



Annual Meeting 2024

March 5-6, 2024

Ho Chi Minh City, Vietnam

# Markus Garb

Chairman UEIL Sustainability Committee  
VP Sustainability (CSO), FUCHS SE

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***UEIL Sustainability Committee –  
Collaborative Platform of the  
European Lubricants Industry,  
PCF Methodology Development  
and Outlook***



# Agenda

## Key Topics:

- About UEIL and ATIEL
- About the UEIL Sustainability Committee
- Recent Achievement: Joint PCF-Methodology development
  - Relevance for our industry
  - Activities in other associations
  - UEIL/ATIEL PCF Task Force
  - Joint UEIL/ATIEL Methodology and its key elements
  - Short detour: Biogenic Emissions
  - Key differences between methodologies
- Way forward
- Summary



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# UEIL and ATIEL

## Two Associations to represent the European Lubricants Industry

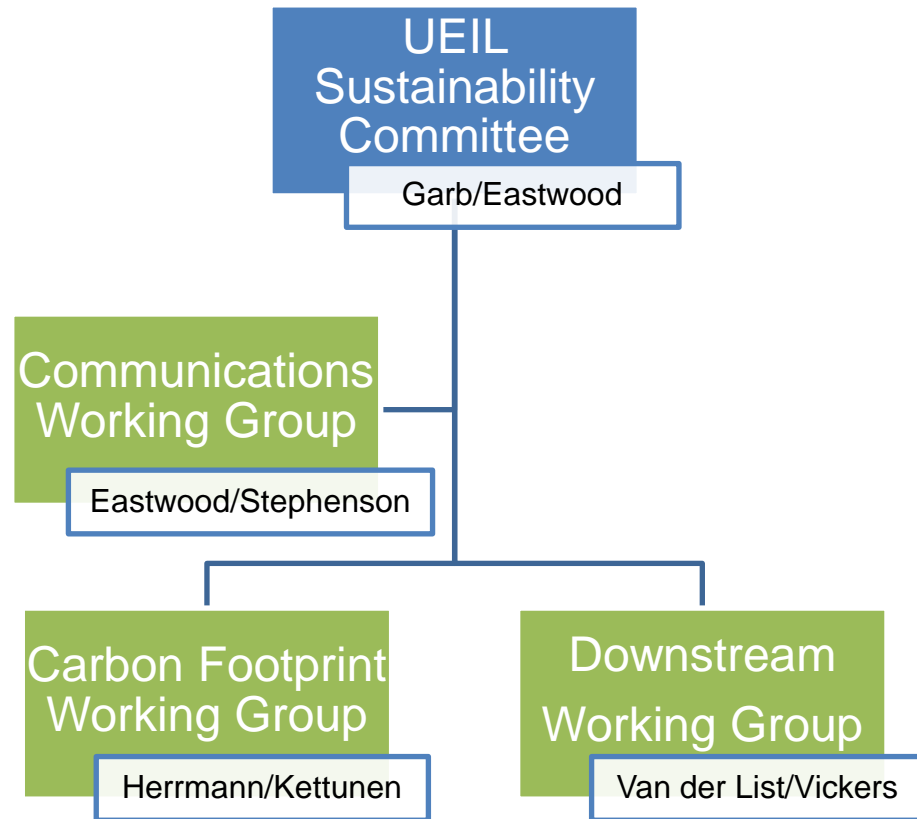
**UEIL** (the Union of the European Lubricants Industry) represents the interests of the lubricants industry in Europe, with a special focus on SMEs and independent companies that produce lubricants and metal processing fluids essential for the automotive and industrial sectors.

*UEIL asbl | Avenue des Arts 46, B-1000  
Brussels – Belgium |  
Website : <https://www.ueil.org/>*

**ATIEL** is the Technical Association of the European Lubricants Industry and a non-for-profit association (ASBL) representing the combined knowledge and experience of leading European and international engine oil manufacturers and marketers.

*ATIEL asbl | Rue Belliard,40, B-1040  
Brussels – Belgium |  
Website: <https://atiel.eu/>*

# UEIL Sustainability Committee



In March 2019, the UEIL Board set up a Sustainability Task Force to develop and define exactly what sustainability means for the European lubricants industry. The Task Force was replaced in June 2020 by a Sustainability Committee and therein a number of working groups.

Its objectives are to **provide guidance to define, develop and measure sustainability in the European lubricants industry, address misconceptions on the industry's sustainability capacities, and take part in the ongoing discussions on sustainability at EU and international levels.**

Today, the UEIL SC is staffed by **representatives of UEIL itself, ATIEL and advisors** from the wider industry to ensure alignment.

# UEIL SC - Activities

## Carbon Footprint WG

- Review and **evaluation of existing methods** for calculating the carbon footprint.
- Identifying **appropriate data sources** and methods for the calculations.
- Developing new calculation approaches to **improve the accuracy** and relevance of the results.
- The implementation of pilot projects to **test and refine the developed methodology**.
- The production of guidelines and **recommendations on the application** of the new methodology.
- **Networking** with other European and international associations on these topics.

## Downstream WG

- Facilitate understanding and implementation of **Life Cycle Assessment (LCA) principles**.
- Support UEIL members in transitioning to a circular economy.
- Explore and address **EU Green Deal topics**.
- Develop **strategies for assessment of downstream lifecycle stages** of lubricants, such as
  - Downstream logistics
  - Use phase
  - Responsible end-of-life management of lubricants.
- Build upon the work of the Product Carbon Footprint task force (aiming at the use-phase).
- Support UEIL members with **knowledge and tools for sustainable decision-making** in the lubricants industry, including around avoided emissions / carbon handprint.
- **Liaising with other industry groups** in the value chain to ensure alignment.
- **Networking** with other European and international associations on these topics.

## Communications WG

- The publication of **white papers** relating to UEIL priority matters concerned with sustainability.
- The preparation and publication of content on the **UEIL Sustainability website**.
- The preparation and publication of sustainability content for **Lube Magazine**.
- The preparation and publication of **press releases** relating to the work of the UEIL Sustainability Committee and its Working Groups.
- The coordination of presentations and / or technical papers at **international conferences**.
- The coordination of **webinars**.
- The preparation and publication of UEIL Sustainability Committee activities through **social media channels**, in particular LinkedIn.
- The coordination and representation of UEIL's interests in response to European Commission initiatives.

# Sustainability Committee - Future

## ATIEL and UEIL signed Memorandum of Understanding to form a Joint Sustainability Committee (Feb. 2023)

*"ATIEL and UEIL will join forces to speak with a single voice on issues of common interest.*

*In practical terms:*

- On short term, both associations will invite each other to their respective committees related to HSE and Sustainability. ...*
- On the longer term **both associations aim at setting up a joint Sustainability and a joint HSE committee.** ...*

*...*

*Joint positions by ATIEL and UEIL will be prepared by the two respective Committees. ..."*

**Jan. 2024: ATIEL and UEIL agreed on Terms of References for a Joint Sustainability Committee: the only way forward is collaboration!**



# Product Carbon Footprint



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“Sum of Greenhouse Gas emissions and Greenhouse Gas removals in a product system, expressed as CO<sub>2</sub> equivalents [...]”,  
ISO 14067:2018

# Product Carbon Footprint of Lubricants

## WHY:

- **Regulators, Consumers and Equipment Manufacturers require the submission** of PCF for products sold. Our products' PCF becomes part of our customers' PCF.
- **ISO 14067 is not precise enough** to be able to assure compatibility of PCF-calculations in a specific sector like the lubricants industry
- There is a **need for harmonization** and clear definition how to calculate and REPORT the PCF for lubricants
- Parallel activities in the wider industry
  - “Together for Sustainability” published a PCF-methodology for chemicals – very detailed but not fully applicable for the lubricants sector since different decisions are required for manufacturing lubricants and greases compared to chemicals
  - API has published Technical Report 1533 – leaving many options



# PCF – Relevance for our industry

Why are methodologies needed and how do they contribute to transparency?



## No methodology

- Even with greatest care applied, results cannot be compared, thus might be meaningless for downstream partners in the value chain
- Moreover, results without transparency **how** they were calculated are meaningless at all



## ISO 14067

- Gives a framework in which to operate
- Defines mandatory elements to consider
- Defines minimum requirements for reporting
- BUT: is not a detailed How-to-guide; requires manifold decisions to be taken leading to non-comparable results



## Sector-specific methodology based on ISO14067

- Addresses all requirements of ISO14067
- Contains guidance for methodological choices which ISO left open to decide
- Defines categories for data sources and quality indicators
- **Can be the basis to compare PCF-values if calculated under the same, certified methodology**



## Product Category Rule based on ISO14067

- Addresses all requirements of ISO14067
- Mandates methodological choices and data sources for a **specific** product group
- Required for complex processes/sectors for which a methodology would still leave open too many options  
→ might be necessary for the refinery sector in future

# Joint UEIL/ATIEL – PCF – Task Force

## HOW:

- UEIL and ATIEL enable for harmonization and clear definition how to calculate the PCF for lubricants, compatible with TfS and API:
  - Chemical industry (TfS): methodology has been endorsed by ATC representing the additive suppliers
  - API has published a Technical Report which is endorsed by the US baseoil suppliers
- **UEIL/ATIEL PCF-Task Force started Jan. 2023**
  - **6 months - 1 working group – 10 members (ATIEL, ELGI, GEIR, UEIL, UNITI/VSI, TfS) – 1 consultant – 4 personal meetings - 17 online meetings to develop the draft ready for consultation phase June/July 2023 – feedback considered from many associations**

## WHAT:

- UEIL/ATIEL-Methodology Rev. 0 published Oct. 6<sup>th</sup> 2023
- TÜV-Rheinland 3<sup>rd</sup> party review led to Rev. 1, published Nov. 30<sup>th</sup> 2023

# PCF - Solution

Why are methodologies needed and how do they contribute to transparency?



## No methodology

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# Joint UEIL/ATIEL PCF Methodology

## Basis:

- ISO 14067:2018
- GHG Protocol Product Standard

## Goal:

- to **harmonize PCF-calculations** of lubricants and other specialties across the value chain
- achieving **alignment in the lubricants** industry, resulting in transparency, comparability, and acceptability of PCF calculations for their stakeholders
- **intended audience** is internal and external stakeholders globally, being, for instance: Customers, Suppliers, Lubricant industry, Legislators, Investors, LCA/PCF auditors and practitioners



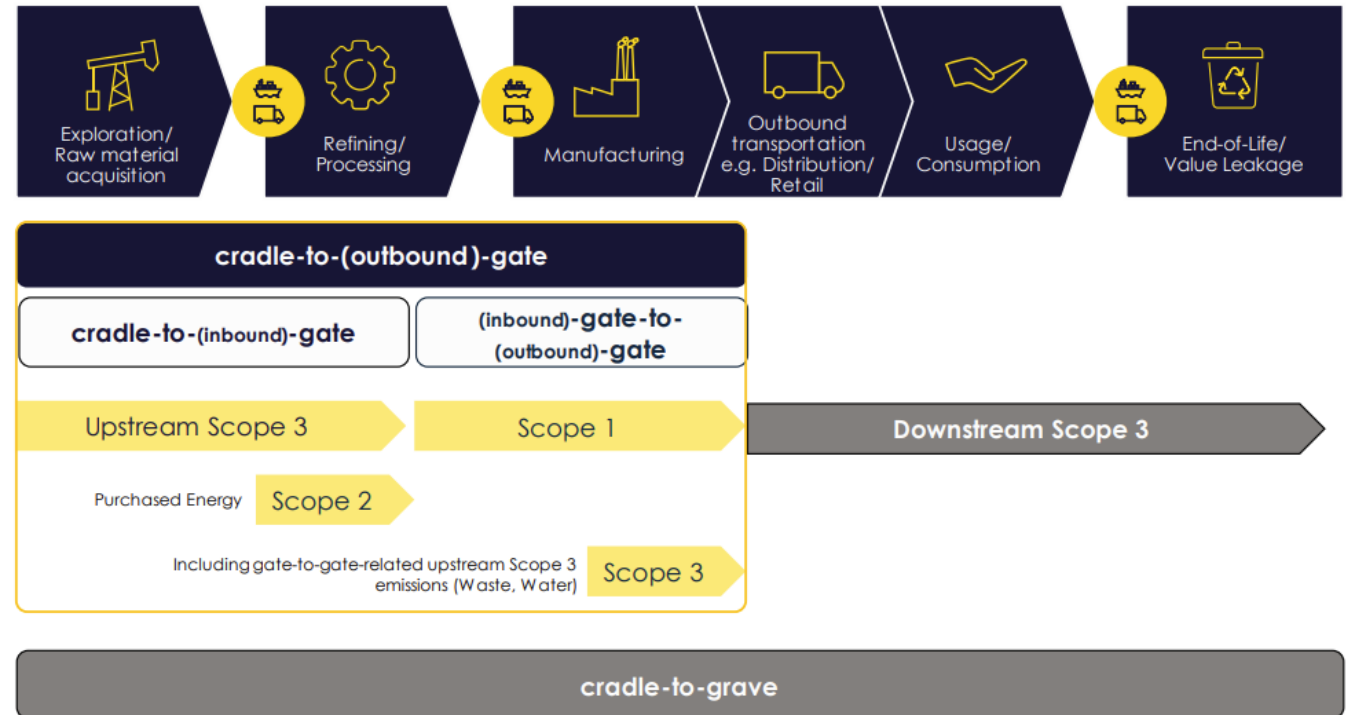
# Joint UEIL/ATIEL PCF Methodology

## Scope/Declared unit:

- 1 kg of unpacked lubricant or other speciality at the factory outbound gate

## Product System:

- comprises the life cycle stages from cradle-to-(outbound)-gate, resulting in a partial PCF calculation. This product system covers the raw material extraction and manufacturing up to and including the product manufacturing of lubricants and other specialties, as well as internal storage and transport by the lubricant manufacturer



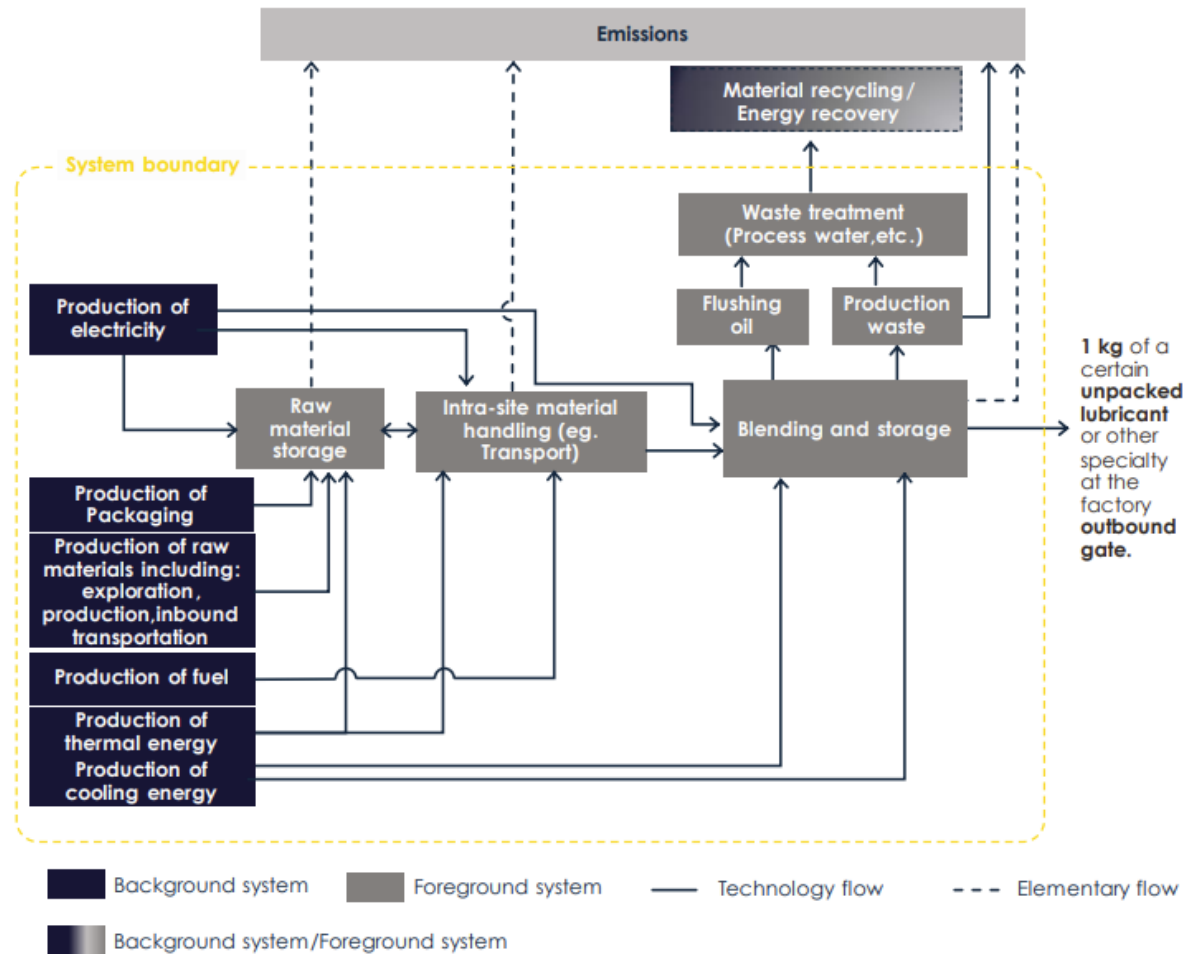


# Joint UEIL/ATIEL PCF Methodology

## System Boundaries:

Included (if not excluded due to cut-off criteria)	Excluded
Production-related raw materials	Production of capital goods
Fuel and energy-related utilities (electricity, steam, natural gas, biomethane, oil, etc.)	Business travel or employee commuting
Direct emissions from manufacturing	Services such as engineering or infrastructure services, R&D activities
Other utilities consumed (process water, inert gas, etc.)	Downstream transportation
Production losses and treatment of waste and wastewater	Downstream packaging
Upstream transportation	
Upstream packaging	

# Joint UEIL/ATIEL PCF Methodology



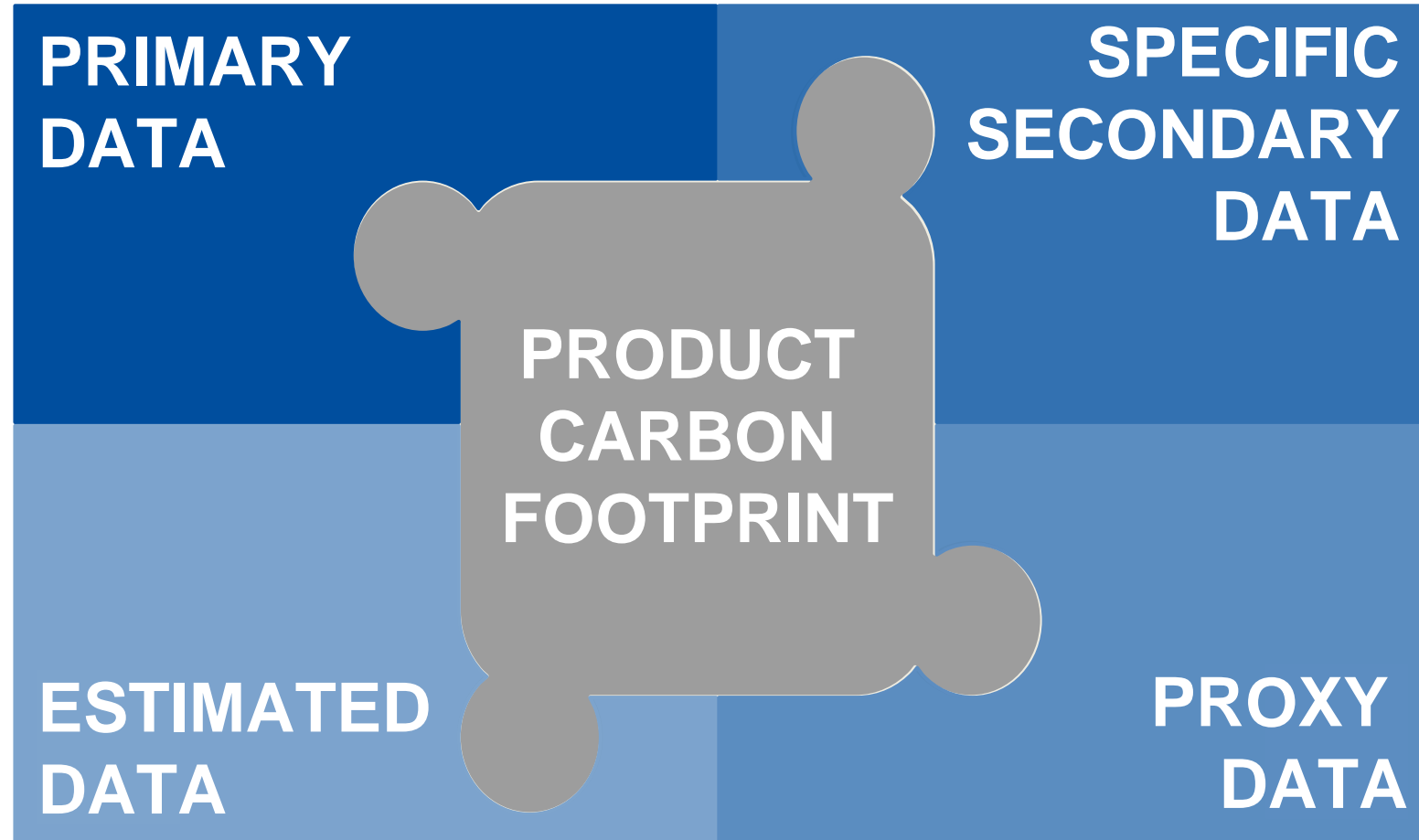
## Data Collection:

- **stereotypical production process of a lubricant manufacturer** within the defined system boundary
  - For PCF-calculation, data for all elements within the system boundaries have to be collected
- In the **foreground system**, at the lubricant manufacturer's production site, all processes that are under the control of the lubricant manufacturer are presented.
- In contrast, the **background system** consists of all processes that the lubricant manufacturer does not directly control, such as the production of electricity, fuel, thermal energy and raw materials...

# Joint UEIL/ATIEL PCF Methodology

## Data Categories:

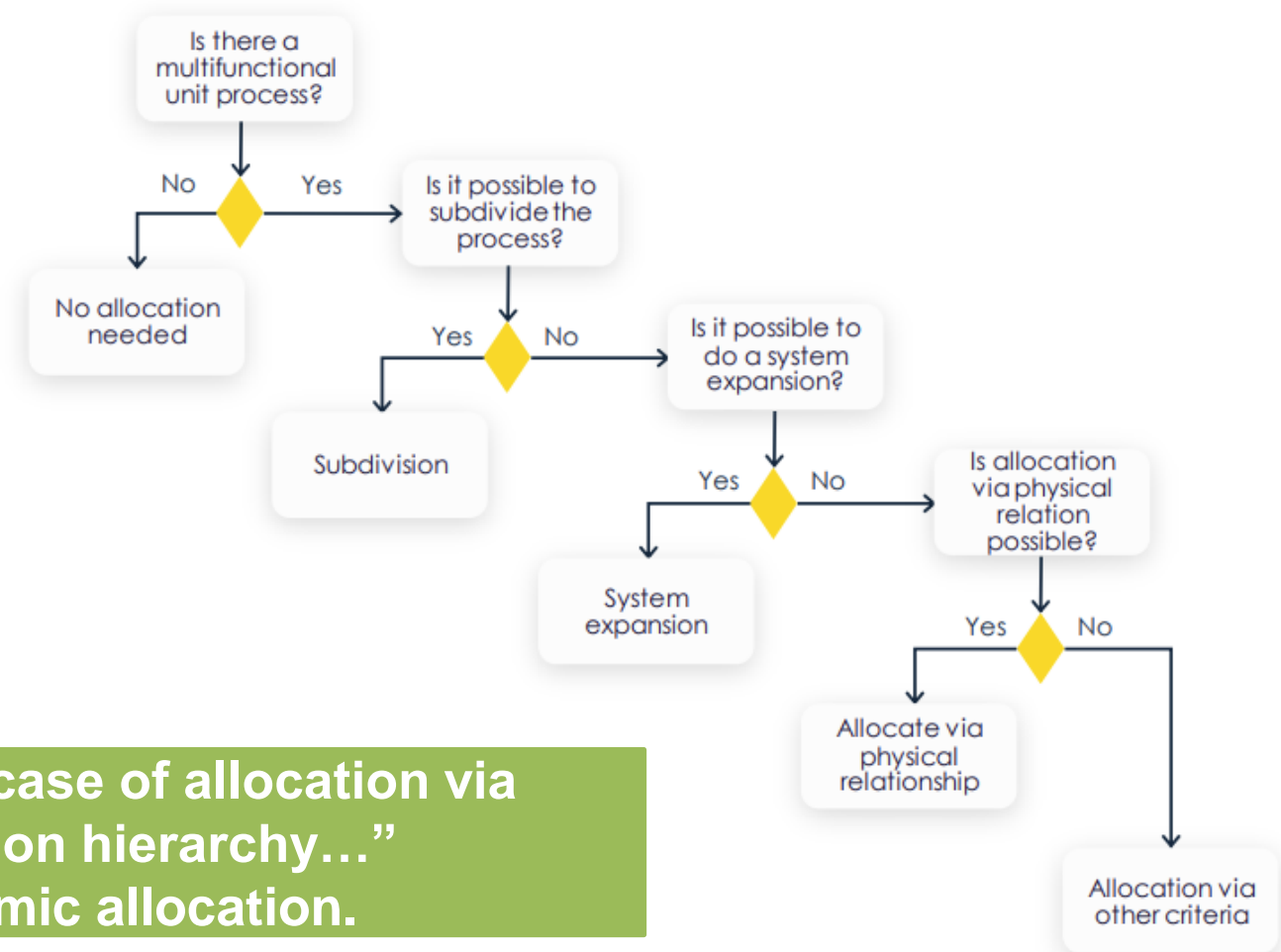
- 4 data categories exist for collecting foreground and background data
- For the **foreground system, primary data shall be used**
- For each data source, data quality has to be assessed
- Note: Primary data not necessarily must have the highest quality or precision!



# Joint UEIL/ATIEL PCF Methodology

## Allocation:

- “To calculate product-specific carbon footprints for products from multifunctional processes, all inputs and outputs, such as raw material demands and exchanges, shall be allocated between the processes’ functions.”
- UEIL-ATIEL-PCF-Methodology strictly follows allocation hierarchy acc. to ISO14067:2018**



“... , mass allocation shall be used in case of allocation via other criteria according to the allocation hierarchy...”  
This deliberately excludes e.g. economic allocation.

# Joint UEIL/ATIEL PCF Methodology

## PCF-Calculation:

- “According to ISO 14067:2018, **partial PCFs** shall take into account **fossil and biogenic GHG emissions and removals**, as well as **GHG emissions and removals from direct land use change (dLUC)** ...
- “the following **characterization factors** shall be applied to consider sources and sinks of biogenic and direct land use change greenhouse gas emissions:”

$$\text{Sum of PCF}_{\text{partial}} = \text{PCF}_{\text{partial,fossil}} + \text{PCF}_{\text{partial,biogenic}} + \text{PCF}_{\text{partial,dLUC}}$$

- $\text{PCF}_{\text{partial,fossil}}$  including only fossil GHG emissions/removals in kg CO<sub>2e</sub>/kg lubricant or other speciality.
  - $\text{PCF}_{\text{partial,biogenic}}$  including only biogenic GHG emissions/removals in kg CO<sub>2e</sub> /kg lubricant or other speciality.
  - $\text{PCF}_{\text{partial,dLUC}}$  including only GHG emissions/removals occurring as a result of direct land use change (dLUC) in kg CO<sub>2e</sub>/kg lubricant or other speciality.
- 
- -1 kg CO<sub>2eq.</sub>/kg CO<sub>2</sub> for biogenic CO<sub>2</sub> uptake
  - +1 kg CO<sub>2eq.</sub>/kg CO<sub>2</sub> for biogenic CO<sub>2</sub> emissions
  - -1 kg CO<sub>2eq.</sub>/kg CO<sub>2</sub> for CO<sub>2</sub> stored in biomass stock or soil
  - +1 kg CO<sub>2eq.</sub>/kg CO<sub>2</sub> for CO<sub>2</sub> released from biomass stock or soil



# Short detour: Biogenic Emissions

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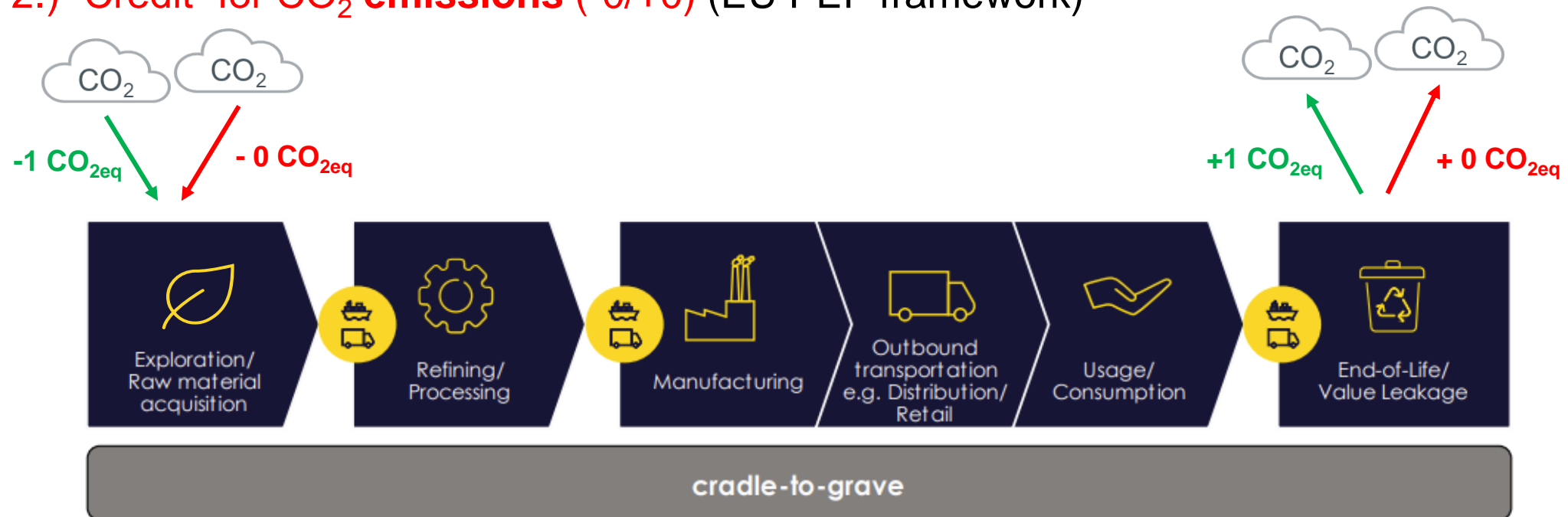
Different methods to account for biogenic emissions or uptakes

# Short detour: Biogenic Emissions

## Handling of biogenic emissions is controversial

There are mainly two different ways, both leading to the same result of a **Cradle-to-Grave-PCF**

- 1.) Credit for CO<sub>2</sub> uptake (-1/+1) (ISO 14067, UEIL/ATIEL-methodology, TfS, ...)
- 2.) "Credit" for CO<sub>2</sub> emissions (-0/+0) (EU PEF framework)

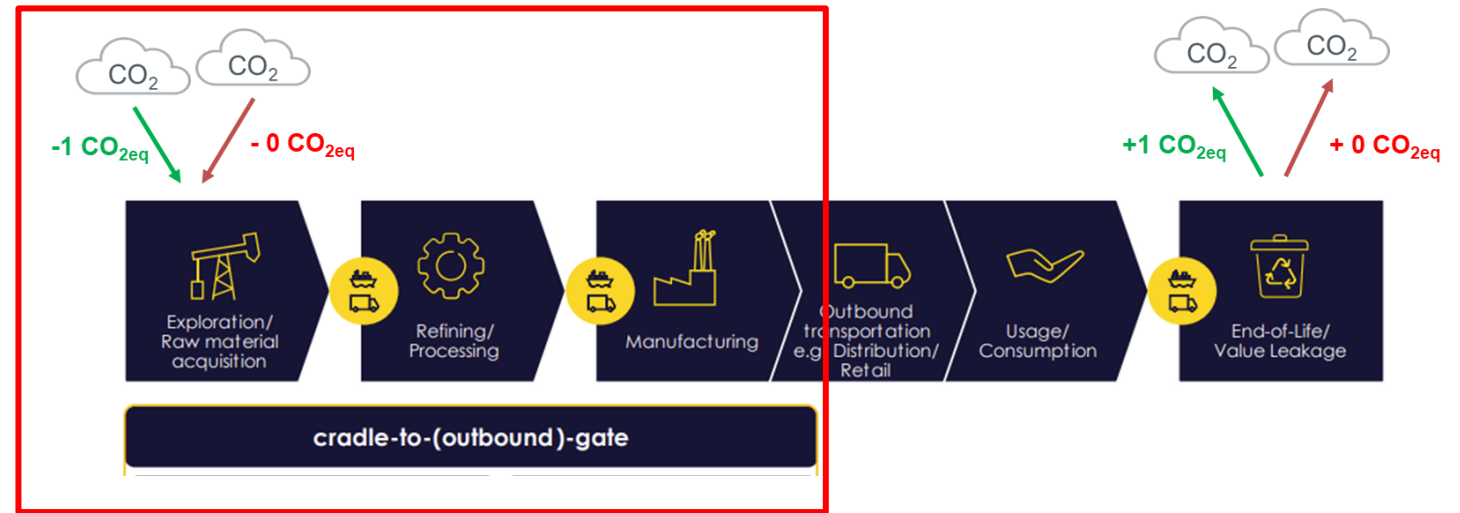


# Short detour: Biogenic Emissions

## Why is this a problem?

- PCF is the same for both methods:

**But only for cradle to grave scope!**



- Most PCF-methodologies define **partial PCFs, Cradle-to-Gate!**
  - Different results for both methods for C2G partial PCF!
  - Double counting of biogenic emissions can occur by mixing both methods
  - only -1/+1-approach incentivizes the use of biogenic raw materials!

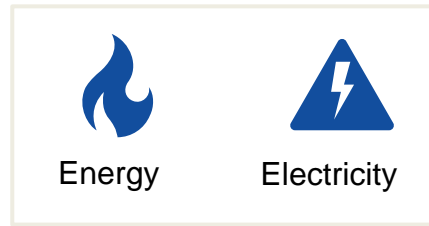
# Short detour: Biogenic Emissions

## Fictitious, simplified example on a lubricant using biobased baseoils

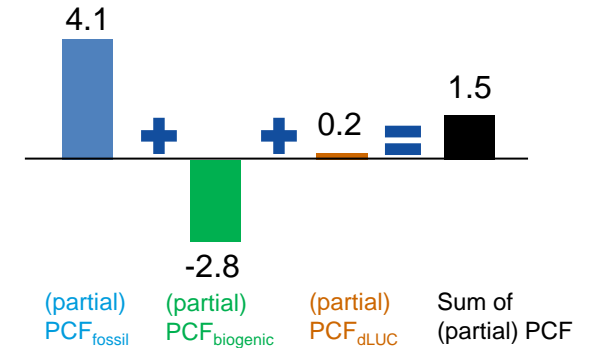
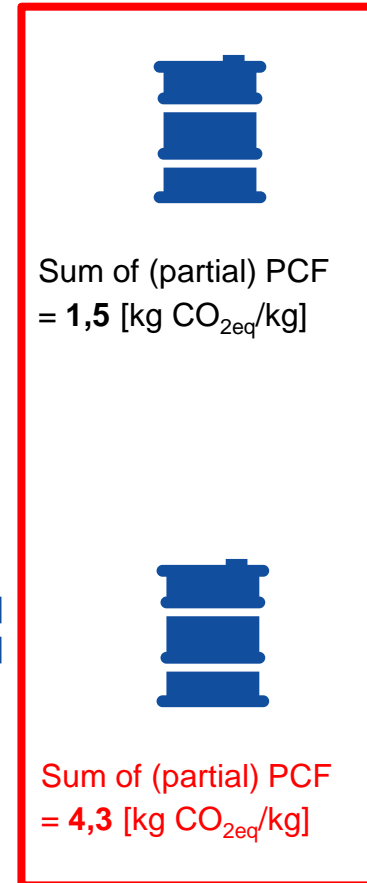
### Biobased base oil - "Credit" for CO<sub>2</sub> uptake (-1/+1)



raw material (partial)  $PCF_{fossil} = 3,8$   
 raw material (partial)  $PCF_{biogenic} = -2,8$   
 raw material (partial)  $PCF_{dLUC} = 0,2$



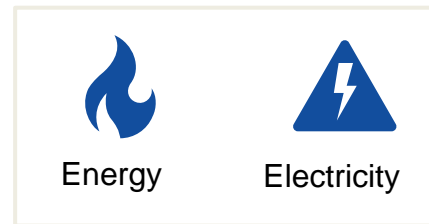
Operational (partial)  $PCF_{fossil} = 0,3$   
 Operational (partial)  $PCF_{biogenic} = 0$   
 Operational (partial)  $PCF_{dLUC} = 0$



### Biobased base oil - "Credit" for CO<sub>2</sub> emissions (-0/+0)



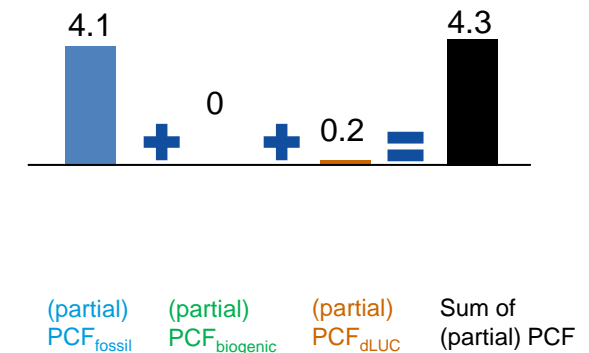
raw material (partial)  $PCF_{fossil} = 3,8$   
 raw material (partial)  $PCF_{biogenic} = 0$   
 raw material (partial)  $PCF_{dLUC} = 0,2$



Operational (partial)  $PCF_{fossil} = 0,3$   
 Operational (partial)  $PCF_{biogenic} = 0$   
 Operational (partial)  $PCF_{dLUC} = 0$



Sum of (partial) PCF  
 = 4,3 [kg CO<sub>2eq</sub>/kg]



# UEIL and ATIEL clearly favour the +1/-1-approach as laid out by ISO 14067!

**We are lobbying with other industry stakeholders towards EU to take over the +1/-1-concept for the EU PEF-Methodology (Product Environmental Footprint) as this is the only methodology to incentivize the increased use of biogenic resources.**

**- end of detour -**



# Methodologies - We are not alone...

## Together for Sustainability



- Chemical Industry

**Document:** [The PCF Guideline for the Chemical Industry](#)

**Published:** November 2022

### Scope:

- Methodology
- Product Carbon Footprint for chemicals
- **Cradle-to-Gate** (suppliers exit gate)

**3<sup>rd</sup> party reviewed:** TÜV Rheinland, Mar. 2023

**Endorsed by:** ATC, APAG (oleochemical industry)

**MoU** between Tfs and CatenaX, [CatenaX Vision-goals](#)



## UEIL/ATIEL



- Lubricants Industry

**Document:** [Methodology for Product Carbon Footprint Calculations for Lubricants and other Specialities](#)

**Published:** October 2023

### Scope:

- Methodology
- PCF for Lubricants (incl. Greases) and other specialities
- **Cradle-to-Gate** (lube manufacturers exit gate)

**3<sup>rd</sup> party reviewed:** TÜV Rheinland, Nov. 2023

## American Petroleum Institute



American  
Petroleum  
Institute

- Oil & Gas Industry

**Document:** [API TR1533](#)

**Published:** May 2023

### Scope:

- Technical Guidance/Best Practice Document
- PCF / LCA
- **Various: Cradle-to-Grave/EoL**

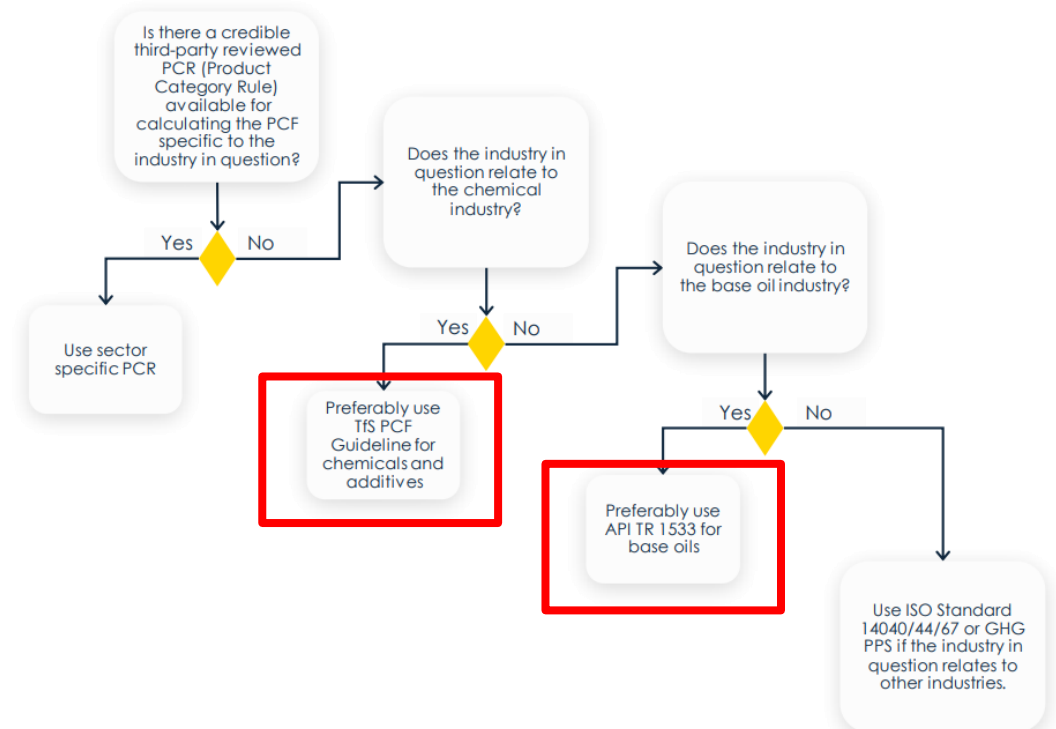
Rev. 2.0 ready for feedback since 10/23

# We are not alone...is this a problem?

No. UEIL and ATIEL believe that every sector knows best how to assess PCF

Suppliers to the lubricant industry can also have links to other industries, such as the base oil and fine chemical industries and will be asked to supply PCFs for their products to enable the calculations by the lubricant industry.

Therefore, this methodology accepts PCFs that have been calculated based on other methodologies according to their latest version for a cradle-to-gate system boundary in the following hierarchy:



We are convinced that it is in the best interest of the industry that we do not **COMPETE** on methodologies but rather accept that different sectors might need slightly different approaches.

**Harmonization and Endorsement are key!**





# Comparison of PCF-Methodologies

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UEIL and ATIEL have started to compare relevant methodologies. This comparison is not binding, completed yet nor exhaustive. The following represents a preview. Comparison as of October 2023.



# Comparison of methodologies

Topic	TfS	API	UEIL/ATIEL	Catena X (V1.0.0)
<b>System boundaries</b>	<b>Cradle-to-gate</b> , gate as factory outbound gate  <b>outbound transport and packaging optional</b>	API defines <b>different life cycle stages</b> dependent on the defined study of the lubricant manufacturer, e.g.:  <b>Cradle-to-grave</b>  <b>cradle-to-gate + logistics (customer gate)</b>  <b>cradle-to-(outbound) gate</b>	<b>Cradle-to-gate</b> , gate as factory outbound gate  <b>outbound transport and packaging generally excluded</b>	<b>Cradle-to-gate</b> , gate as factory outbound gate  <b>outbound transportation excluded</b>  <b>packaging included</b>
<b>Declared unit</b>	<b>1 kg of unpacked (or packed) product</b>	<b>1kg packed product, including upstream packaging and own packaging</b>	<b>1 kg of unpacked product</b>  <b>outbound packaging always excluded</b>	for materials e.g. mass products: <b>1kg of products</b>  for countable products: one piece



# Comparison of methodologies

Topic	TfS	API	UEIL/ATIEL	Catena X (V1.0.0)
Temporal scope	<p>primary data not older than 5 years, secondary data not older than 10 years.</p> <p>PCF result valid up to <b>max. 5 years</b></p>	<p><b>no indication</b>, only data quality assessment in regard to temporal representativeness</p>	<p>primary data not older than 5 years, secondary data not older than 10 years.</p> <p>PCF result valid up to <b>max. 5 years</b></p>	<p><b>use most recent year.</b> Deviations shall be justified.</p>
Cut-Off	<p><b>cumulative</b> total mass/energy input of <b>at least 95%</b> (recommended 98%) <b>shall be included</b></p>	<p><b>no more than 5 % contribution cumulatively</b>, no more than 2 % contribution to individual components</p>	<p><b>cumulative</b> total mass/energy input of <b>at least 95%</b> (recommended 98%) <b>shall be included</b></p>	<p>cradle-to-gate PCF a <b>completeness of 99%</b> shall be achieved.</p>

# Comparison of methodologies

Topic	TfS	API	UEIL/ATIEL	Catena X (V1.0.0)
Multi-output processes/ Allocation rules	<p><b>Allocation hierarchy based on ISO-standards</b> proposed: (1. Subdivision, 2. System expansion/avoided burden, 3. Allocation acc. to physical relationships, 4. Allocation acc. to other criteria)</p> <p>Use <b>system expansion/avoided burden for energy co-products.</b></p>			
	Allocation acc. to other criteria, use the proposed hierarchy: 1. Use product category rules (PCRs) if available, 2. Use WBCSD guidance to decide if physical or economic allocation should be used	Allocation acc. to other criteria, allocation by mass for non-energy products and allocation by energy for energy co-products should be used. Only in case this is not possible, allocation by e.g. economic value should be applied.	Allocation acc. to other criteria: <b>always use mass allocation in these cases (no economic alloc.)</b>	Allocation acc. to other criteria, Catena X mentions allocation according to pieces, mass, energy, energy, economic values as options. In case of economic value, product prices shall be averaged over 5 years.
End-of-life allocation	<p><b>Cut -off approach</b> proposed.</p> <p>The waste input to a recycling/ energy recovery shall be treated as <b>burden-free</b></p>			<p><b>Catena X does not indicate any preferred option for the recycling at End-of-life</b></p>

# Comparison of methodologies

Topic	TfS	API	UEIL/ATIEL	Catena X (V1.0.0)
Biogenic emissions/uptakes	Differentiate between fossil, biogenic, and dLUC-emissions/uptakes -1kg CO <sub>2</sub> /kgCO <sub>2</sub> -> definition for the removal of CO <sub>2</sub> into biomass +1kg CO <sub>2</sub> /kgCO <sub>2</sub> -> definition biogenic CO <sub>2</sub> emissions  TfS requires to report biogenic emissions and uptakes separately			
Data Quality Requirements	<u>Data quality criteria:</u> 1. technological representativeness   2. geographical representativeness   3. temporal representativeness   4. completeness   5. reliability			
	<u>Data quality levels:</u> good (1), fair (2), poor (3)	<u>Data quality levels:</u> - no scoring levels defined, but reference to GHG protocol (Very good (1), good (2), fair (3), poor (4))	<u>Data quality levels:</u> (1), (2), (3)  <b>3 is the default</b>	<u>Data quality levels:</u> good (1), fair (2), poor (3)
Data quality rating (DQR)	Calculation of data quality rating (DQR) is proposed  Reporting of DQR is <b>mandatory from 2025 onwards</b>	<b>NO</b> DQR calculation is proposed	Calculation of data quality rating (DQR) is proposed  Reporting of DQR is <b>optional</b>	Calculation of data quality rating (DQR) is proposed  Reporting of DQR is <b>mandatory</b>

# Where do we go from here?

This is not the end – it is rather the beginning!



## Cooperation

- UEIL/ATIEL are committed to align with lubricant associations around the globe on PCF-Methodology, but not limited to!
- We would welcome a PCR for refinery products
- **We invite other lubricant associations to make use of our PCF-methodology – it is not applicable only for Europe!**



## Alignment

- UEIL/ATIEL have analyzed and deliberately accepted methodologies from
  - TfS for Additives and Chemicals
  - API for Baseoils
- We are convinced that differences should not divide us!
- We strive for dialogue with other leading sectoral PCF-methodologies: TfS, Catena X-Rulebook



## Improvement

- UEIL/ATIEL are committed to further develop the methodology and adapt to the trends in the industry
- We want to support our members with helpful tools and guidance on how to get started
- We scan the market for recommended data sources specific for the lubricant industry

# PCF – in a nutshell

**WHY** do we need a lubricants sector specific standard methodology?

- ISO 14067 only provides broad framework (not lubricant specific)
- Transparency of PCF Calculation

**WHAT** does it describe?

- Scope of PCF calculation (cradle-to-(outbound)gate)
- System boundaries for PCF calculation
- How the PCF should be calculated
- How the PCF should be reported

**HOW** does it help the lubricants industry?

- Transparency → 3rd party reviewed
- Harmonization → ONE methodology
- Pressure on stakeholders → ONE voice





## Annual Meeting 2024

March 5-6, 2024

Ho Chi Minh City, Vietnam

# Feel invited

→ To make use of the PCF-Methodology – for free!

[https://www.ueil.org/wp-content/uploads/2023/12/UEIL\\_ATIEL\\_PCF-Methodology\\_Rev-1.pdf](https://www.ueil.org/wp-content/uploads/2023/12/UEIL_ATIEL_PCF-Methodology_Rev-1.pdf)

→ To ask questions

# Thanks for listening!

