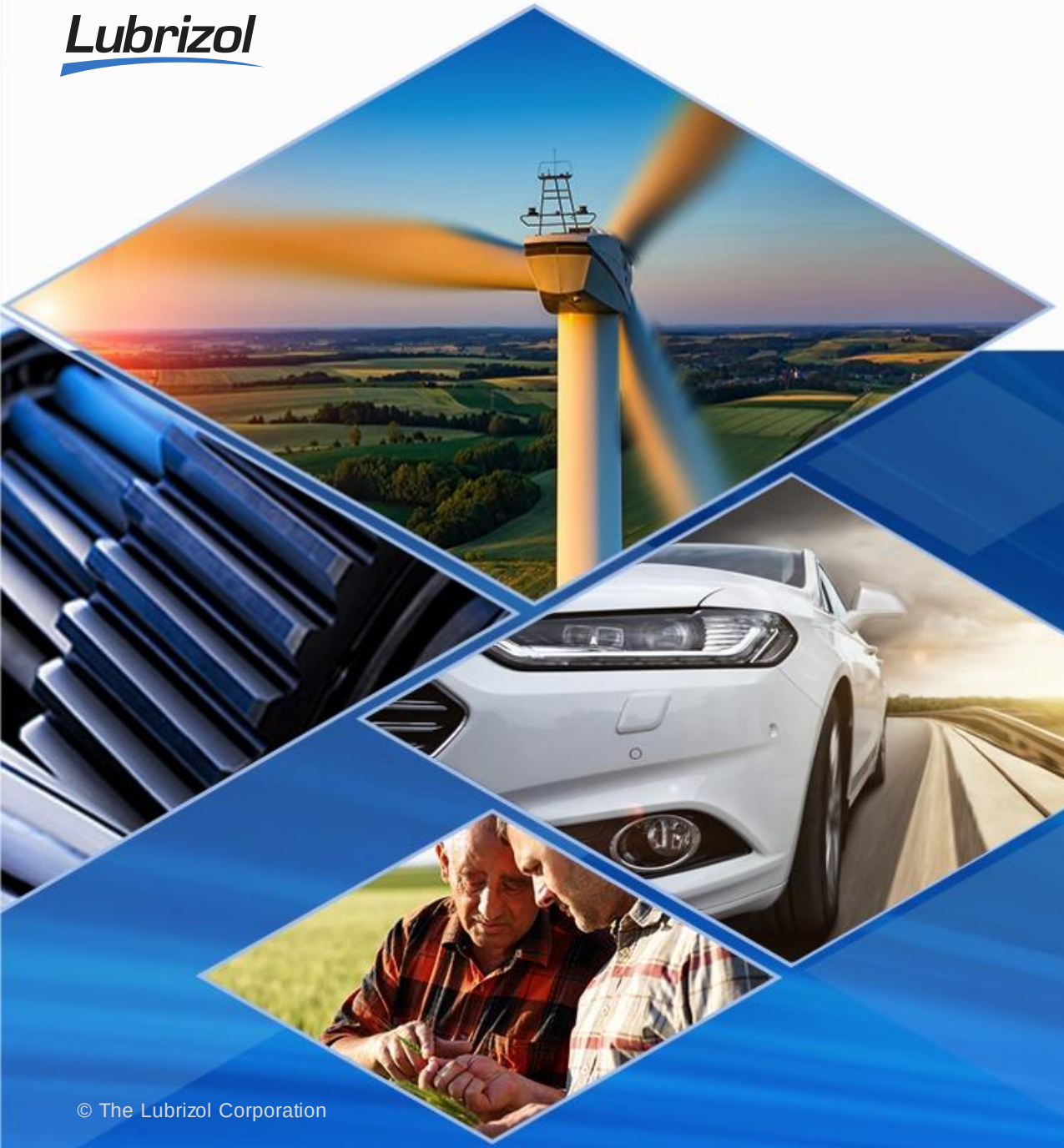


Sustainability through Chemistry

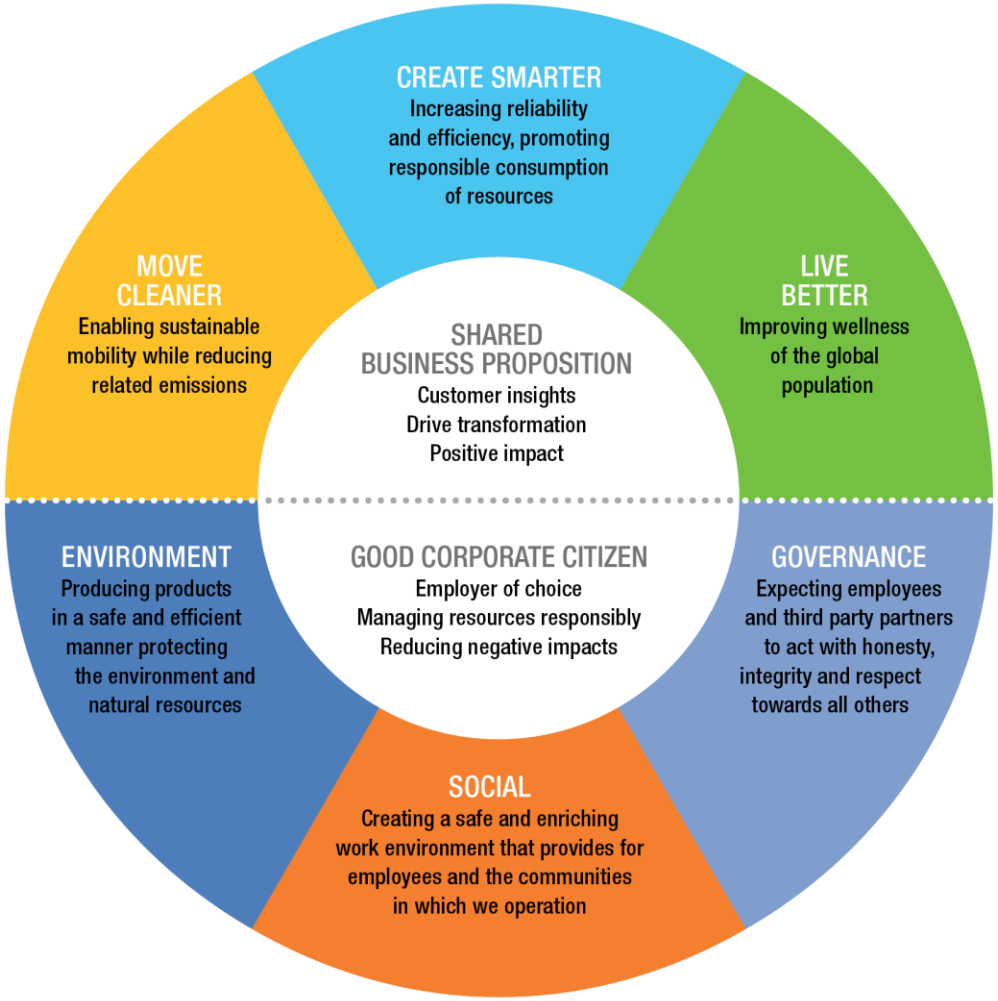
Presented by Dr. Colin Morton

May 2022

Our Company | Lubrizol Sustainability

We view sustainability as a vital driver to the long-term health and growth of our organization.

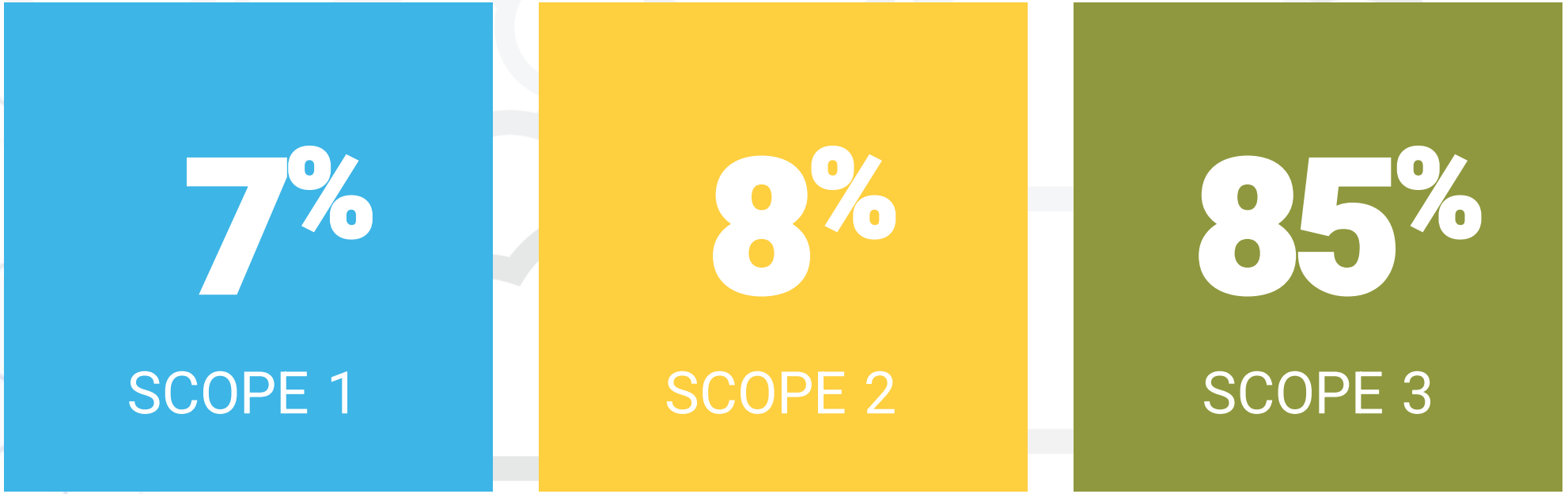
Chemistry is the most powerful tool we have access to in our scientific toolbox for the sustainability of Lubrizol.



Our Company

Our Company | Emissions making up Lubrizol's Corporate Footprint – Cradle to Gate*

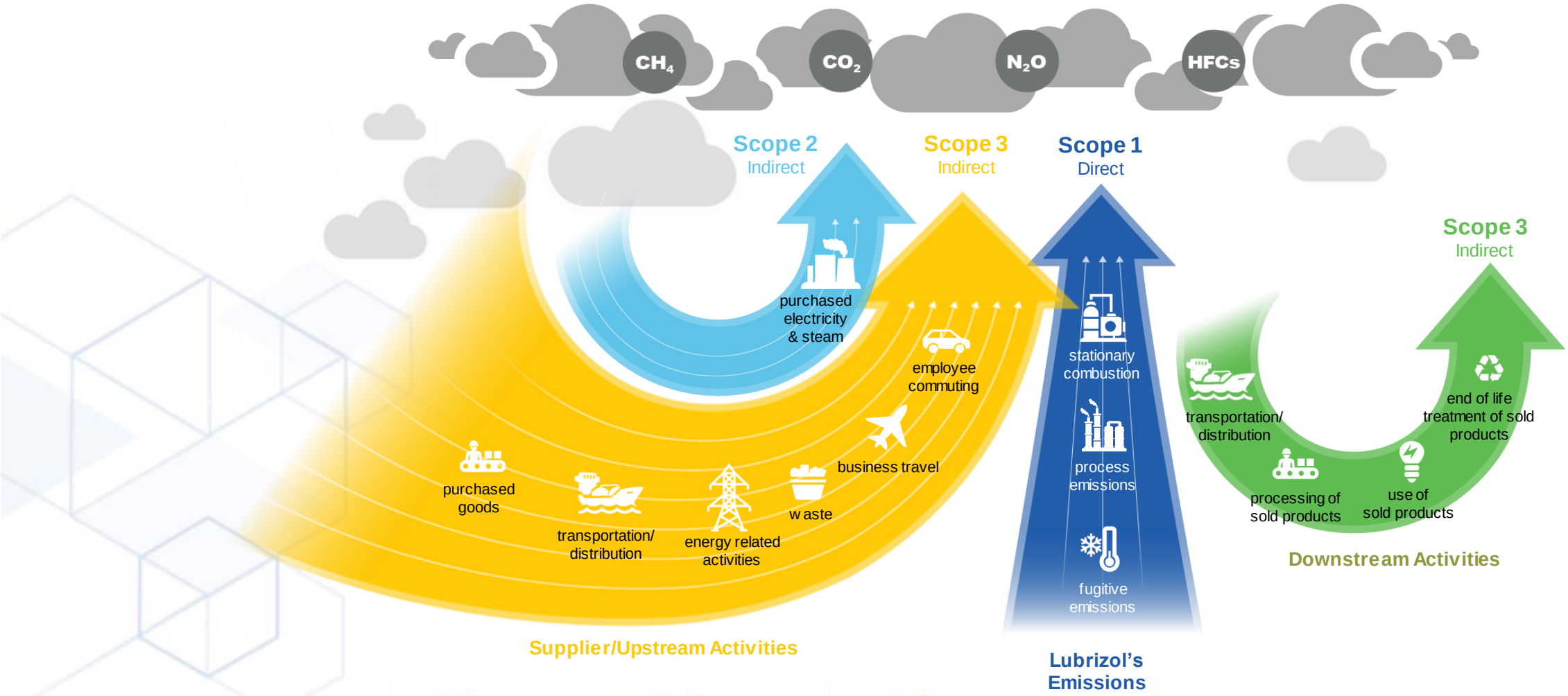
~5MMT CO_2 eq/yr



SCOPE 1	SCOPE 2	SCOPE 3
Direct emissions from our operations	Indirect emissions from the purchase of electricity and steam	Raw materials (85%) + transport + commuting etc.

*2018 data, 3rd party validated.

Our Company | Scope 1, 2 and 3 Emissions



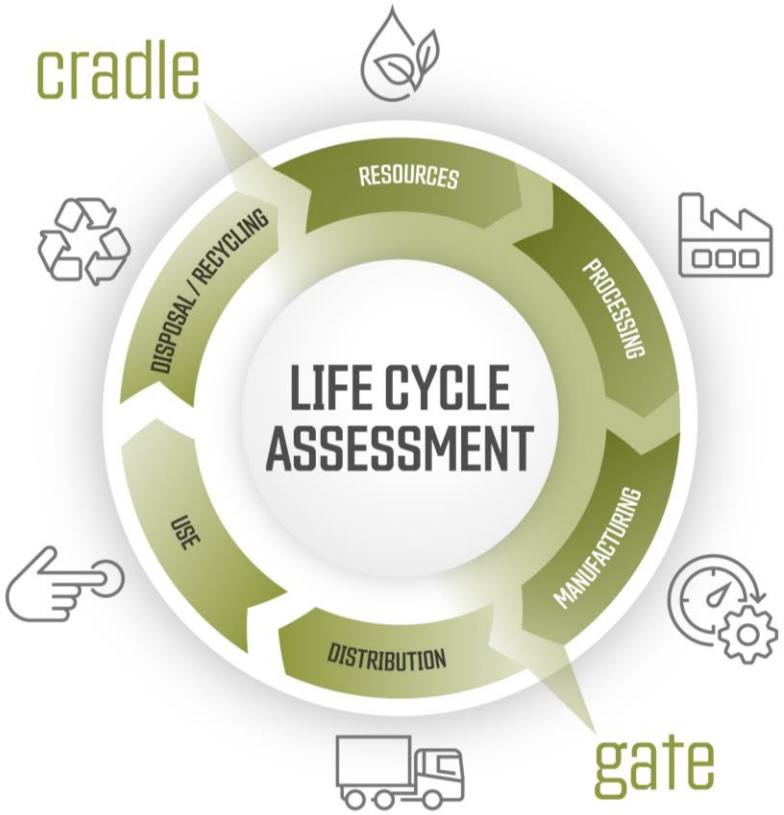
Scope 1: Direct
Greenhouse gas emissions from sources that are owned or controlled by a company.

Scope 2: Indirect
Greenhouse gas emissions resulting from the generation of electricity, heat or steam purchased by a company.

Scope 3: Indirect
Greenhouse gas emissions from sources not owned or directly controlled by a company but related to the company's activities.

LCA Background | The role of life cycle assessment

- **Life Cycle Assessment** is the factual analysis of a product's entire life cycle in terms of sustainability.
- With LCA, the complete environmental impacts of a product or service from cradle to grave can be evaluated.
- Most commonly, LCA includes only cradle to gate – only the pieces that can be directly controlled.

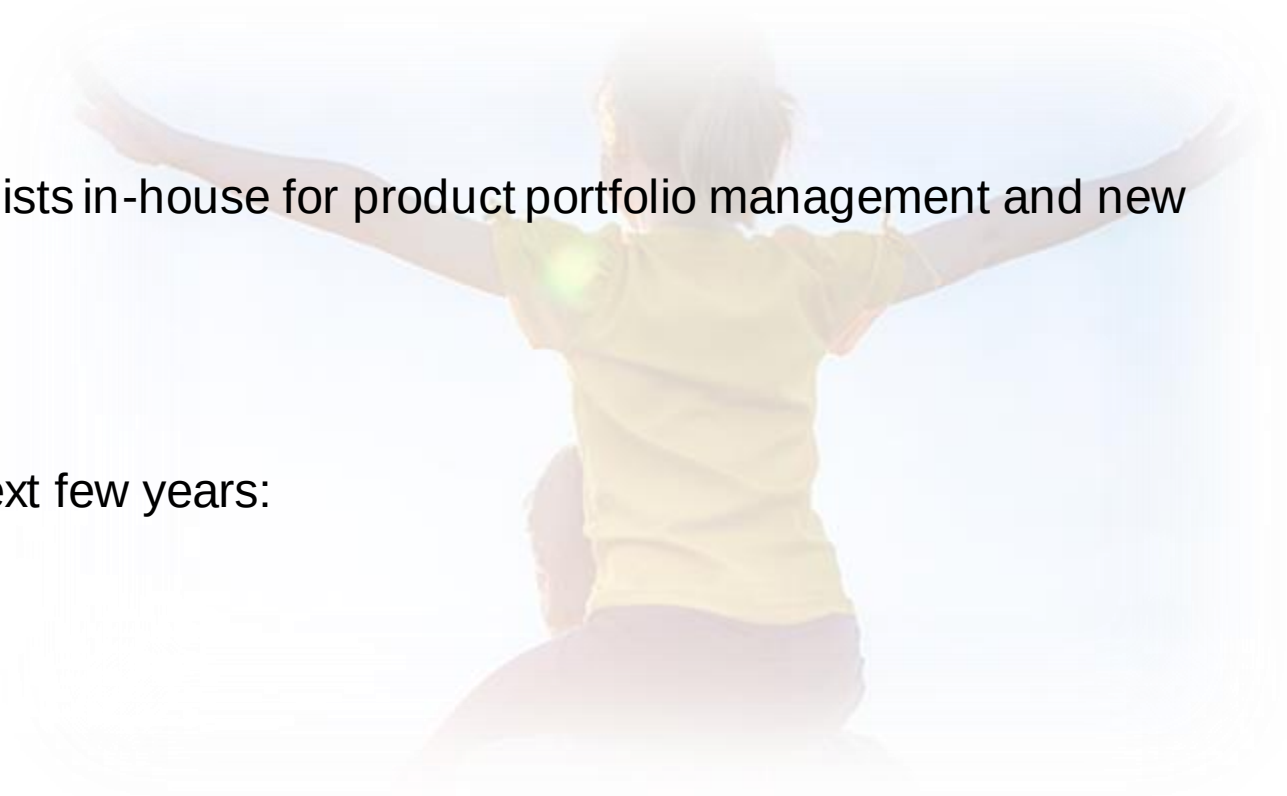


Impact of our operations

Positive impact of our products in use
(avoided emissions)

Lubrizol Sustainability | Our life cycle assessment journey

- Lubrizol have goals around sustainability.
- LCA tools are available to Lubrizol expert technologists in-house for product portfolio management and new product design.
- LCA is gaining traction in the lubricant industry.
- Expect LCA results to change (improve) over the next few years:
  - more accurate data from suppliers
  - improved processing
  - supply chain improvements



LCA thinking is becoming embedded across Lubrizol and the industry.

Lubrizol Environmental | Environmental Footprint Goals

20%

Emissions Reduction: Reducing Scope 1 and Scope 2 greenhouse gas emissions by 20% by 2030 (compared to a 2018 baseline).

10%

Waste Reduction: Decreasing the impact of our waste by 10% by 2030 (compared to a 2017-2019 average baseline).

100%

Water Risk Assessment: Assessments at all Lubrizol manufacturing sites in 2021 and biennially + annual waterbody restoration or clean-up activities.

Lubrizol Additives Environmental | Positive Handprint in Action

As an industry, we have had strong success enabling more sustainable travel and production in the world

Efficient hydraulic fluids

- Improved flow and system response
- Enhanced productivity

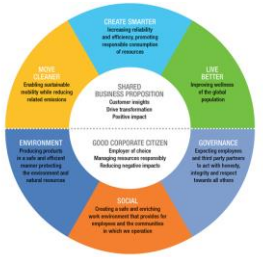
Shipping Decarbonization

- Meeting 0.5% sulfur fuel limits
- Improved deposit control
- Robust chemistry

Engine oil technology

- Enabling aftertreatment hardware
- Reducing NOx emissions
- Ensuring durability

Our Company | Summary | The Journey Ahead



- The lubricants industry has long been at the forefront to enable lower emissions and now accelerates its sustainability effort.
- The growing use of LCA, coupled with the innovative chemistries of the last several years, present a strong foundation for continued positive impact.
- Need industry alignment on how we measure impact, with more partnership and transparency to ensure comprehensive and accurate data.
- Next Lubrizol sustainability report coming later in 2022.

Lubrizol is committed to help the world Move Cleaner, Create Smarter and Live Better. Sustainability is fundamental to that.