SUPPLY CHAIN IMPACT ACCOUNTS FOR MORE THAN 80% OF GHG EMISSIONS

- Introduction
- External Pressure: Methodology
- Internal Pressure: Shipper Perspective
- State of Logistics: SQAS
- Emission Guideline: Update

(Source: International Transport Forum Outlook 2019)

CountEmissions EU
GHG Emissions Calculation

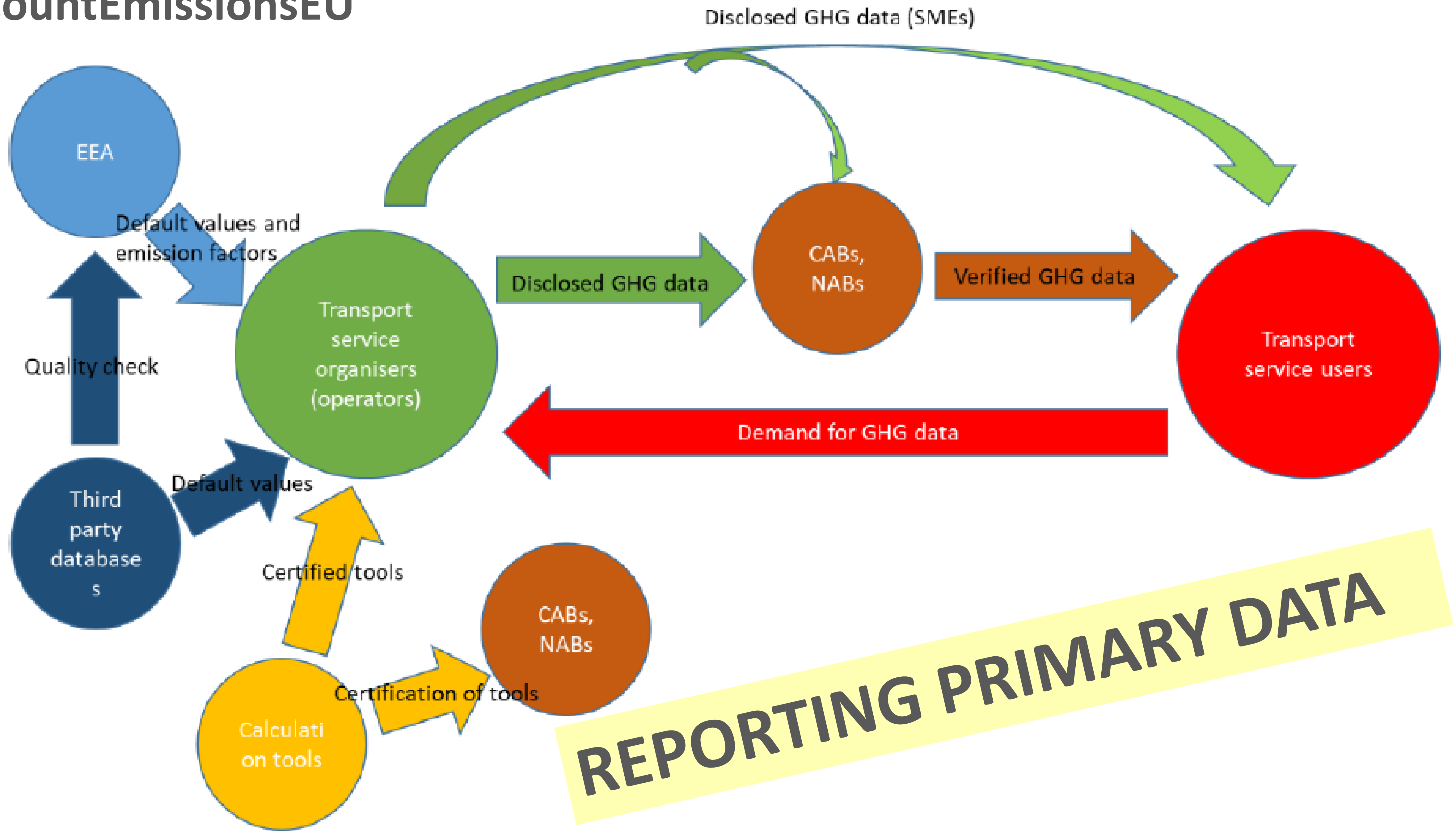
The European Chemical Industry Council, AISBL – Rue Belliard, 40 - 1040 Brussels – Belgium
Transparency Register n°64879142323-90

CountEmissionsEU

Standard/methodology	Transport modes/segments	
GHG protocol	All modes	Passengers & freight
EN 16258	All modes	Passengers & freight
ISO 14083	All modes	Passengers & freight
PEF	All modes	Passengers & freight
French transport code (Article L. 1431-3)	All modes	Passengers & freight
Parcel Delivery Environmental Footprint[76]	All modes	Parcel
GLEC	All modes	Freight
SmartWay	All modes	Freight
Topsector	All modes	Freight
Clean Cargo Working Group	Maritime	Freight
EU MRV	Maritime	Freight
IMO DCS	Maritime	Freight
CORSIA	Aviation	Passengers & freight
ICAO/IATA RP1678	Aviation	Freight
IATA	Aviation	Passengers
EU ETS aviation	Aviation	Passengers & freight

Source: Ecorys and CE Delft (2023), Impact assessment support study

CountEmissionsEU



CountEmissionsEU

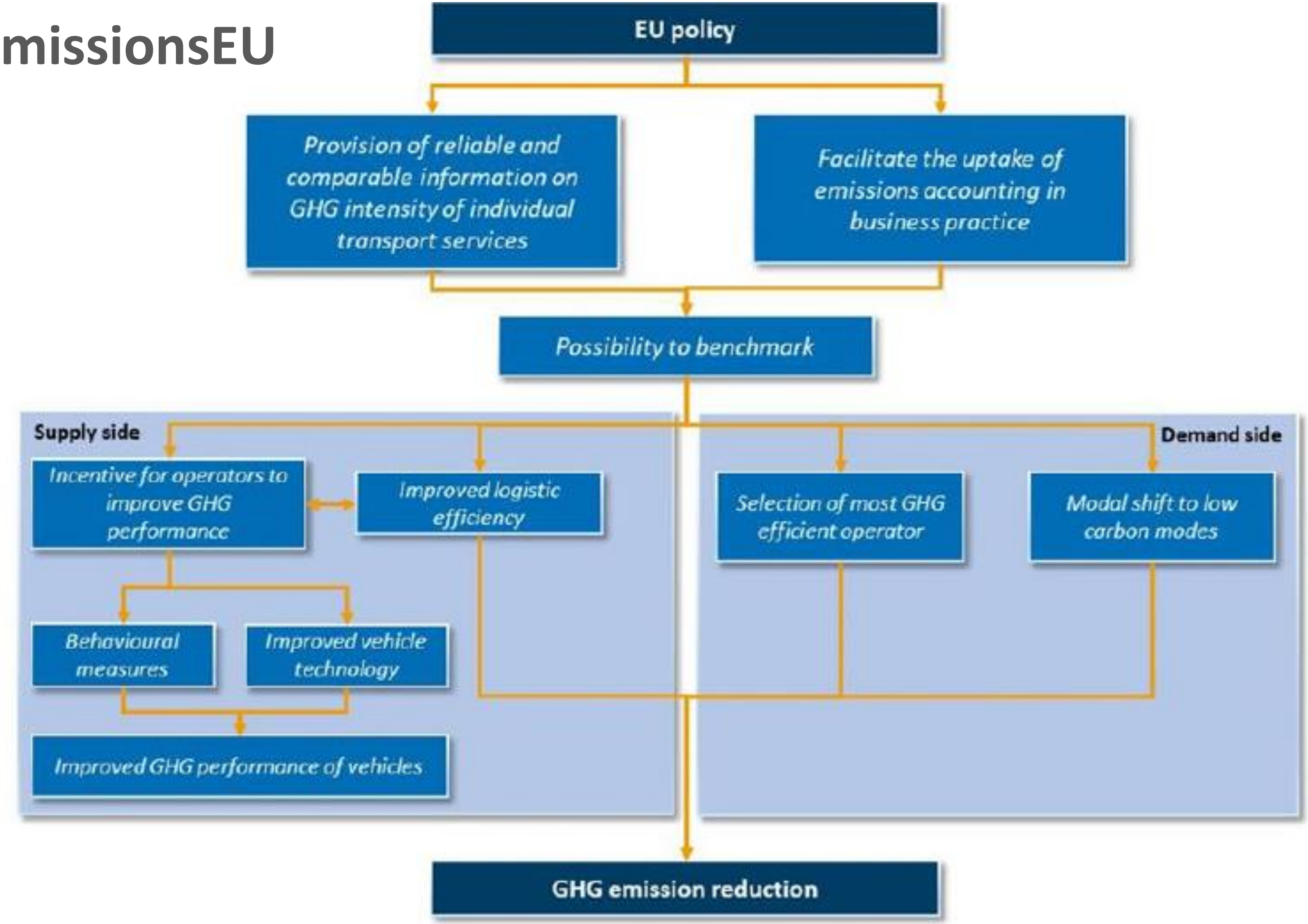
COMMISSIONER KEYWORDS

- CALCULATION OF EMISSIONS
- GREEN CREDENTIALS ONLINE
- METHOD BEHIND THE CALCULATOR
- DATA ACCURACY
- CALCULATION FORMULA

STANDARDIZED METHODOLOGY/FORMULA

ISO/CEN STANDARD

CountEmissionsEU



Source : Ecorys and CE Delft (2023), Impact assessment support study

Revision of the Countemissions EU Regulation

EXPLANATORY MEMORANDUM

OBJECTIVES

- Supporting efforts toward better sustainability and efficiency of the EU
- Making more sustainable choices to influence business decisions of transport organisers and operators
- Stimulate behavioural change
- Disproportionally low uptake GHG emissions accounting is observed particularly among SMEs that represents vast majority of the offer in transport services

LEGAL FRAMEWORK

- 2011 White paper on transport
- 2020 Sustainable and Smart Mobility Strategy
- Harmonized rules for accounting GHG emissions

APPLICABILITY

- Services that start or end on the territory of the Union. This consequently includes services, the origin and destination points of which are situated in third country
- Regulation should apply only to those entities that decide or are bound by other legislative and non-legislative regimes to calcualte and disclose GHG info
- Regulation should not apply to data intermediaries, such as those offering multimodal digital mobility services. However data intermediaries should be bound by relevant rules related to communication transparency of disclosed data
- Regulation should not apply where calculation and disclore of GHG emissions is performed in an aggregated form (i.e CSR directive and EU environmental economic accounts

Revision of the Countemissions EU Regulation
EXPLANATORY MEMORANDUM

METHODOLOGY

Proper method for calculating GHG emissions is one of the key aspect for the harmonised Union framework

Method provide comparable and accurate GHG emission data, by following a single set of methodological steps

EN ISO standard 14083:2023 was chosen to be the reference methodology fo calculating GHG emissions of transport services

Well-to-wheel basis which includes GHG emissions stemming from energy provision and vehicle use during transport and hub operations

Secondary data by default values and modelled data. Default values and modelled data provided by a reliable source

Different ypes of input including primary and secondary data can be used. Primary data should be prioritised. Secondary data use should be allowed under clear conditions

Core EU database of default values for GHG emission intensity to improve comparability of data. GIven sectorial, national and regional specifities of default values across EU, othe relevant databases and datasets operated by third parties should be allowed but under quality check at EU level

Central EU database of GHG factors of energy carriers as well check on third party (EEA)

Revision of the Countemissions EU Regulation
EXPLANATORY MEMORANDUM

METRICS AND BENCHMARK

Lay down common metrics to express GHG data that underline the comparability of those data and allow effective benchmarking of transport services

Disaggregated data disclosed to thrid party for commercial or regularoty purpose should be pursuant to the specific rules for GHG emissions calculation

Entity should be able to draw an evidence to substantiate the respective output data. Evidence should be pursuant to the rules on reporting at a transport service level set out by EN ISO 14083

Data intermediary should not be considered liable of breach of the requirements. Data intermediary should make effort to prevent inaccurate/incorrect info to be disclosed

EXEMPTION

Administrative burdain could be disproportionate for smaller companies and so avoided

SMEs should be exempted from the requiremens related to the verification unless these companies wish to obtain a proof of compliance

Large companies should take into account the principle of proportionality when considering requesting the verification of conformity from value chain partners, in particualr SMEs

CALCULATION TOOL

External calculation tools provided on the market for the broader commercial and non-commercial use can facilitate accounting. Use of these tools should be certified

Entities which passed the conformity assessement should be entitled to obtain a proof of compliance to be recognised across the Union

Especially if the tool refer to primary data the proof of compliance should acknowldge it

CountEmissionsEU
Follow up on Legislative process

Legislative Train Schedule
European Parliament

Enter your search (min 3 characters)

Schedule | Packages | In the spotlight | Search | About | Contact

Commission 2019-24 > A European Green Deal > EU framework for harmonised measurement of transport and logistics emissions

EU framework for harmonised measurement of transport and logistics emissions

In "A European Green Deal"

Actions

SUBSCRIBE CONTACT

Metadata

Status:	Departures
Type:	Legislative
In the spotlight:	JD 23-24
CWP:	2022
CWP indicative date:	Q4 2022
Updated indicative date:	Q2 2023

Rapporteur(s)

Sharing

20/06/2023 PDF VERSION

As part of European Green Deal, the Commission work programme 2022 contained a legislative initiative on an EU framework for harmonised measurement of transport and logistics emissions, that is now scheduled for second quarter of 2023.

The initiative was first mentioned in December 2020 in the annex to the Commission's Communication on the Sustainable and Smart Mobility Strategy under the heading 'Flagship 5 - pricing carbon and providing better incentives for users'.

The Commission held a 'call for evidence' between 19 November and 17 December 2021. A public consultation was held from 25 July to 17 October 2022.

References:

- European Commission, Commission work programme 2022 - Making Europe stronger together, COM(2021)645
- European Commission, ANNEX to the Communication Sustainable and Smart Mobility Strategy – putting European transport on track for the future, COM(2020) 789 final
- European Commission, *European Green Deal: Commission proposes transformation of EU economy and society to meet climate ambitions*, Press Release, 14 July 2021

Sustainability Science

Dow's Perspective on ECTA Emission Guideline

- Dow Sustainability Science
- ECTA Seminar September 2023

Dow ®

This Is Dow

Every answer starts with asking the right question.

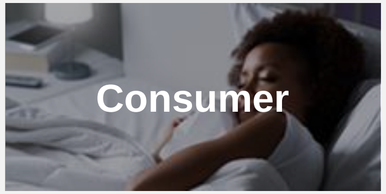
At Dow, these questions and the pursuit of solutions for the world's toughest challenges inspire us to collaborate and use our materials science expertise to create innovative solutions that transform our world and deliver a sustainable future.

2022 NET SALES	EMPLOYEES	MANUFACTURING SITES	GLOBAL REACH
$57B	**~37,800**	**104**	**31 countries** in which Dow manufactures products

Note: All data as of December 31, 2022

Materials Science Solutions to Sustainably Address Global Needs

Market Verticals



Key Growth Drivers

- Circular and renewable
- Societal food waste reduction
- Downgauging / Lightweighting

- Decarbonization of electricity
- Building efficiency
- Longevity
- Connectivity

- Safer materials
- High-efficiency end-products
- Circular and renewable

- Electrification and autonomous
- Lightweighting
- Circular and renewable
- Reduced noise, vibration

Dow Participation Highlights

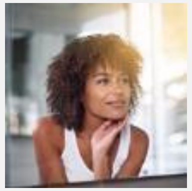
Packaging to enable freshness enroute and on the shelf

Packaging solutions made with bio-based feedstocks

Elastomers, fluids, composites and silicones enabling wind and solar power

Materials that enhance the efficiency of high-perf. buildings

Recycling of end-of-life consumer products into raw materials for re-use



Bio-based home and personal care ingredients

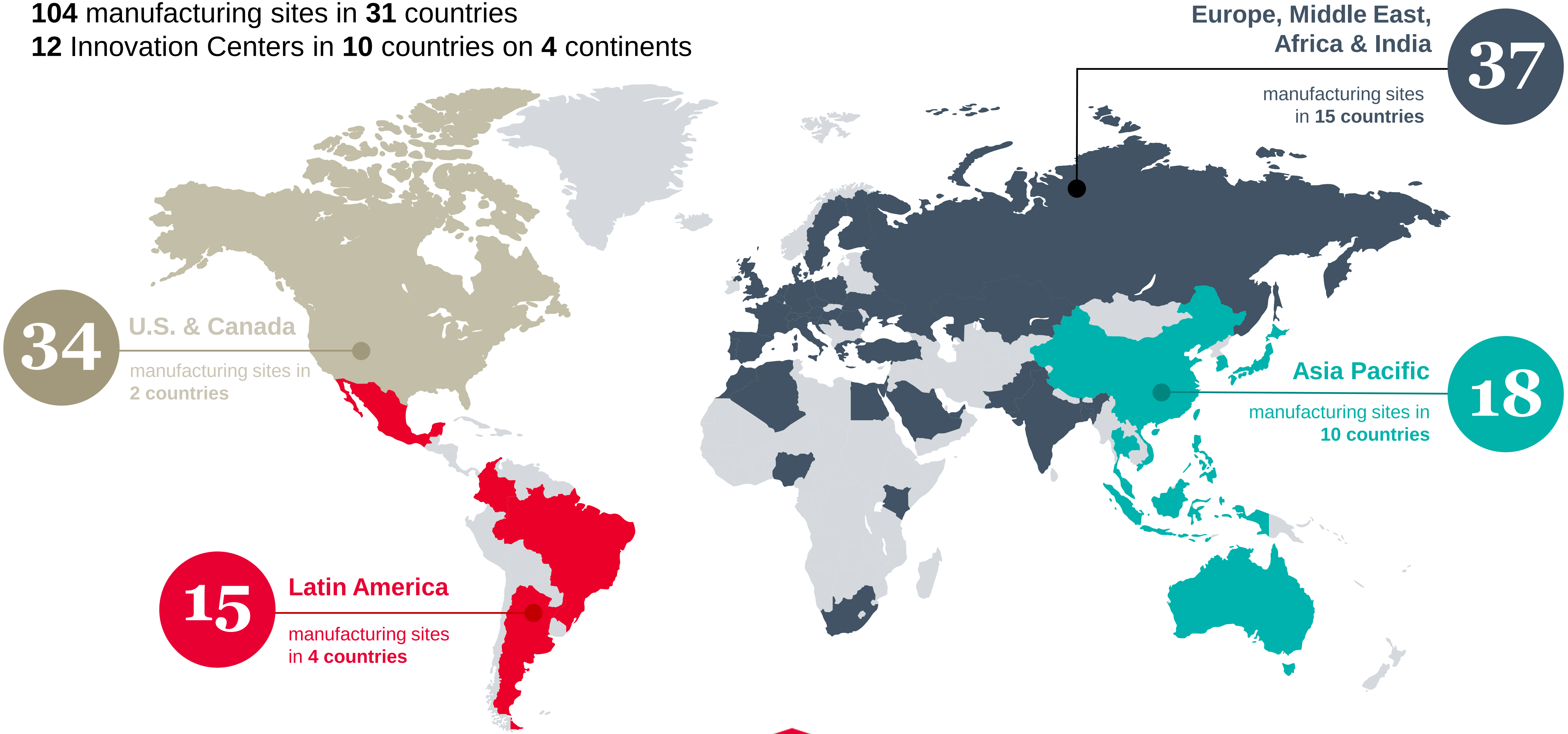
Silicones, urethanes, and acrylics enable weight reduction and improve fuel efficiency

Battery assembly materials for safe and reliable EV & AV designs

Channeling Dow's materials science expertise as we collaborate and innovate with customers and partners to create solutions that positively impact the world

Global Scale, Local Reach and Collaborative Innovation

104 manufacturing sites in **31** countries
12 Innovation Centers in **10** countries on **4** continents



Industry Leader in Environmental Sustainability

PROTECT THE CLIMATE

By 2030, Dow will reduce its net annual carbon emissions by 5 million metric tons vs. its 2020 baseline* (15% reduction). By 2050, Dow aspires to be carbon neutral (Scope 1 + 2 + 3 plus product benefits).

Clear path to **reduce carbon emissions 30% by 2030,** from 2005 levels

Ft. Saskatchewan, Alberta: Announced plan to build world's **first net-zero scope 1 & 2 carbon emissions integrated ethylene cracker** and derivatives site

Terneuzen, Netherlands: Announced roadmap to reduce CO_2 emissions by >40%

Expanded access to renewable power to >850 MW, with 25% purchased electricity from renewable sources; Dow has renewable power agreements in place at >25% of its sites

STOP THE WASTE

By 2030, Dow will help "stop the waste" by enabling 1 million metric tons of plastic to be collected, reused or recycled through its direct actions and partnerships.

We are **collaborating to invest in key technologies and infrastructure** to significantly increase global recycling

The Recycling Partnership
Closed Loop Fund
Ocean Conservancy
APR The Association of Plastic Recyclers
Circulate Capital
CEFLEX
Alliance to End Plastic Waste
Operation Clean Sweep

CLOSE THE LOOP

By 2035, Dow will "close the loop" by enabling 100% of Dow products sold into packaging applications to be reusable or recyclable.

Post-consumer recycled resins: REVOLOOP™ sales and supply partnerships in every geography

Developing advanced recycling feedstocks

Fuenix
New Hope Energy
Gunvor
Mura
Haldor Topsoe

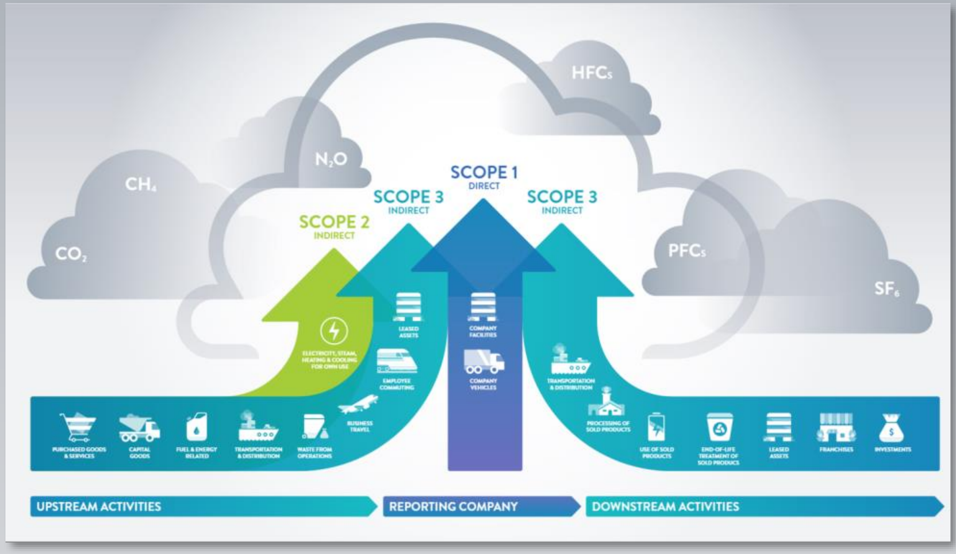
Introduced one of **first bio-based, high-performance polyolefin elastomers**

Affinity REN

* The value of the baseline equals 34.7 million metric tons of carbon dioxide emissions (CO_2e).

Dow Supply Chain Emissions

Carbon Accounting & Logistics Transportation

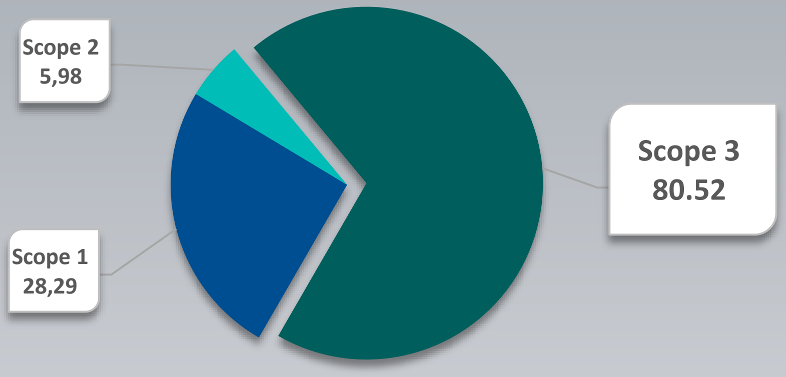


Smart Freight Centre

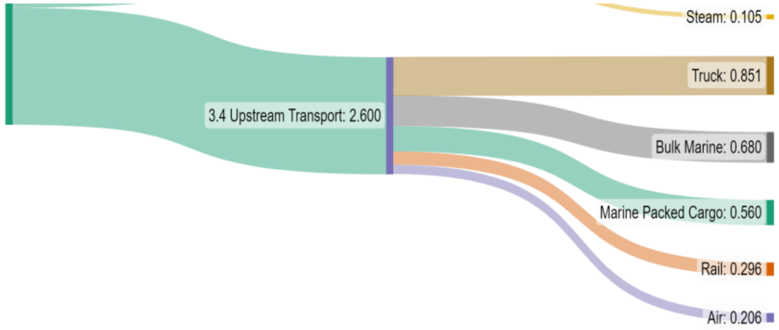
SEA CARGO CHARTER

TOGETHER FOR SUSTAINABILITY

Scope 3 Emissions are 70% of Dow's Total Emissions



Scope 3.4: Downstream Transportation & Distribution



Dow Supply Chain Actions

Governance

- Global governance with regional autonomy
- Collaborative both internal & external
- Business aligned, effective for customers

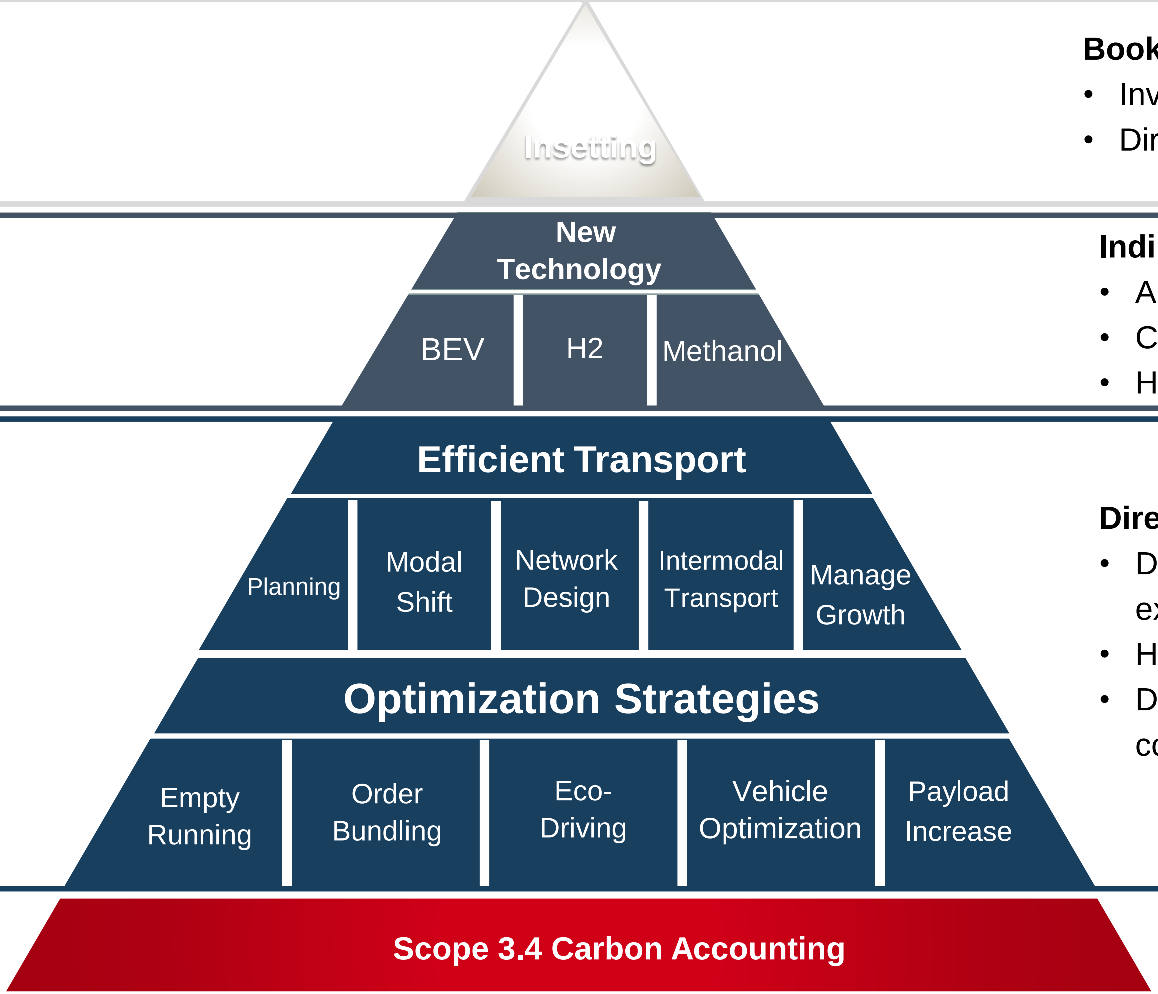
Execution

- Internal Awareness
- Optimize Operations
- Sourcing Engagement

Research

- Strategic technology
- LSP collaboration
- Associations for Climate Action

ISC Sustainability Levers: Where to take action



Book & Claim:

- Invest in low-cost reduction opportunities
- Direct carbon reduction to specific customers & products

Indirect Levers:

- Actions require partnership with external partner to execute.
- Customer engagement, Supplier engagement, Industry Associations
- High degree of technological changes with cost impact

Direct Levers:

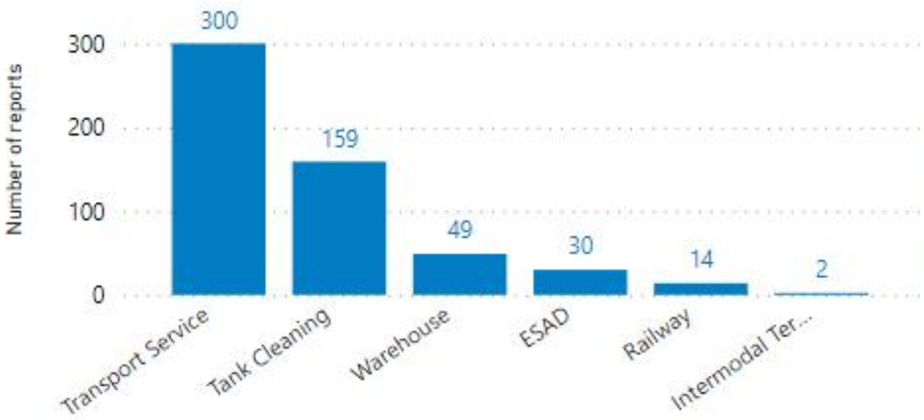
- Dow has control and can drive action with minimal reliance on external partners.
- High ease of implementation with limited cost impact
- Dow can leverage volume to drive transition and develop green corridors

SQAS
Measurement and Management of greenhouse gas (GHG) emissions

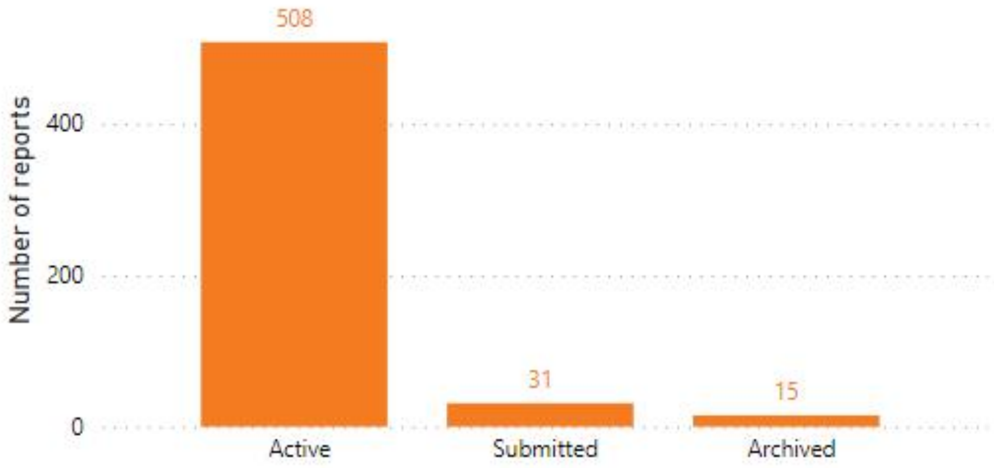
The European Chemical Industry Council, AISBL – Rue Belliard, 40 - 1040 Brussels – Belgium
Transparency Register n°64879142323-90

SQAS and GHG Emissions Calculation

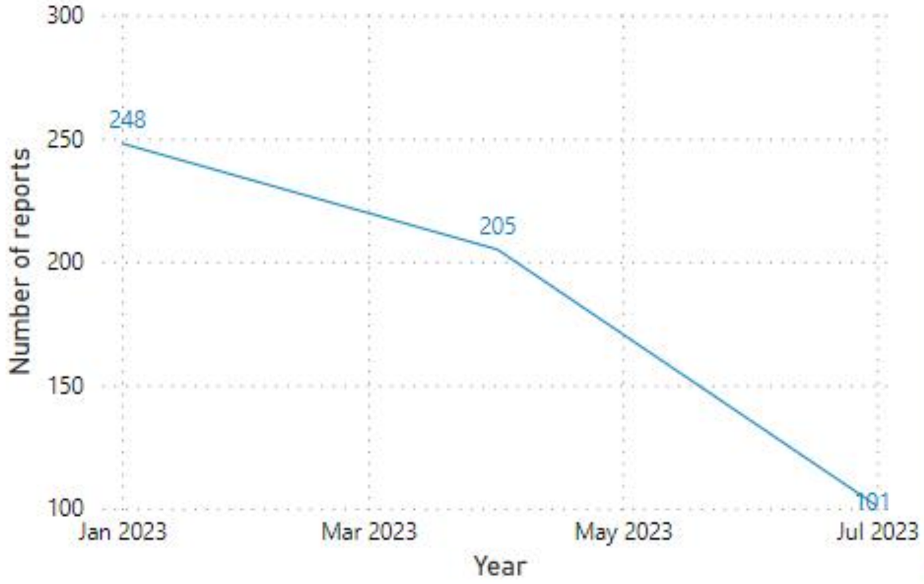
Number of reports by Module



Number of reports by Status



Number of reports by Year and Quarter



Number of reports by Country

SQAS and GHG Emissions Calculation

SQAS version 2022	**76%**
1. Management System and Responsibility	80%
2. Risk management	76%
3. Human Resources	81%
4. On/Off Site Emergency Preparedness and Response	83%
5. Performance Analysis and Management Review	75%
6. Management of Subcontractors	71%
7. Equipment: Specification, Inspection, Maintenance, and Calibration	83%
8. Behaviour Based Safety (BBS or equivalent programme)	64%
9. Measurement and Management of transport greenhouse gas (GHG) emissions	49%
10. Security	78%
11. Control of operations	82%
12. Specific types of Transport Services and their activities	76%
13. Site Inspection and Site operations	86%
14. Handling practices of Food, Food contact Materials and Feed Products	94%

SQAS and GHG Emissions Calculation

9. Measurement and Management of transport greenhouse gas (GHG) emissions	**55%**
9.1. Scope 1: Emission measurement of vehicles that are owned or controlled by the company.	74%
9.2. Scope 2: Emissions from electricity	78%
9.3. Scope 3	47%
9.4. Calculation of Total emissions (Scope 1, 2 and 3)	41%
9.5. Calculation of Tonnes-km	53%
9.6. Calculation of emission intensity	38%
9.7. Consolidating and reporting emissions	27%
9.8. Training	78%
9.9. Reducing emissions	46%

9.3. Scope 3	**47%**
9.3.1. Fully Integrated subcontractors and Non-Integrated subcontractors	46%
9.3.2. Intermodal/ Multimodal	51%
9.3.3. Tank cleaning stations	40%
9.3.4. Subcontracted storing/handling of goods	9%
9.3.5. Production and Distribution of fuels burned in Scope 1	60%
9.3.6. Calculation of Scope 3 emissions	39%
9.4. Calculation of Total emissions (Scope 1, 2 and 3)	**41%**
9.4.1. Did the company calculate the Total emissions during last year by addition of Scope 1, 2 and 3 emissions?	41%
9.5. Calculation of Tonnes-km	**53%**
9.5.1. Does the company know the tonnes of product transported and Kilometers driven (both laden and empty) associated with each category specified in 9.1.3.?	61%
9.5.2. Did the company calculate the tonnes-Kilometers (tkm) during the last year by transport order and by category with the formula?Σ tkm by transport category = (ton shipment 1 x km shipment 1) + (ton shipment 2 x km shipment 2) +.... + (ton shipment n x km shipment n)	46%

cefic

CEFIC/ECTA Guidelines Emissions calculation

The European Chemical Industry Council, AISBL – Rue Belliard, 40 - 1040 Brussels – Belgium
Transparency Register n°64879142323-90

Scope & Intent of the ECTA Emission Guideline

Transport & Hub Operators

Align on methodology through clear & simple examples.

Importance of primary data

Shippers

Enable LSP's to take action. Improve carbon accounting accuracy

External Publications

Many publications with high level of complexity.

Aim to act as reference work.

Table of Contents:

1. Introduction
2. Objectives & Scope of Guideline
3. Development of carbon accounting and carbon reduction strategy for logistics in the chemical industry
4. Data sharing in carbon accounting
5. Measuring of transport emissions
   a. Examples by mode
   b. Examples by complexity

ECTA Guideline: Examples

Organizational Carbon Accounting

- Hierarchy of source data
- Action within company organization
  - Scope 1 & 2 emissions
  - Tonnekm calculation
  - Convert liters of fuel to kg of CO2e

Basic

ECTA Guideline: Examples

Calculation of WTT (Well to Wheel), TTW (Tank to Wheel), and WTW (Well to Wheel) carbon emissions based on Diesel, 5% biodiesel blend (B5) consumption.

A truck requires around 48 liters of diesel for a journey in 2021 from Strasbourg to Nancy.

The **WTT emission** is calculated using the data in table 32 of the GLEC framework (2019):
48 l x 0.63 kg/l fuel = 30.24 kg CO2e

The **TTW emission** is calculated using the data in table 32 of the GLEC framework (2019):
48 l x 2.54 kg/l fuel = 121.92 kg CO2e

The **WTW emission** is calculated using the data in table 32 of the GLEC framework (2019):
48 l x 3.17 kg/l fuel = 152.16 kg CO2e

The GLEC Framework includes emissions from the full fuel life cycle, known as well-to-wheel (WTW) emission factors. WTW factors are comprised of two separate sub-categories: well-to-tank (WTT) and tank-to-wheel (TTW).

1) 2019 GLEC Framework, page 100, Table 32 European Values

FTL example

A warehouse delivers a full truckload (FTL) of 22MT to a customer location 27 km away. The truck consumed 8.1 liters for Diesel, 5% biodiesel blend (B5).

The **WTW emission** is calculated using the data in table 32 of the GLEC framework (2019):
8.1 l x 3.17 kg/l fuel = 25.677 kg CO2e

The **tonnekm** is calculated as follows:
22 MT x 27 km = 594 tonnekm

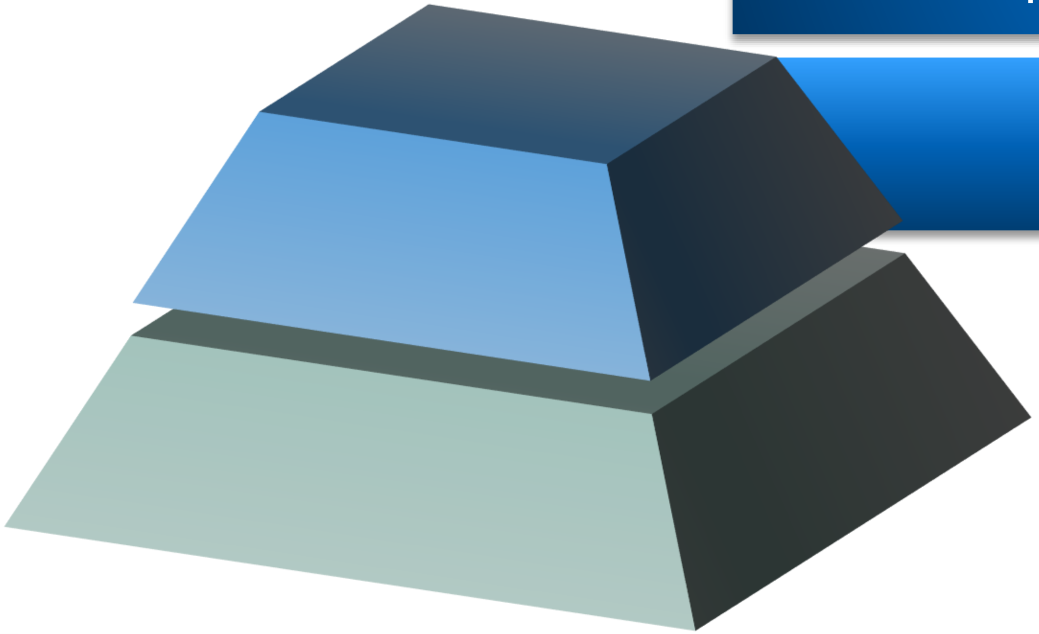
The **carbon intensity** is calculated as follows:
25.677 grammes CO2e / 594 tonnekm = 43.23 g/tonnekm

1) 2019 GLEC Framework, page 100, Table 32 European Values

ECTA Guideline: Examples

Carbon accounting alongside value offering

- Linking Transport Chain Elements (TCE)
- Subcontractors
  - Multistop shipments
  - Secondary data ingestion
  - Empty running



Complex

ECTA Guideline: Examples

Empty Running calculation

All road distance calculation should include empty running transport movements.

Trucking company A has a day plan of 2 goods deliveries for 2 customers. The truck departs empty from a depot located in Bar Sur Seine to the loading facility in Troyes. From Troyes the truck transport the goods to the delivery point in Nancy and completes the first goods delivery.
For the second customer the goods are picked up from a loading facility 15 km from the last delivery point. The last delivery is to the delivery point located in Vitry.
The final trip of the day consists out of returning the truck to the original depot.

The total distance traveled of the truck is 183.3 km, the laden distance is 141 km. The empty trip factor is 23%.

Whilst only the direct distance can be reported, for the carbon emission accounting the empty trips should be included.

Table 3

Trip	Payload	Distance	Empty Distance	Laden Distance	Customer	Allocation based on ... Weight	Transport Service
	MT	km	km	km		%	%
1	-	4.3	4.3				
2	18.00	73		73	Customer 1	46%	52%
3	-	15.8	15.8				
4	21.00	68		68	Customer 2	54%	48%
5	-	22.2	22.2				
Total	39.00	183.3	42.3	141		100%	100%

Carbon Accounting of Transport Chain including Subcontracted operations

For a customer, a bulk liquid storage provider located in France has received a service request to drum 22MT of product and deliver to a delivery location 27 km away.

The storage provider's drumming installation is electric powered and connected to the national grid and measured a total consumption of 6.4 kWh.

French national grid has an average carbon intensity of 84g CO_2/kWh.

The truck transport is subcontracted to another company.
Should the subcontractor not have emission data available, secondary data could be used.
Fortunately the subcontractor has detailed carbon accounting.
The truck consumed 8.1 liters of Diesel, 5% biodiesel blend (B5) to deliver the order to the delivery location.

Drumming:
6.4 kWh x 84 g/kWh = 0.537 kg CO_2e

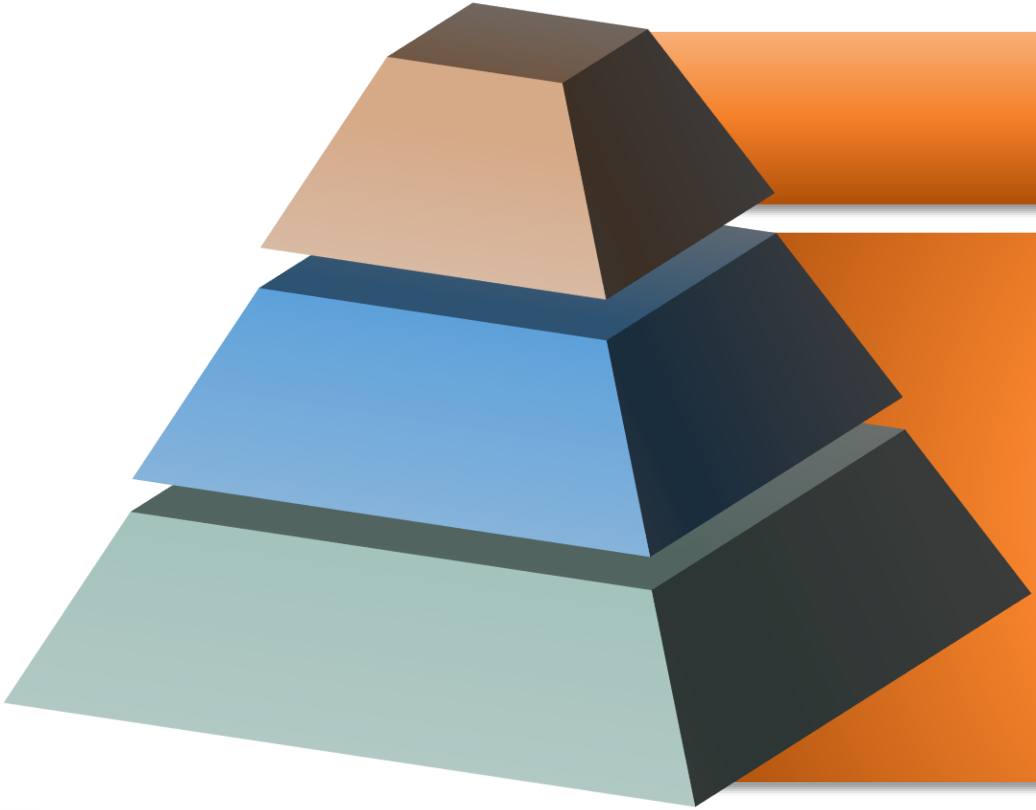
The **WTW emission** is calculated using the data in table 32 of the GLEC framework (2019):
8.1 l x 3.17 kg/l fuel = 25.677 kg CO_2e

The **tonnekm** is calculated as follows:
22 MT x 27 km = 594 tonnekm

The **carbon intensity of the full transport chain** is calculated as follows:
[25.677 + 0.537 grammes CO_2e] / 594 tonnekm = 44.13 g/tonnekm

Through data-sharing and detailed carbon accounting using primary data sources, an accurate view of the carbon emission is established.

ECTA Guideline: Examples



Advanced

Industry organized action

- Transport operators & Logistics hubs
  - Multi-modal accounting with primary data-based carbon intensity
  - Action through reduction opportunities

ECTA Guideline: Examples

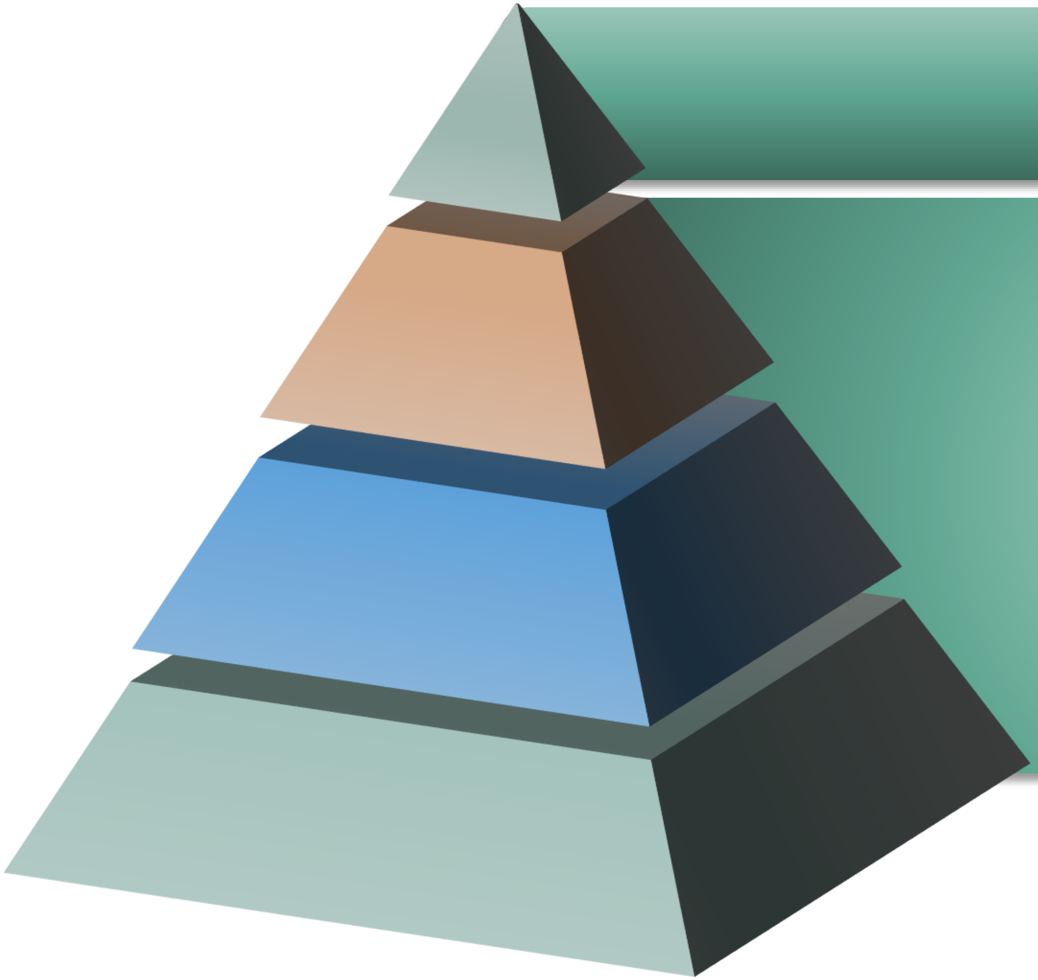
Intermodal example

A container delivery with 21 MT of goods is delivered using an intermodal solution to a customer. The transport flow is listed in table 4 and consists out of multiple transport chain elements.

Table 4

Trip	Trip description	Distance	Transported Weight	Transport Service	Diesel Consumption	Electricity Consumption	WTW Emissions	Allocation based on ... Distance
		km	*kg*	*tkm*	*liters*	*kWh*	*kg CO2e*	*%*
1	Container pick up	16		336.00	4.80		15.22	2%
2	Site to rail station	43		903.00	12.90		40.89	6%
3	Origin rail station to destination station	580	21,000.00	12,180.00		609.00	211.93	84%
4	Rail station to Customer	23		483.00	6.90		21.87	3%
5	Container return to depot	25		525.00	7.50		23.78	4%
Total		687.00	21,000.00	14,091.00	32.10	609.00	313.69	98%

ECTA Guideline: Examples

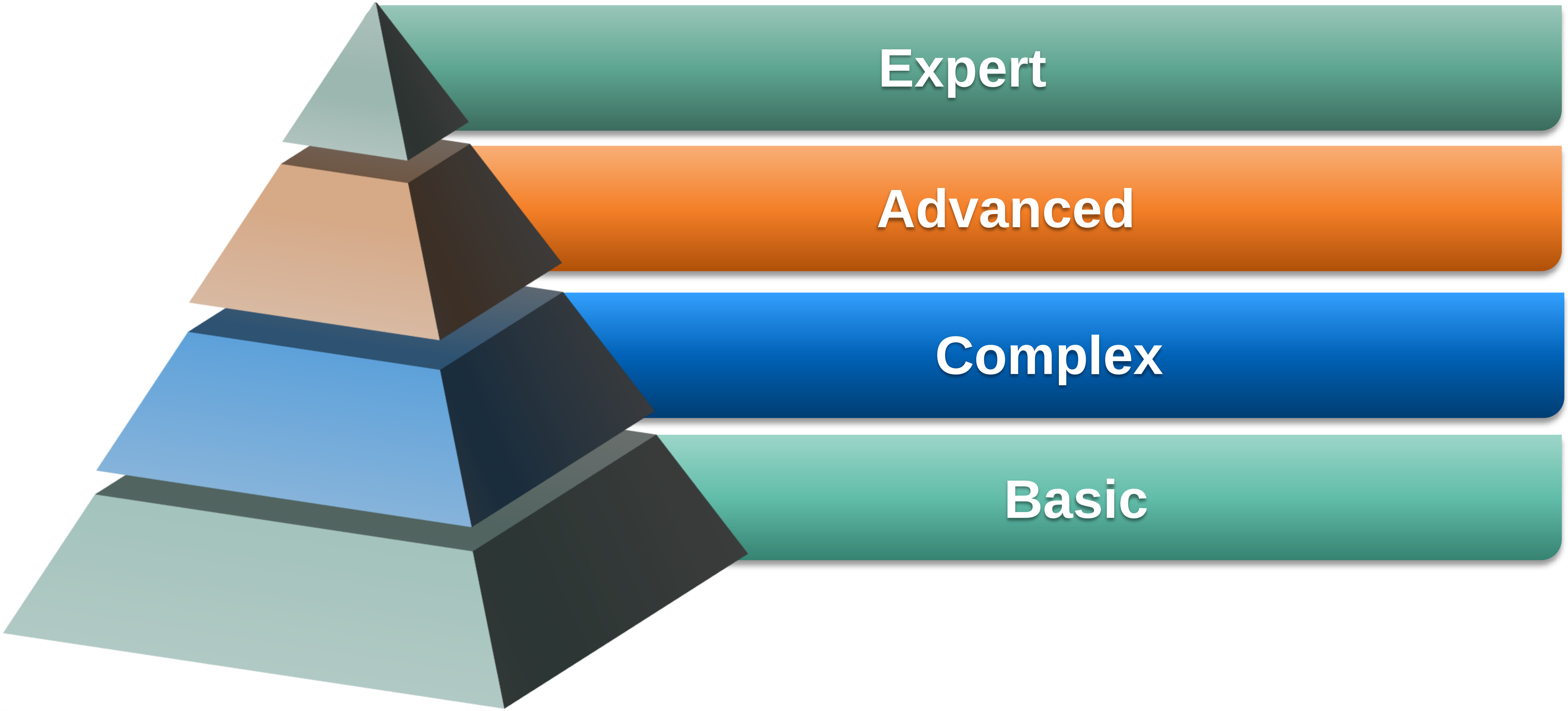


Expert

Climate embedded Eco-system

- Primary data-based accounting
- End to End across industries
- Enable Climate Action Associations

ECTA Guideline: Examples



ECTA Guideline: SQAS gaps prioritized

Supply Chain Complexity:
- From in-house to partners
- From service offering to climate action

Avanced

9.5.2 Did the company calculate the tkm during the last year by transport order and by category - 46%

Expert

9.4.1 Did the company calculate the Total emissions during last year by addition of Scope 1, 2 and 3 emissions - 41%

Basic

9.5 Calculation of tkm - 53%

9.6 Calculation of emission intensity - 38%

Complex

9.3.4 Subcontracted storing/handling of goods - 9%

Carbon accounting:
- Emission intensity from proxy to carrier specific
- Data from modeled to primary data

The EU Chemical Industry Transition Pathway

#TransitionPathway

Support our transformation journey >

https://transition-pathway.cefic.org/

Notes and references