg		
Wood	kWh, MJ, kg		
Diesel - Stationary	kWh, MJ, kg, l		
Petrol - Stationary	kWh, MJ, kg, l		
Diesel - Mobile (vehicles)	kWh, MJ, kg, l		
Petrol - Mobile (vehicles)	kWh, MJ, kg, l		
Biofuel - Mobile (vehicles)	kWh, MJ, kg, l		

Case studies



Case studies – LCA to support product and packaging initiatives

LCA for packaging material and product design
JTI

JTI, one of the world's largest tobacco product manufacturers, partnered with EcoAct to investigate the life cycle of cigarette packaging.

Process involved understanding the components of a cigarette pack, obtaining data from paper and board suppliers and assessing different printing techniques.

Team conducted a comparative **cradle-to-grave LCA** of cigarette packaging **against a new design** with plastics replacement option, in order to understand the climate impact, measure the burden shifting potential and provide carbon equivalent metrics for their own internal design tools. Also assessed **different manufacturing location scenarios** and implied climate impact.

Deliverables: **recommendations** on how to reduce the emissions of the packaging; **an interactive tool** that enable the team to investigate and understand the impact of different design options

LCA for packaging comparison
Charlie Bigham's

Client, UK-based company providing pre-prepared meals for consumers to supermarkets, wanted to understand **the environmental footprint of the wooden packaging**, after their leading client red-listed it for non-fully recyclable packing

EcoAct carried out a comparative LCA analysis, **comparing the emissions and wider environmental impacts** of the wooden packaging with those of PET, rPET and aluminium packaging

This analysis helped to drive **decisions on the most appropriate packaging material**, and highlighting ways in which the environmental footprint of the current packaging can be reduced through **packaging design**.

Deliverables: LCA outcomes presented to Sustainability team and senior executives to integrate into strategy. **Review of packaging materials** to reduce overall climate impact.

LCA for new product launch
See Ltd

Client would like to understand the environmental impacts of their main product, Biocarbon Laminates, and produce a transparent Environmental Product Declaration (EPD) for market, as part client's of 2030 Net Zero goals.

Team conducted a full LCA that analyzed its carbon emissions, non-renewable energy use and water consumption, to create the **UK's first carbon neutral laminate.**

By measuring and reducing its environmental impacts, this product provides architects and builders with **a sustainable option** that is fully verified to the highest environmental standards.

Deliverables: LCA provided an understanding of **carbon sequestration potential and emissions hotspots** across the value chain. BioCarbon Laminates becomes the first carbon neutral laminate in the UK. The product received **third-party validation of EPD.**

Case studies – more advanced LCA programs

Multi-Product LCA and Avoided Emissions
Spectris

Client, a large-scale manufacturer of precision instruments, engaged with EcoAct to undertake LCA on **a selection of products**, to highlight their **innovative features** and **environmental benefits**, as part of their Capital Markets Day preparation.

EcoAct undertook assessments for products relating to **cement sustainability, electrical drive testing and EV prototyping**. The assessments were based on the Avoided Emissions Framework (AEF) developed by Mission Innovation. Team also conducted a detailed assessment of the solution emissions based on LCA methodology which follows the ISO 14040 & 14044 Standards.

EcoAct subsequently undertook assessments for **three products** as well as “baseline” scenarios to enable calculation of avoided emissions.

Deliverables: detailed analytics results and **factsheets for each product** to be used by client’s marketing department ahead of Capital Markets Day

Brand Reference LCAs
Heineken

Heineken approached EcoAct as part of its journey to developing an effective **carbon reduction strategy**. One of their first targets was to understand the carbon impact of different Heineken brand references to **make more sustainable decisions.**

Team started with a **broad data collection** exercise, designed specific surveys based on international standard methodology, as well as a range of **scenarios** to be analyzed.

Calculation of **impact indicators and characterization models** was rolled out through comprehensive modeling, identifying material issues and majority contributors for each indicator evaluated. Team also built **sensitivity controls** to identify the effect of variations in data on the results

Deliverables: complete LCA on different brand designs to identify the most sustainable choice.

Streamlined Product Carbon Footprint (PCF)
Fortune 500 Semiconductor Company

Client was looking for **a robust way to report its product’s embodied emissions** for a key data center server while dealing with challenges in data collection (thousands of components; supplier data not easily available).

Team conducted a cradle-to-grave assessment following the GHG Protocol PCF standard, leveraging on data triangulation methodologies, following a rigorous calculation process aligned with ISO 14040 & 14044 standards. **This hybrid calculation approach supported a balance between accuracy and data collection burden.**

Upon completion of the assessment, data gaps were fully detailed and recommendations were provided for **future data improvement.**

Deliverables: formed the basis for **customer-focused reporting** of product emissions and has supported **product engineering team efforts** to identify potential areas for decarbonization.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