TOGETHER FOR SUSTAINABILITY

THE PCF GUIDELINE

A first-of-its-kind, tailored solution for calculating product carbon footprints in the chemical industry

Setting standards to decarbonize the chemical industry

Nov.17, 2022

ISCC Technical Stakeholder Meeting

Alessandro Pistillo

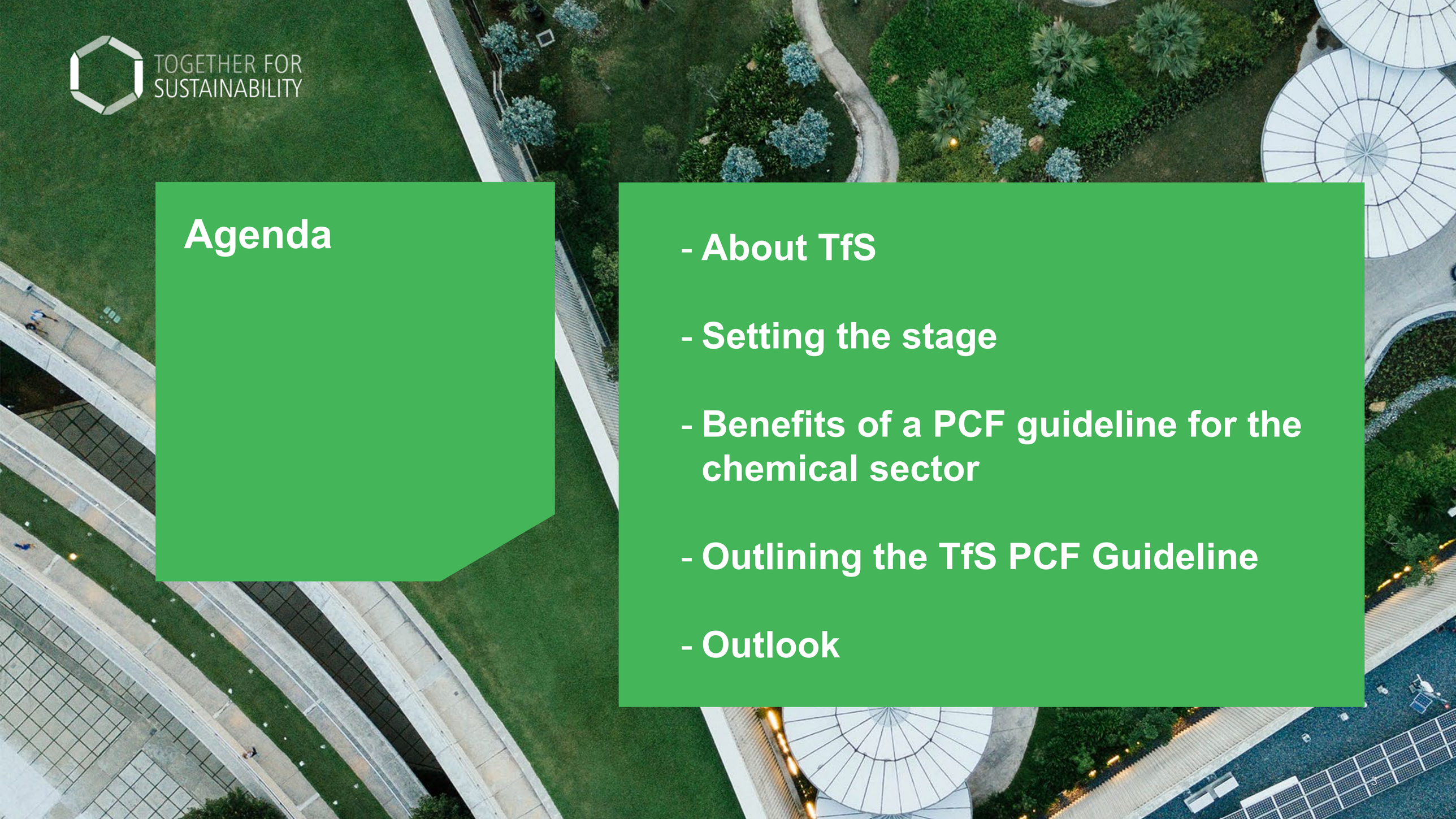
Reference

- The Product Carbon Footprint Guideline for the Chemical Industry, Version 2.0 – November 2022

https://www.tfs-initiative.com/how-we-do-it/scope-3-ghg-emissions

https://www.tfs-initiative.com/app/uploads/2022/11/TfS_PCF_guidelines_2022-interactif-pages.pdf

Product Carbon Footprint Guideline publicly available on the TfS website from September 2022.



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Agenda

- About TfS
- Setting the stage
- Benefits of a PCF guideline for the chemical sector
- Outlining the TfS PCF Guideline
- Outlook

About **TfS**

TfS is a joint sustainability initiative and global network of 37 chemical companies working to shape the future of the chemical supply chains.

> €500bn

Global turnover

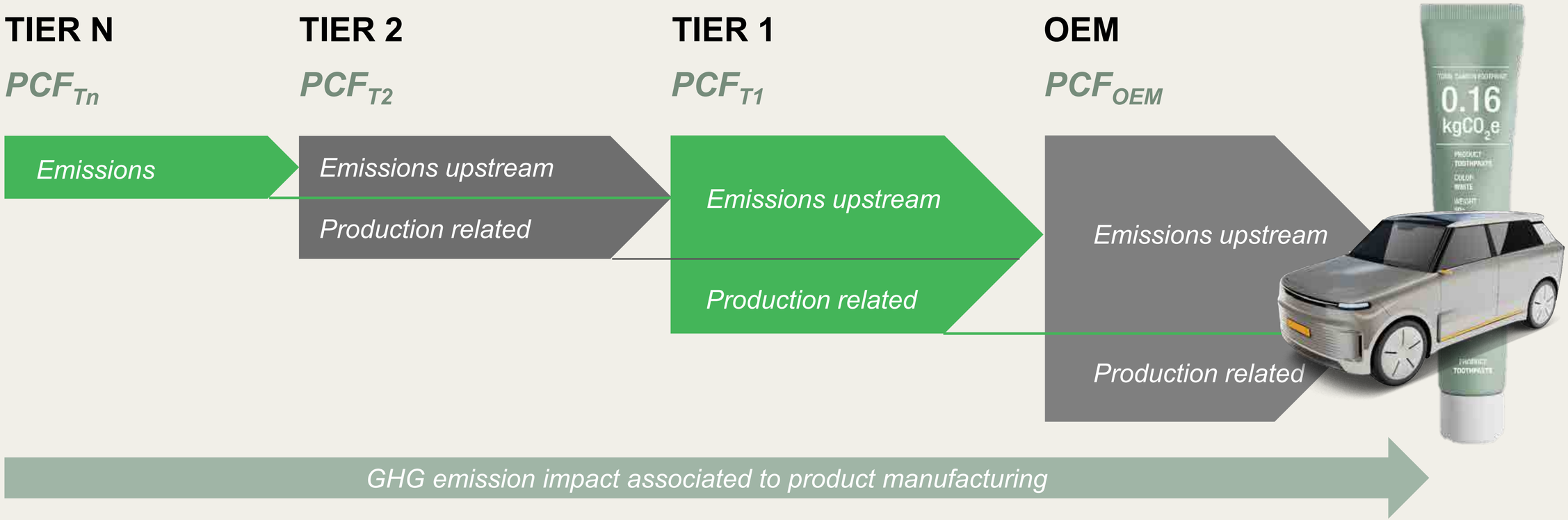
> €300bn

Global spend

Product Carbon Footprint Guideline publicly available on the TfS website from September 2022.

Setting the stage & Benefits of a PCF guideline for the chemical sector

Setting the stage: Determining the emission impact of consumer products requires data owned by actors along global value chains



The challenge: measuring scope 3 emissions

The chemical industry is accountable for ca. **7%**[1] **of global greenhouse gas (GHG) emissions – 77% are scope 3**[2].

Scope 3 emissions measurement is exceptionally challenging for our industry.

Existing standards & guidelines do not provide the level of specificity and detail needed.

Corporations need to **meaningfully report scope 3 emissions.**

Chemical suppliers need guidance on **accurately calculating the carbon footprints** of their products.

[1]Source: 1. IPCC, UN, The Guardian, Our World in Data, CAMELOT | Note: The 7% are the total GHG emissions of Industry-Chemicals and Energy-Chemicals plus the respective shares of unallocated energy emissions and caused by energy production.2. CDP, “Running Hot - Accelerating Europe’s path to Paris” (page 31).

Product Carbon Footprint Guideline publicly available on the TfS website from September 2022.

The solution: the PCF Guideline by TfS

The gold standard for calculating chemical product carbon footprints (PCFs).

First-of-its-kind, industry-specific guidance on calculating chemical PCFs.

Empowers companies to produce **higher quality carbon footprint data.**

Allows **comparison of chemical PCFs** across companies.

Tailored to meet unique challenges when calculating chemical PCFs.

Compliant with ISO and GHG Protocol accounting standards.

Open source, “drop-in” solution available to other industries using chemical material.

Product Carbon Footprint Guideline publicly available on the TfS website from September 2022.

A solution **built on sector collaboration**

- Engaged stakeholders to simplify methodology and broaden its application.
- Piloted the Guideline with over 50 companies during April and May 2022.

- Incorporated insights from chemical companies, NGOs and corporate sustainability experts.
- Based on best practice emissions accounting.

- Alignment with other industry initiatives.
- Part of WBCSD's Partnership for Carbon Transparency.

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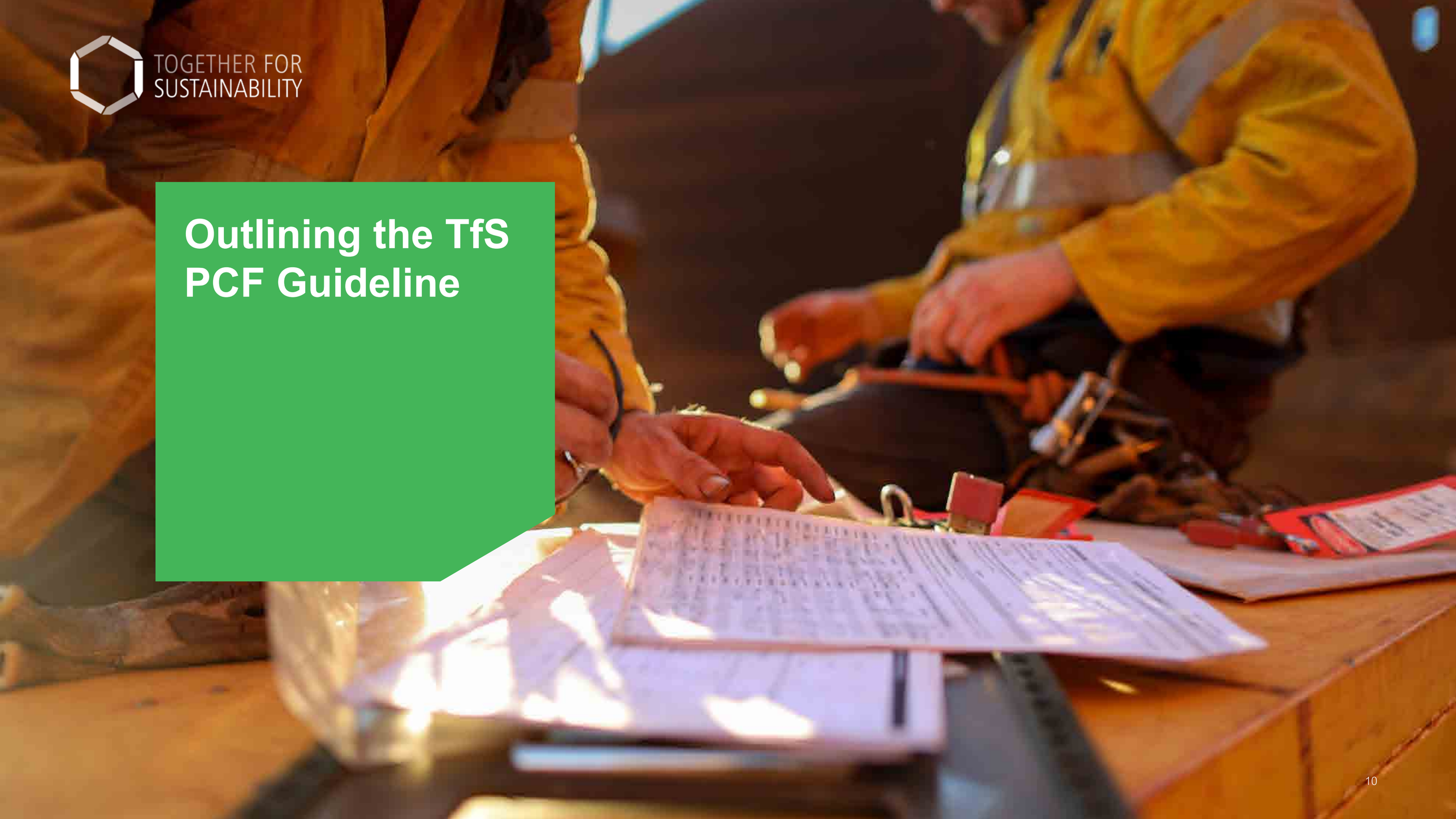
Outlining the TfS PCF Guideline



Guideline structure: 5 practice oriented chapters

Launched in Nov 2022

1 Introduction

2 About the Guideline

3 Reporting principles

4 Guidance on Scope 3.1 at corporate level

Introduction & corporate footprint

Launched in Sep 2022

5.1 Goal and Scope

5.2 Calculation Rules

5.3 Verification and Reporting

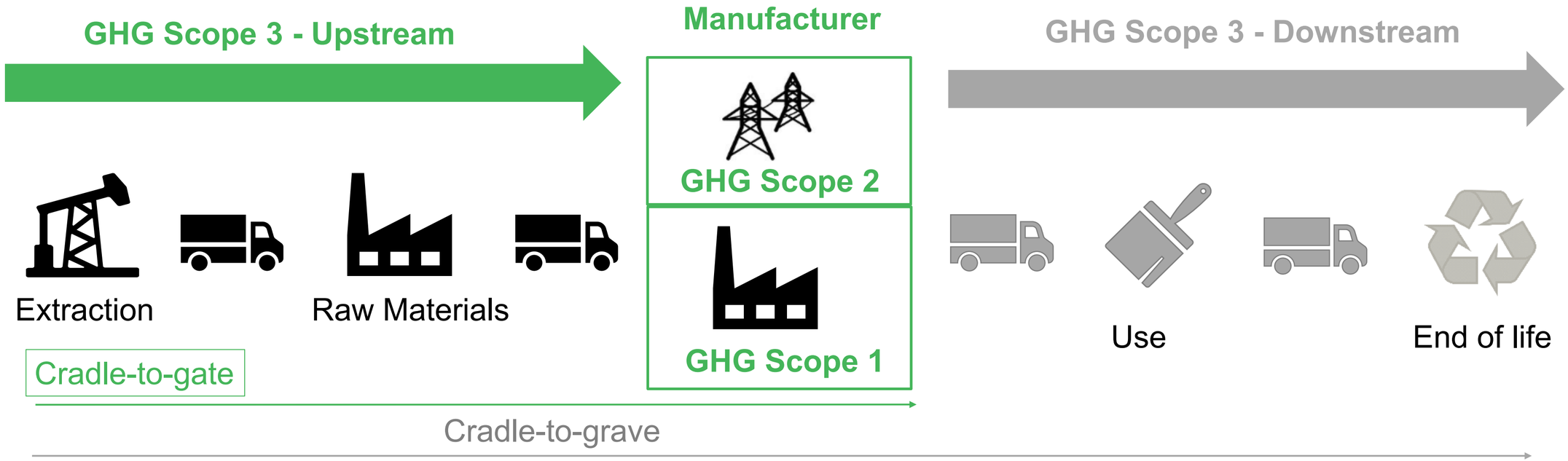
GREENHOUSE GAS PROTOCOL · ISO · wbcsd · BASF Methodology for Product Carbon Footprint Calculation

From generic approach to sector-specific PCF

- 5.2.1 STEPS OF PCF CALCULATION
- 5.2.2 TEMPORAL SCOPE
- 5.2.3 CUT-OFF CRITERIA
- 5.2.4 STANDARDS USED
- 5.2.5 DATA TYPES AND SOURCES
- 5.2.6 EMISSION FACTOR SOURCES
- 5.2.7 LIFE CYCLE IMPACT ASSESSMENT
- 5.2.8 ACTIVITY DATA REQUIREMENTS
- 5.2.9 MULTI-OUTPUT PROCESSES
- 5.2.10 ADDITIONAL RULES & REQ.
- 5.2.11 DATA QUALITY & SHARE OF PRIMARY DATA

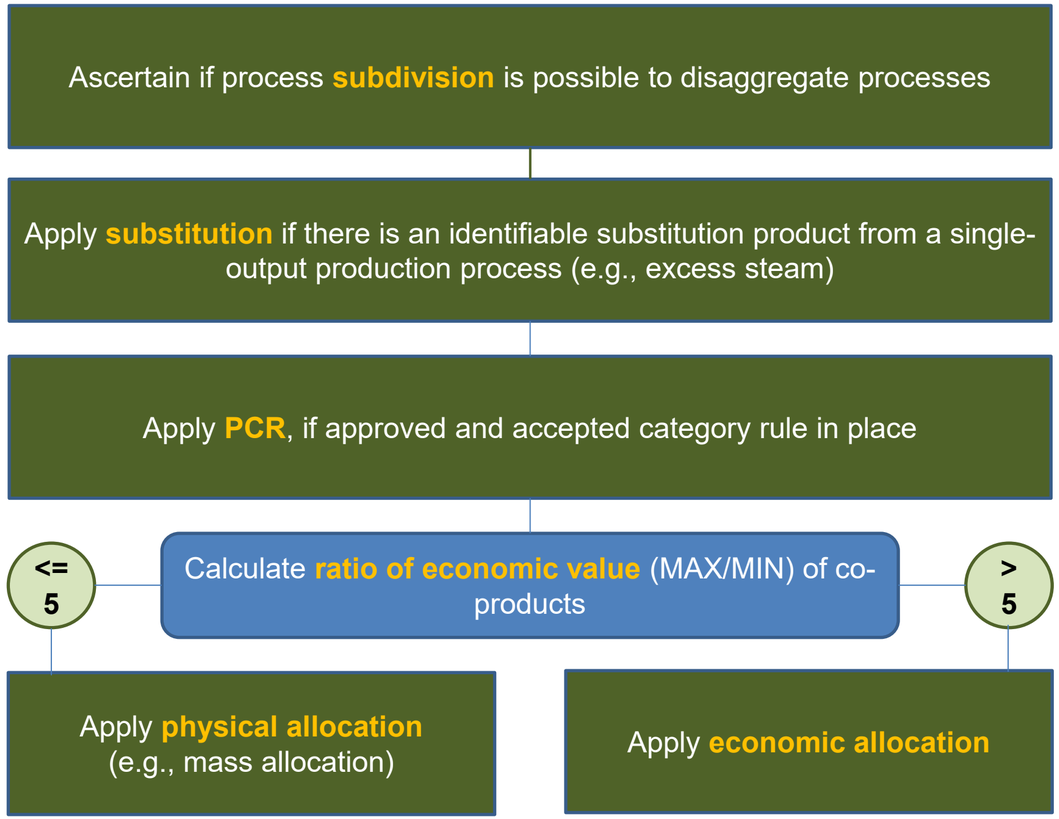
How to calculate a Product Carbon Footprint (PCF)?

- The PCF is an information of the climate impact of a product
- It summarizes the total amount of greenhouse gas (GHG) emissions that is associated with a product depending on the system boundaries of the calculation
- System boundaries may vary from cradle-to-gate to cradle-to-grave



ISO 14067:2018 defines the Product Carbon Footprint as the life cycle GHG emissions of a product

TfS PCF Guideline: Multi-output processes



- Multi-output processes are commonplace in the chemical and process industry, therefore an **allocation mechanism** of emission impacts for main products and co-products is required
- TfS maintains a list of accepted **PCRs**

Table 5.2 TfS accepted PCR (list can be adopted after review of PCR by TfS experts)

Product system	Standard/Rationale followed
Steam crackers	[Plastics Europe - Steam Cracker Allocation [2017]]
C12-14 Fatty alcohols (oleo), methyl esters, refined oils, and crude oils from oil palm, refined- and crude oils from Coconut	[ERASM 2014]
Toluene diisocyanate (TDI), Methylene diphenyl diisocyanate (MDI)	[ISOPA 2012]
Chlorine (chlor-alkali process)	[EUROCHLOR 2022]

- **Specific guidelines** apply in the following cases:
  - **CCU**[1] technologies → System expansion w/ avoided DAC[2]
  - **Hydrogen** as co-product → Allocation by heating value

Note: 1. Carbon Capturing & Utilization; 2. Direct Air Capturing

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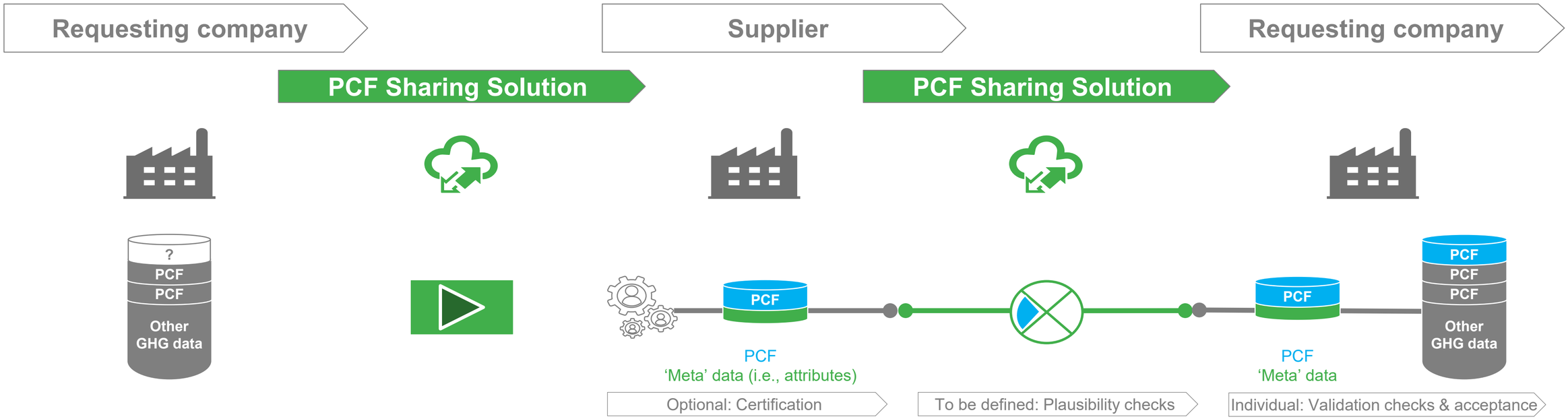
Outlook

PCF data sharing solution

Upcoming: PCF data sharing platform solution in preparation



1. Identify PCF need and nominate supplier to share a PCF

2. Request from supplier PCF

3.1. Calculate according to TfS Guideline [done outside of sharing solution]

3.2. Creates PCF data asset

4. Processes PCF data from supplier, stores data (tbd.), provides to TfS Member

5.1. Receive data and accept PCF

5.2. Include PCF into own GHG accounting

Product Carbon Footprint Guideline publicly available on the TfS website from September 2022.

Thank you

Q&A