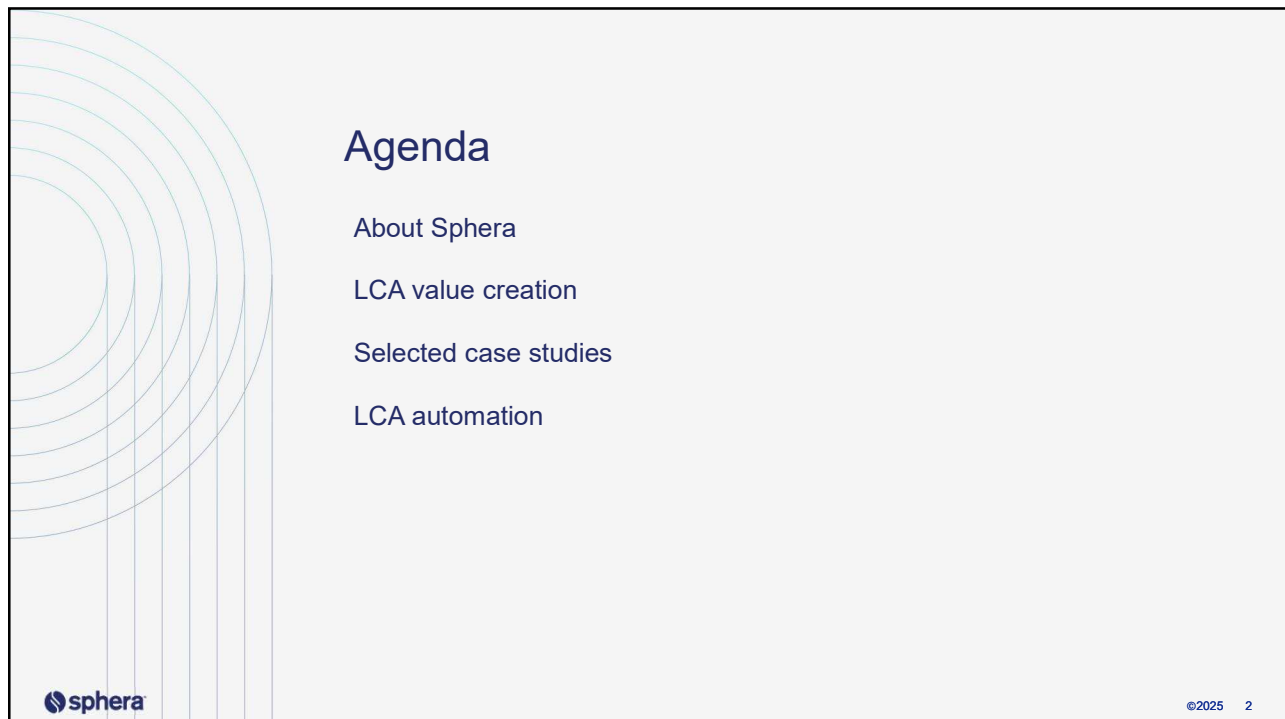




1



2

Sphera is the leading global provider of **integrated sustainability and operational risk** software, data and services.



SOFTWARE
Aggregate, digitize
& monitor ESG risk
& performance
data.

**DATA
ANALYTICS**
Apply predictive &
prescriptive
analytics for
scenario planning &
benchmarking.

CONSULTING
Leverage insights
to drive business
outcomes & meet
regulations.

OUR MISSION

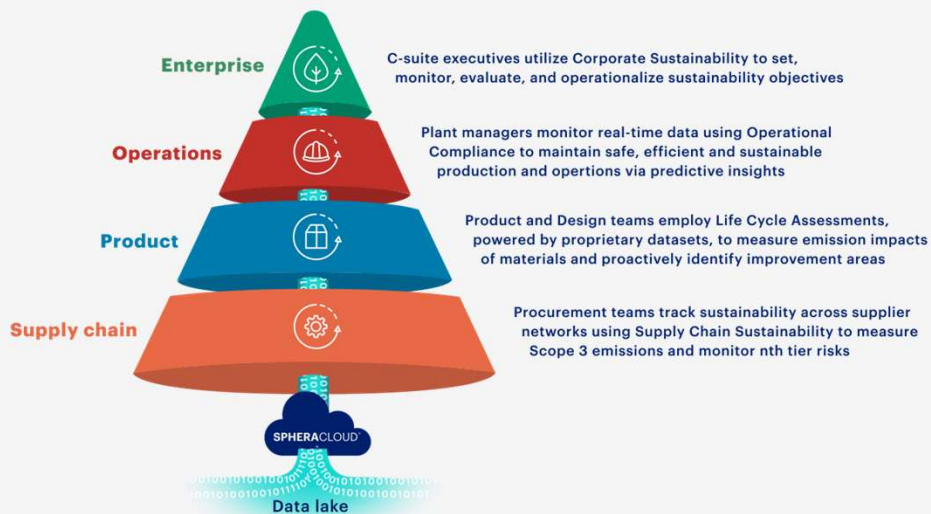
To create a safer, more sustainable and productive world.



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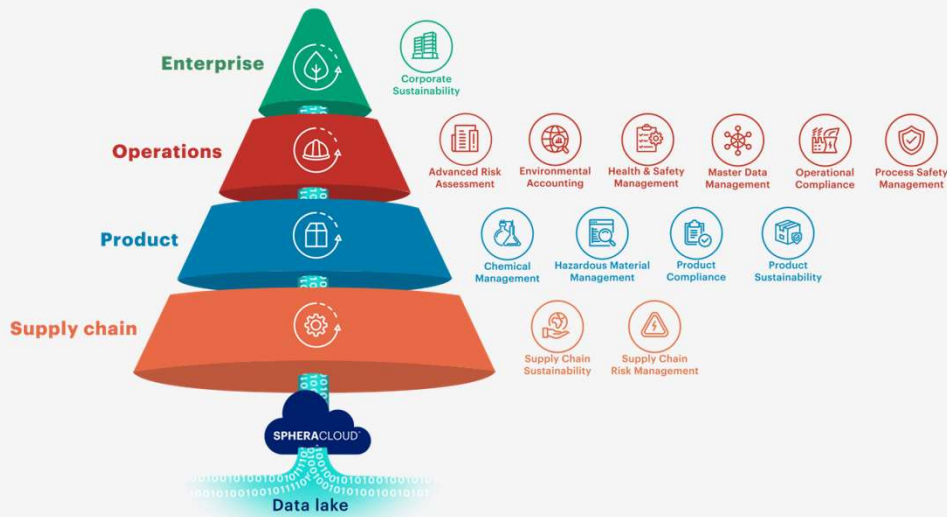
Sphera's integrated sustainability and operational risk management platform (SpheraCloud) eliminates data silos across the enterprise using analytics to drive intelligent actions from the manufacturing plant to the boardroom.



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Our purpose-built software solutions meet specific functional needs and tackle your cross-functional risk and sustainability agenda



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5

Unlocking the value of LCA

Challenges

Complex products and value chains	Inaccuracy, inconsistencies errors and omissions
Standard Fragmentation (ISO, PEF, EPD, CBAM, etc.)	Data, Resources, Skills Topics: PCF, EF, Biodiversity

Requirements

Credible claims with auditable trail	Standardised and robust calculation methodology	Trustworthy and transparent
Data completeness & quality	Automation and seamless integration (ERP, PLM, Supplier portal, BOM, Recipes, BoS)	

LCA leads to following value creation

Scalable & flexible solution

Insights & Intelligence



Sustainability strategy

- Decarbonisation roadmap - Net zero, tracking of targets and initiatives
- Sustainable product development
- Customers Request
- Circularity strategy development



Product Stewardship

- Sustainable materials, eco-design and product innovation, alternative designs.
- Scenario planning: future products, process and renewable energy.



Regulatory preparedness and compliance

- EU PEF, EU Taxonomy, EPD, CBAM, TFS, LEEDv4, GreenCo, DJSI, ASI, RED, Battery rules, DPP
- Reporting support: BRSR, GRI, CSRD, ISSB



Marketing communication

- Low carbon product claims
- EPDs
- Data backed green claims



Supply chain

- Hotspots identification
- Supply chain strategy
- Scope 3



Risk Mitigation

- Avoids reputational and regulatory risks.
- Customer Trust

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Environmental Product Declaration (EPD)



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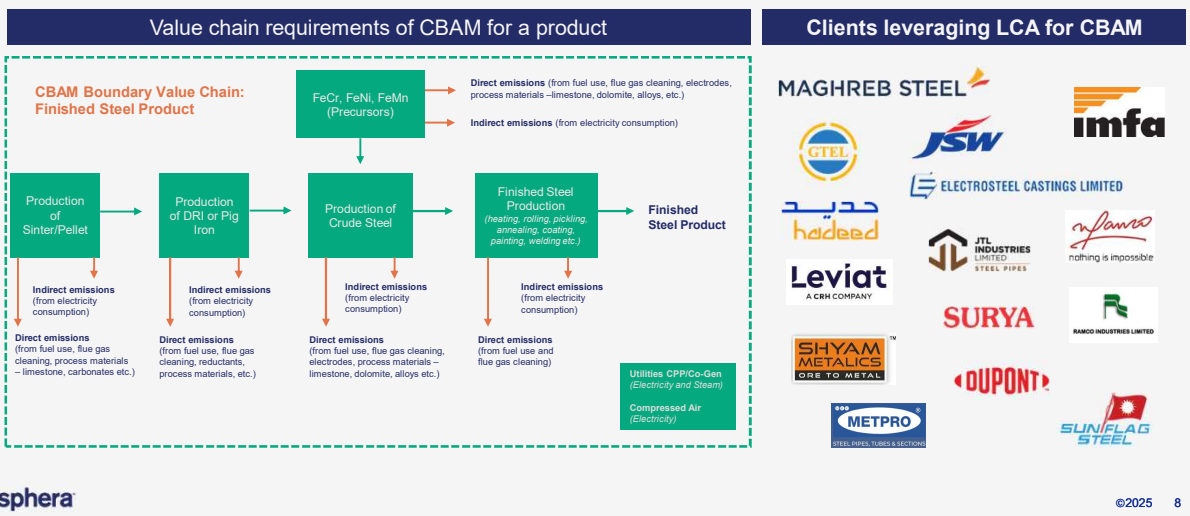
Carbon Border Adjustment Mechanism (CBAM)



Environmental policy instrument designed to support the EU climate ambitions



Puts a fair price on the carbon emitted from carbon intensive goods entering the EU



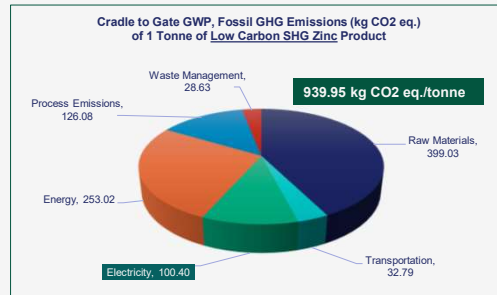
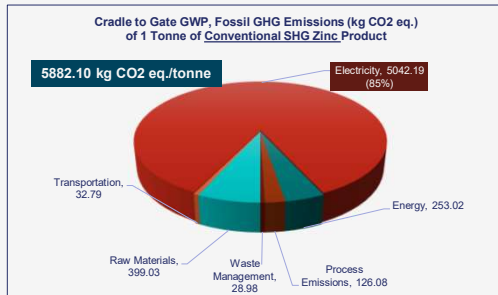
8

Case study – Low carbon SHG zinc



Asia's First Low Carbon 'Green' Zinc (EcoZen) produced using renewable electricity

Cradle to Gate PCF of Average Special High-Grade Zinc (SHGZ) and Average **Low Carbon SHGZ** product based on **mass balance approach** as per ISO 14067 Standards.



- EcoZen has a carbon footprint of less than 1 t-CO₂e/t of zinc produced, ~75% lower than global average
- **IZA – Global Special High-Grade Zinc – 3800 kg CO₂ eq/t**
- Third party reviewed and compliance with ISO 14067 and GHG Protocol for Product Life Cycle Assessment



https://www.hzindia.com/wp-content/uploads/PCF-Summary-Report_Average-SHGZ-and-Average-Low-Carbon-SHGZ-Products_HZL.pdf

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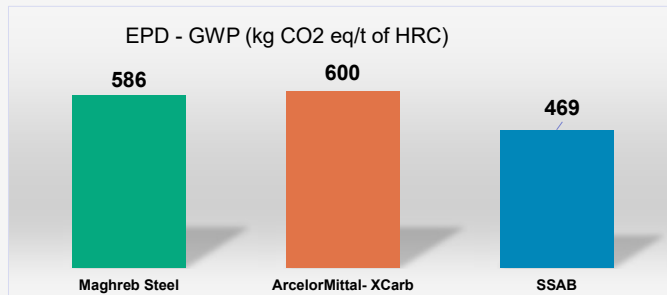
Case study – Maghreb Steel

EPD of 8 MaGreen Low Carbon Steel Products

EAF route - with up to 100% scrap and renewable energy

GWP < 600 kgCO₂/ t of HRC

Enabled Maghreb Steel to disclose the low carbon footprint steel- "MaGreen" green product line

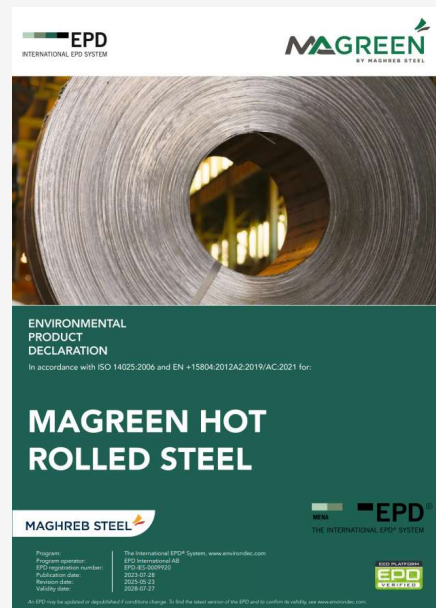


<https://www.environdec.com/library>

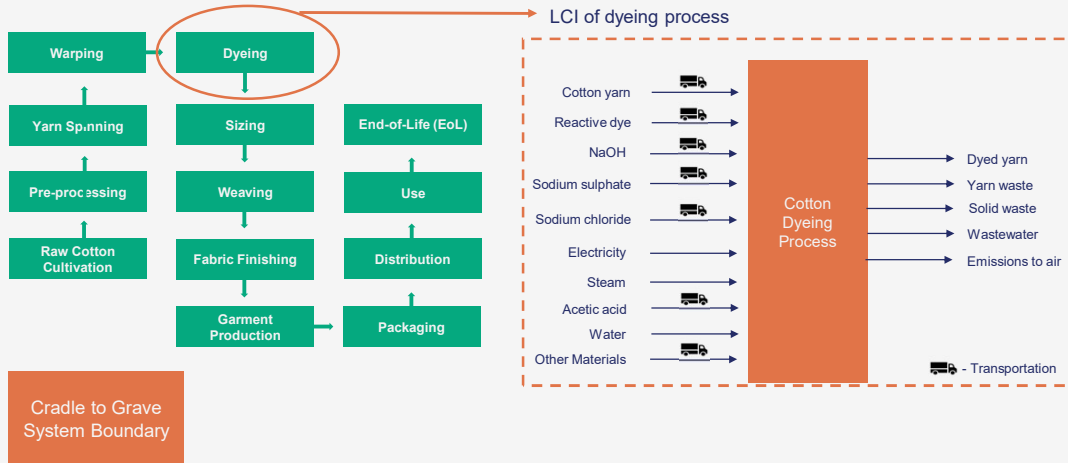
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MAGHREB STEEL



Case Study- Value chain of a t-shirt

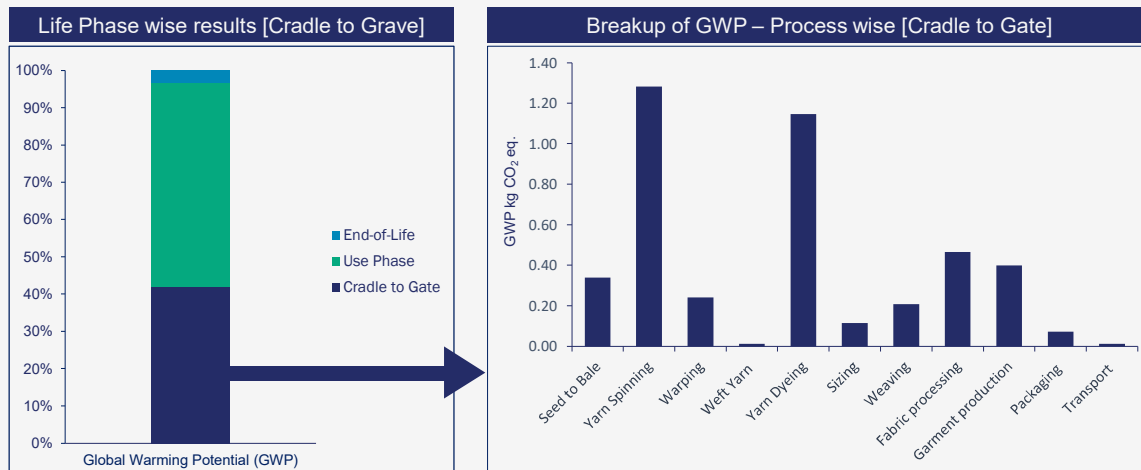


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Case Study – LCA of t-shirt

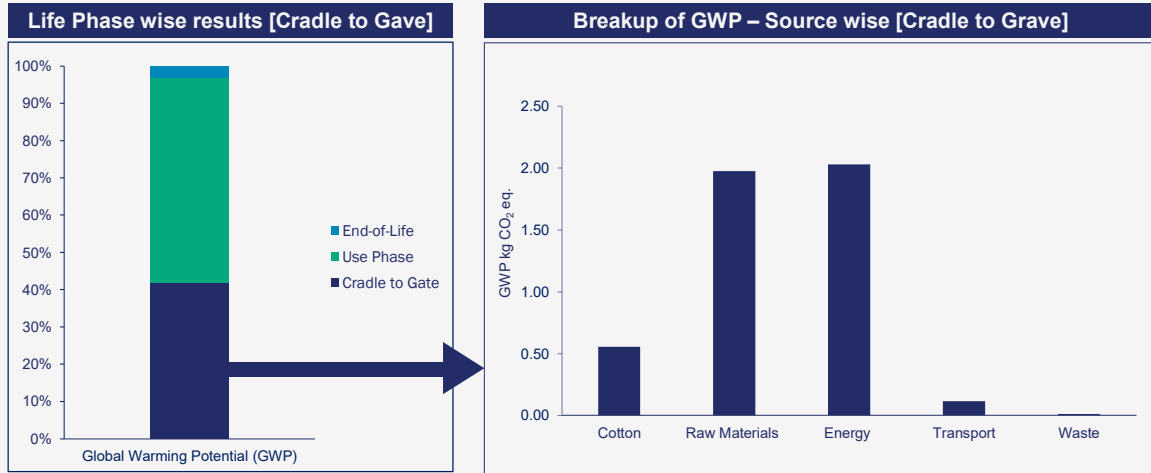
Goal to understand the Carbon footprint of T-Shirt product group through LCA approach as per ISO 14040/44 standards

Product	Gross weight (gm)
Cotton T-shirt	350



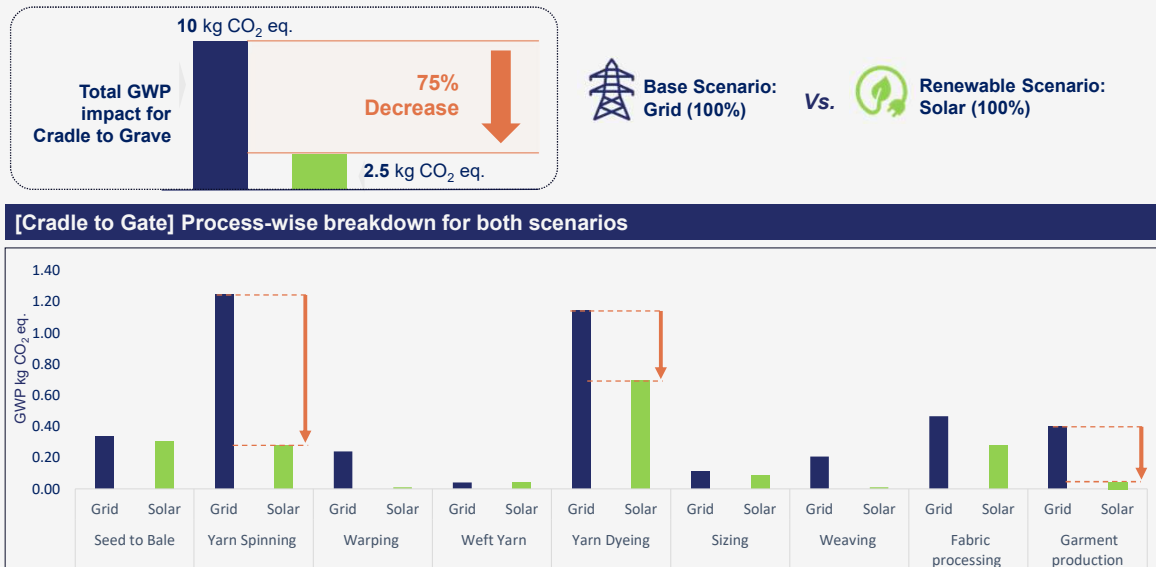
12

Case Study - LCA of t-shirt



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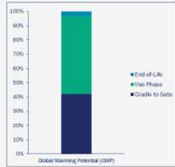
Case Study – LCA of t-shirt - Impact of renewable energy



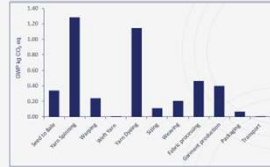
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Decarbonization strategy development

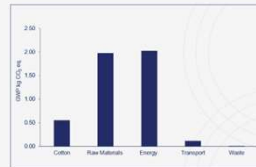
GWP Impact across the life cycle stages



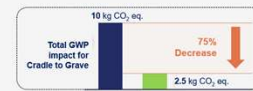
Process-wise GWP Impact breakdown



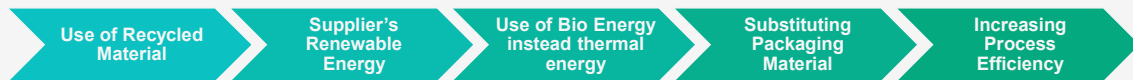
Source-wise GWP Impact



Total GWP Impact of Base vs Renewable Scenario



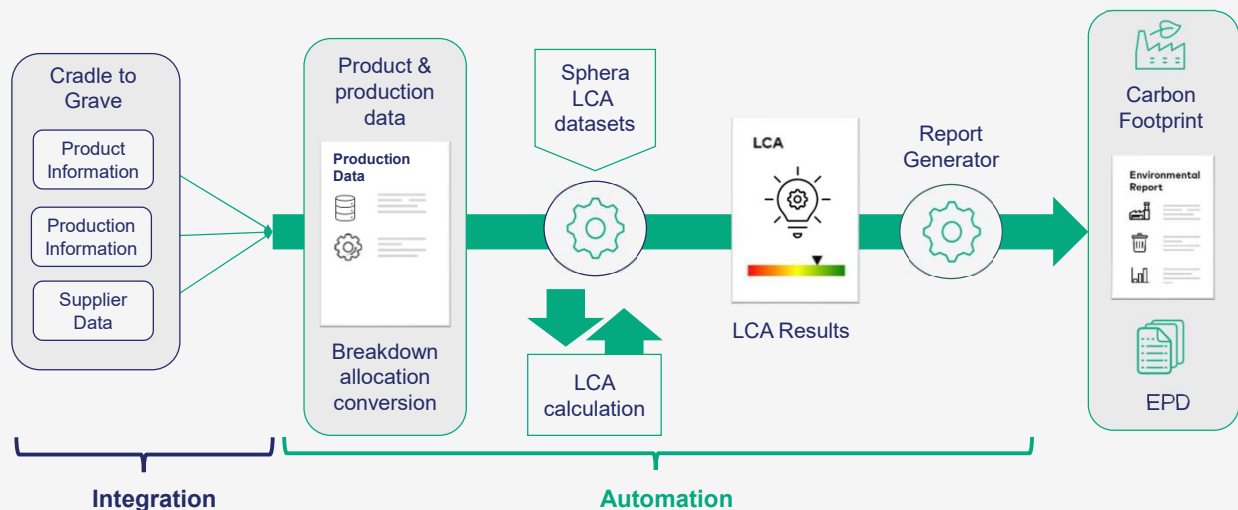
Roadmap for Decarbonizing value chain emissions



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How LCA solutions work with your systems

Efficient generation of reliable and high quality LCA results



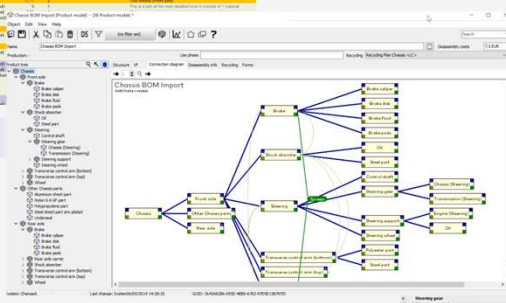
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Integrated LCA for complex products

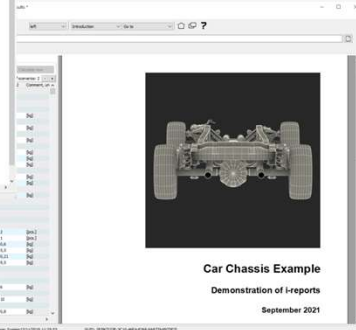
Part No.	Part Name	Quantity	Material	Weight	Volume	Comments
1	Engine	1	Cast iron	150	150	Engine block
2	Transmission	1	Aluminum	80	80	Transmission housing
3	Driveshaft	1	Steel	40	40	Driveshaft tube
4	Wheels	4	Steel	100	100	Wheels and tires
5	Brake pads	4	Brake material	20	20	Brake pads
6	Brake discs	4	Brake material	20	20	Brake discs
7	Exhaust system	1	Steel	30	30	Exhaust manifold and pipe
8	Water pump	1	Cast iron	10	10	Water pump
9	Timing belt	1	Rubber	5	5	Timing belt
10	Oil pan	1	Aluminum	10	10	Oil pan
11	Oil filter	1	Paper	2	2	Oil filter
12	Spark plugs	4	Steel	10	10	Spark plugs
13	Valves	4	Steel	10	10	Valves
14	Camshaft	1	Steel	10	10	Camshaft
15	Crankshaft	1	Cast iron	100	100	Crankshaft
16	Pistons	4	Aluminum	10	10	Pistons
17	Connecting rods	4	Steel	10	10	Connecting rods
18	Timing chain	1	Steel	10	10	Timing chain
19	Water pump housing	1	Cast iron	10	10	Water pump housing
20	Oil filter housing	1	Aluminum	10	10	Oil filter housing
21	Spark plug housing	4	Steel	10	10	Spark plug housing
22	Valve train	1	Steel	10	10	Valve train
23	Camshaft housing	1	Steel	10	10	Camshaft housing
24	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
25	Piston housing	4	Aluminum	10	10	Piston housing
26	Connecting rod housing	4	Steel	10	10	Connecting rod housing
27	Timing chain housing	1	Steel	10	10	Timing chain housing
28	Water pump housing	1	Cast iron	10	10	Water pump housing
29	Oil filter housing	1	Aluminum	10	10	Oil filter housing
30	Spark plug housing	4	Steel	10	10	Spark plug housing
31	Valve train	1	Steel	10	10	Valve train
32	Camshaft housing	1	Steel	10	10	Camshaft housing
33	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
34	Piston housing	4	Aluminum	10	10	Piston housing
35	Connecting rod housing	4	Steel	10	10	Connecting rod housing
36	Timing chain housing	1	Steel	10	10	Timing chain housing
37	Water pump housing	1	Cast iron	10	10	Water pump housing
38	Oil filter housing	1	Aluminum	10	10	Oil filter housing
39	Spark plug housing	4	Steel	10	10	Spark plug housing
40	Valve train	1	Steel	10	10	Valve train
41	Camshaft housing	1	Steel	10	10	Camshaft housing
42	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
43	Piston housing	4	Aluminum	10	10	Piston housing
44	Connecting rod housing	4	Steel	10	10	Connecting rod housing
45	Timing chain housing	1	Steel	10	10	Timing chain housing
46	Water pump housing	1	Cast iron	10	10	Water pump housing
47	Oil filter housing	1	Aluminum	10	10	Oil filter housing
48	Spark plug housing	4	Steel	10	10	Spark plug housing
49	Valve train	1	Steel	10	10	Valve train
50	Camshaft housing	1	Steel	10	10	Camshaft housing
51	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
52	Piston housing	4	Aluminum	10	10	Piston housing
53	Connecting rod housing	4	Steel	10	10	Connecting rod housing
54	Timing chain housing	1	Steel	10	10	Timing chain housing
55	Water pump housing	1	Cast iron	10	10	Water pump housing
56	Oil filter housing	1	Aluminum	10	10	Oil filter housing
57	Spark plug housing	4	Steel	10	10	Spark plug housing
58	Valve train	1	Steel	10	10	Valve train
59	Camshaft housing	1	Steel	10	10	Camshaft housing
60	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
61	Piston housing	4	Aluminum	10	10	Piston housing
62	Connecting rod housing	4	Steel	10	10	Connecting rod housing
63	Timing chain housing	1	Steel	10	10	Timing chain housing
64	Water pump housing	1	Cast iron	10	10	Water pump housing
65	Oil filter housing	1	Aluminum	10	10	Oil filter housing
66	Spark plug housing	4	Steel	10	10	Spark plug housing
67	Valve train	1	Steel	10	10	Valve train
68	Camshaft housing	1	Steel	10	10	Camshaft housing
69	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
70	Piston housing	4	Aluminum	10	10	Piston housing
71	Connecting rod housing	4	Steel	10	10	Connecting rod housing
72	Timing chain housing	1	Steel	10	10	Timing chain housing
73	Water pump housing	1	Cast iron	10	10	Water pump housing
74	Oil filter housing	1	Aluminum	10	10	Oil filter housing
75	Spark plug housing	4	Steel	10	10	Spark plug housing
76	Valve train	1	Steel	10	10	Valve train
77	Camshaft housing	1	Steel	10	10	Camshaft housing
78	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
79	Piston housing	4	Aluminum	10	10	Piston housing
80	Connecting rod housing	4	Steel	10	10	Connecting rod housing
81	Timing chain housing	1	Steel	10	10	Timing chain housing
82	Water pump housing	1	Cast iron	10	10	Water pump housing
83	Oil filter housing	1	Aluminum	10	10	Oil filter housing
84	Spark plug housing	4	Steel	10	10	Spark plug housing
85	Valve train	1	Steel	10	10	Valve train
86	Camshaft housing	1	Steel	10	10	Camshaft housing
87	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
88	Piston housing	4	Aluminum	10	10	Piston housing
89	Connecting rod housing	4	Steel	10	10	Connecting rod housing
90	Timing chain housing	1	Steel	10	10	Timing chain housing
91	Water pump housing	1	Cast iron	10	10	Water pump housing
92	Oil filter housing	1	Aluminum	10	10	Oil filter housing
93	Spark plug housing	4	Steel	10	10	Spark plug housing
94	Valve train	1	Steel	10	10	Valve train
95	Camshaft housing	1	Steel	10	10	Camshaft housing
96	Crankshaft housing	1	Cast iron	100	100	Crankshaft housing
97	Piston housing	4	Aluminum	10	10	Piston housing
98	Connecting rod housing	4	Steel	10	10	Connecting rod housing
99	Timing chain housing	1	Steel	10	10	Timing chain housing
100	Water pump housing	1	Cast iron	10	10	Water pump housing

Bill of Materials

- Parts
- Pieces
- Materials
- Weights
- Manufacturing Steps



LCA Model



LCA Report



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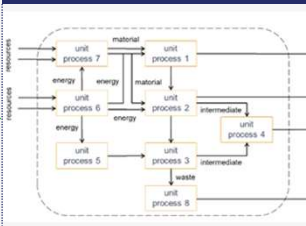
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Decarbonization roadmap tool using LCA

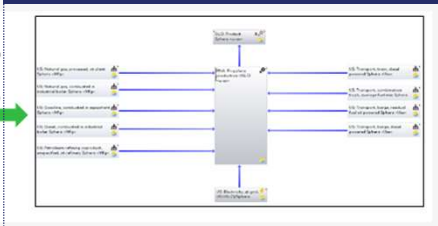
Product LCAs



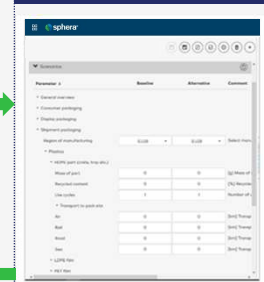
Decarbonization Process Routes



Sphera LCA Models (Scope 1,2,3) for Tier 1, 2, 3



LCA Calculator

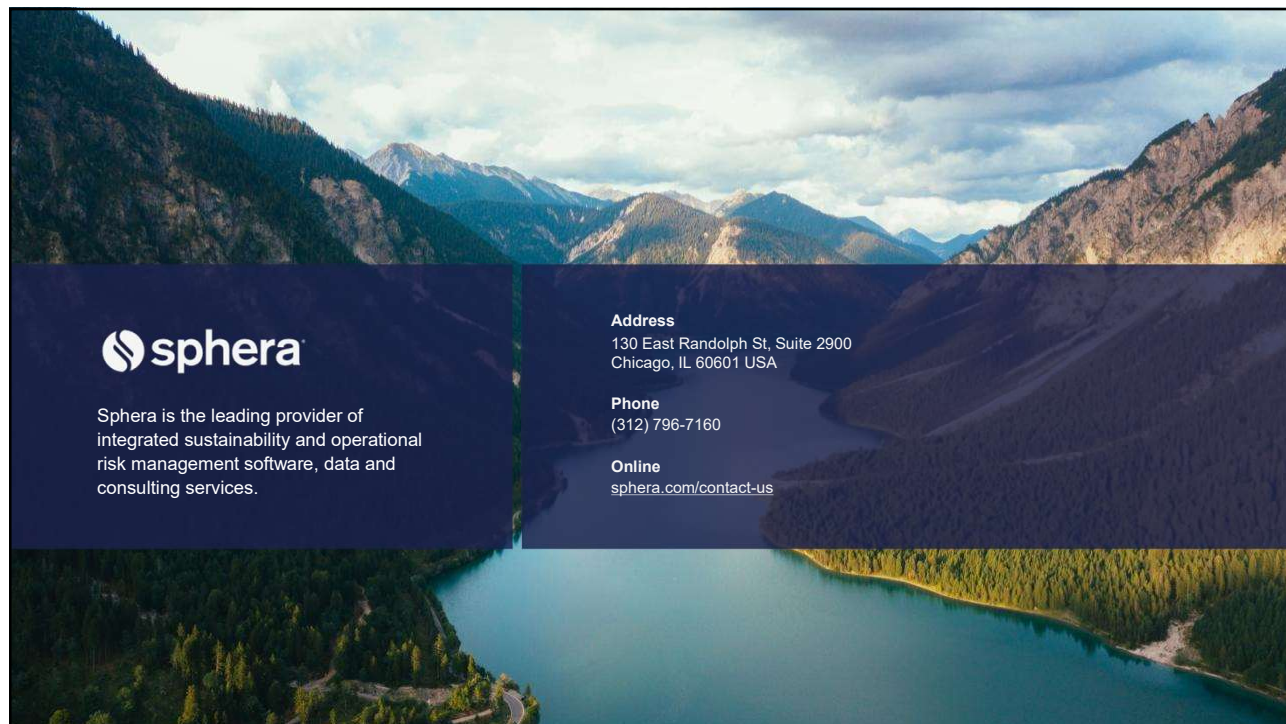



Carbon Abatement Report



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