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**4th PARTY
LOGISTICS
SOLUTIONS**

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Who are 4 PL Central Station?

4PL Central Station has many years of experience in transport and logistics solutions both on a consulting basis and as an outsourcing partner in **fourth-party logistics**.

To meet the challenges in **transport emissions** and to help our customers understand reports and emissions from transport and logistics, we have created **tools and methods** for emission calculations specifically developed for transport and logistics activities.

Unclear and difficult to interpret emission data from supply chain activities prevents companies from setting and following up **emission targets**, measuring changes in emissions over time and more.

We can help you sum up the business's CO₂ impact and present it in relevant key figures via modern interfaces. Contact us if you want to know more about how we can help you and visit our website <https://www.4plcs.com/services/emission-calculation>

CBAM

Carbon Border Adjustment Mechanism



Carbon Border Adjustment Mechanism - at a glance

- The **Carbon Border Adjustment Mechanism** is a policy tool implemented by the **European Union (EU)**.
- Its purpose is to address the risk of **carbon leakage** — where companies move carbon-intensive production outside the EU due to less stringent climate policies elsewhere.
- **Imported goods** should be subject to the same **carbon price** regardless of country of production, this will be managed through the purchase of **CBAM certificates** by importers of CBAM goods
- Certain **categories** of products where production is considered especially **carbon intensive**.
- Part of the European Unions goal to reach **climate neutrality** by 2050 and is directly linked to the **Emissions Trading System (ETS)**

Why 'Fit for 55'?

Fit for 55 refers to the **EU's target of reducing net greenhouse gas emissions by at least 55% by 2030**. The proposed package aims to bring EU legislation in line with the 2030 goal.

Carbon Border Adjustment Mechanism – General timeline



During the **transitional phase**

- Importers report greenhouse gas emissions embedded in their imports **without** making financial payments.
- Reports are required on a **quarterly basis**, reports in **full detail**.
- Direct and indirect emissions as well as any carbon price **already paid** must be reported.

In the **definitive period** following the transitional phase

- Reports are required on a **yearly basis**.
- Reporting entity (importer) must have an **authorized declarant status**.
- **CBAM Certificates** corresponding to the imported volumes must be **purchased**
- Increased **accuracy** in reporting expected

Carbon Border Adjustment Mechanism – Information to gather and report

What needs to be reported

- **Total quantity of imported CBAM goods**
 - Per goods type
 - Expressed in metric tonne(s)
- **Total embedded emissions**
 - In tonnes CO₂e per tonnes of CBAM good
 - Includes the emissions from some precursors
- **Total indirect emissions**
 - Amount of electricity consumed and emissions factor.
 - I.e. need to report the quantities of electricity consumed for each product imported and multiply it by the relevant emission factor of electricity.
- **Any carbon price due in the country of origin**

| Issue | CBAM good | | | | | |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------|
| | Cement | Fertilisers | Iron/Steel | Aluminium | Hydrogen | Electricity |
| Reporting metrics | (per) Tonne of good | | | | | (per) MWh |
| Greenhouse gases covered | Only CO ₂ | CO ₂ (plus nitrous oxide for some fertiliser goods) | Only CO ₂ | CO ₂ (plus perfluorocarbons (PFCs) for some aluminium goods) | Only CO ₂ | Only CO ₂ |
| Emission coverage during transitional period | Direct and indirect | | | | | Only direct |
| Emission coverage during definitive period | Direct and indirect | | Only direct, subject to review | | | Only direct |
| Determination of direct embedded emissions | Based on actual emissions, unless they cannot be adequately determined | | | | | Based on default values, unless several cumulative conditions are met |
| Determination of indirect embedded emissions | Based on default values, unless conditions are met (i.e. direct technical connection or power purchase agreement) | | | | | Not applicable |

Questions and Answers: Carbon Border Adjustment Mechanism (CBAM)

https://taxation-customs.ec.europa.eu/system/files/2023-07/20230714%20Q%26A%20CBAM_0.pdf

Carbon Border Adjustment Mechanism – get ready!

Questions to answer

- Are we affected by CBAM?
- Where should the intra-responsibilities lie?
- Do we have the supplier template?
- Do we have access to the reporting portal?
- Do our suppliers understand the scope, and are they ready to provide requested information?
- Do we understand the information we report?

Tip

- Map your imports and planned purchases
- Map the process, where are the responsibility handover points?
- The excel template is available here [CBAM communication template for installations](#)
- The reporting portal is available here <https://cbam.ec.europa.eu/declarant>



Contact us
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Emissions from transport and logistics



Logistics Emissions Challenge



- Transportation account for approximately **20% - 30%** of all emissions globally¹
- Transportation is (still) heavily fossil fuel dependent
- The global need for transportation is expected to increase rapidly in the coming years and decades²



- Visibility is a common problem
- Logistics is normally an outsourced service, shipper does not operate truck, trains or container vessels
- Outsourcing in several layers (1PL/2PL/3PL)



- Global disruptions leads to an increased need for resilient supply chains
- Higher importance ascribed to risk management in future sourcing strategies and allocations³
- Conclusion: increased supply chain complexity in combination with higher regulatory demands in emission accounting (e.g. CSRD/CBAM)

¹ Ourworldindata.org "Cars, planes, trains: where do CO2 emissions from transport come from?"

² IAE Energy Technology Perspectives <https://www.iea.org/reports/energy-technology-perspectives-2020/technology-needs-in-long-distance-transport#abstract>

³ Professor Alan McKinnon - Kühne Logistics University Hamburg – *Supply Chain Resilience 2023*

EU legislation

CSRD - Corporate Sustainability Reporting Directive

- New EU directive from 2023
- Increased focus on measuring and reporting environmental impacts
- Includes GHG Protocol Scope 3 emissions (i.e. transportation services)
- Increased demand on transparency

ESRS - European Sustainability Reporting Standards

- Harmonization with international standards (ISSB and GRI)
- Implementation period 2024 – 2029

CBAM – Carbon Boarder Adjustment Mechanism

- Imports of certain products and materials: cement, iron and steel, aluminum, fertilizers among others
- Importers are responsible for declaring the emissions embedded in imports
- Reporting starting from January 2024

“Once the permanent system enters into force on 1 January 2026, importers will need to declare each year the quantity of goods imported into the EU in the preceding year and their embedded GHG. They will then surrender the corresponding number of CBAM certificates.” https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

Emission Calculation Framework



Standardized emission calculations based on shipment data

- Based on shipment statistics with basic parameters provided such as transport mode
- Periodical reporting with CO2 from standard definitions if parameter missing or unknown
- Subscription Quartely, Monthly



Extended customizable emission calculations based on shipment data

- Analysis and modelling based on Shipment data, creating a transparent and custom calculation model
- Comparable over time, periodical adjustments to logistics flow
- Targets and dashboards
- Simulations and analysis



Consolidation of Transporters Reports

- Simple service to consolidate from all transporters
- For example conversion of liter Diesel to kWh etc.



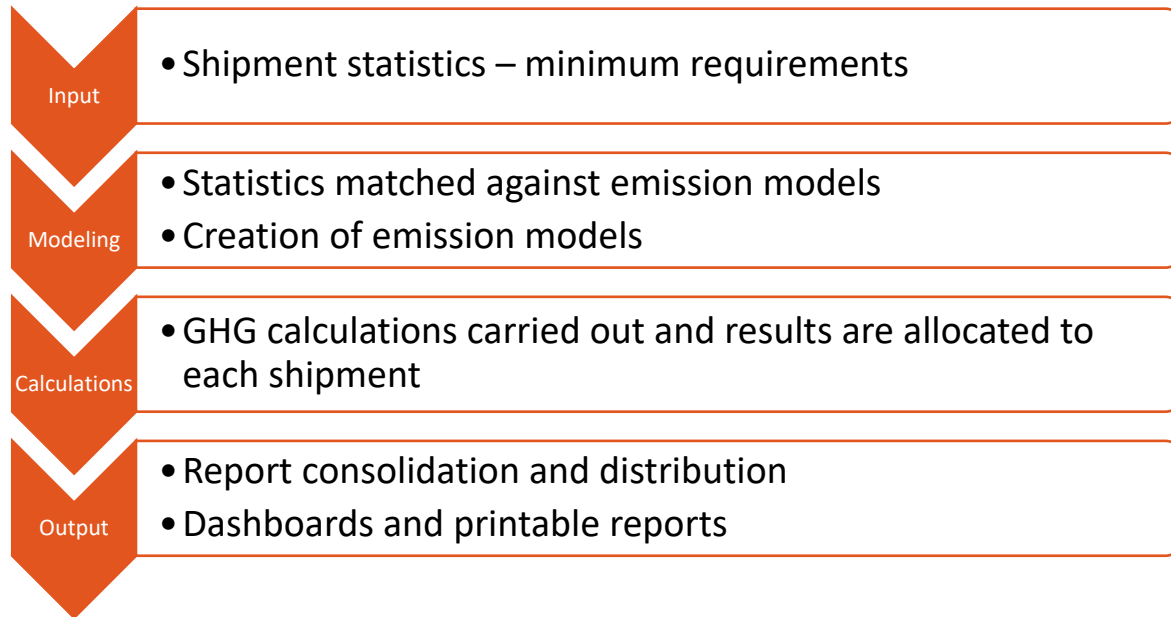
Control and follow-up Service

- Analyse and investigate LSP input parameters for Shipper
- Track LSP input and actual execution – distance, engine, route
- Routing & distance with GPS-units periodically.

Transport Emission Calculations

How its done

Overall Process



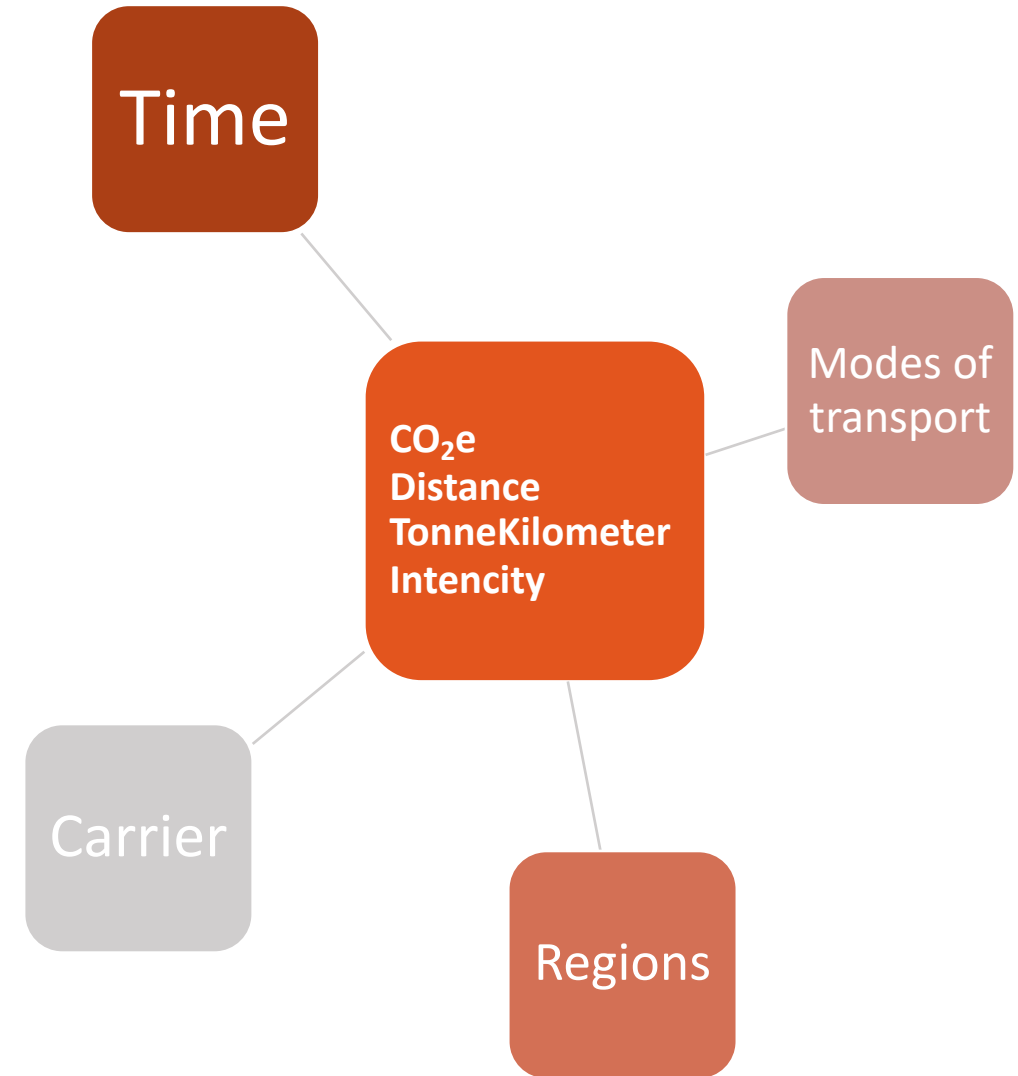
Input data

- **Loading and unloading addresses**
 - **Mode of transport utilized**
 - **Shipment gross weight**
- Minimum requirement
- Ports / Airports
 - Cross docks
 - Other routing information
- Increases accuracy
- *Vehicle information (engine class)*
 - *Fuel consumption*
 - *Utilization*
 - *Empty run*
- Detailed parameter modeling*

*In most cases standard parameters are sufficient

Emission measures and KPIs

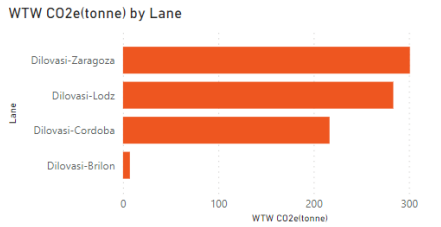
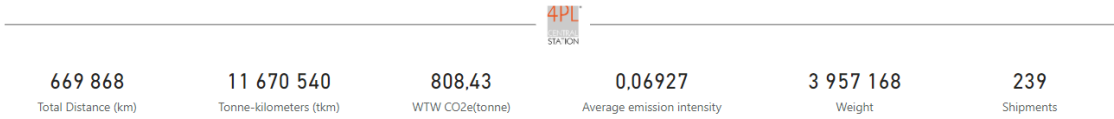
- **Total emissions**
Expressed in WTW CO₂e, carbon dioxide equivalent, is used to show the total emissions from CO₂ and other greenhouse gasses converted into one measure
- **Total distance**
The total distance used in calculations.
- **Tonne-kilometers**
Tonne-kilometers is the basis for many activity based emission calculations and is defined as the weight and distance multiplied.
- **Emission intensity**
The amount of CO₂e per tonne-kilometer transported
- **Number of shipments**



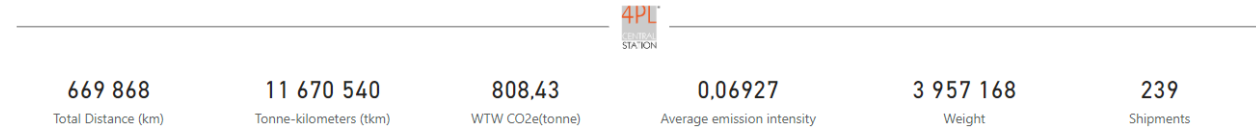
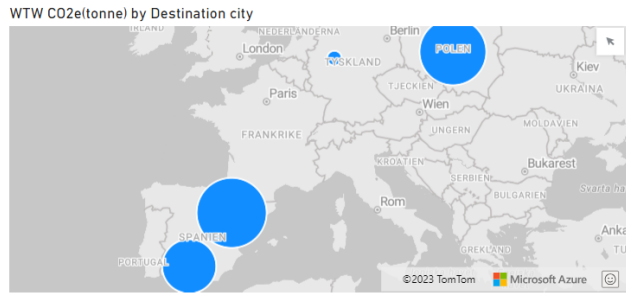
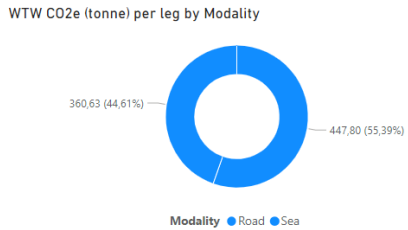
Interactive Dashboards

Interactive dashboards allow you to track emission KPIs over time

- ✓ Total emissions
- ✓ Total distance
- ✓ Tonne-kilometers
- ✓ Emission intensity
- ✓ Number of shipments

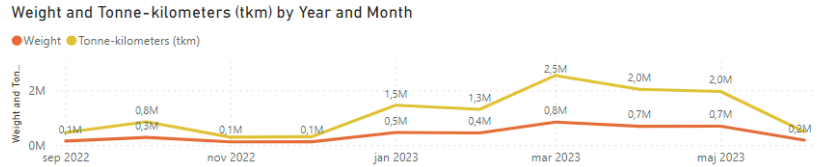
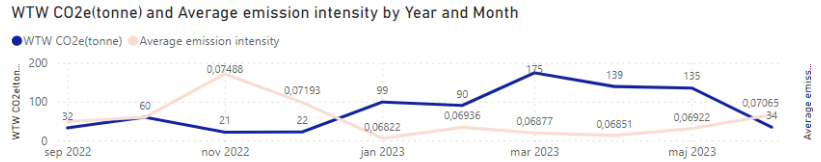
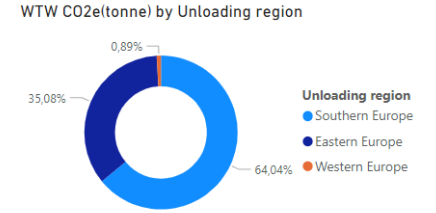


| Lane | Shipments | Average emission intensity | WTW CO2e(tonne) | WTW CO2e(tonne) | Total Distance (km) | Tonne-kilometers (tkm) |
|-------------------|------------|----------------------------|-----------------|-----------------|---------------------|------------------------|
| Dilovasi-Zaragoza | 69 | 0.06393 | 300.98 | 37.23% | 229 468 | 4 707 740 |
| Dilovasi-Lodz | 41 | 0.06619 | 216.70 | 26.81% | 159 433 | 3 273 875 |
| Dilovasi-Lodz | 123 | 0.07881 | 283.56 | 35.08% | 266 137 | 3 597 856 |
| Dilovasi-Brilon | 6 | 0.07890 | 7.19 | 0.89% | 14 830 | 91 070 |
| Total | 239 | 0,06927 | 808,43 | 100,00% | 669 868 | 11 670 540 |



WTW CO2e(tonne) by Unloading region

| Unloading region | Lane | Shipments | Average emission intensity | WTW CO2e(tonne) | WTW CO2e(tonne) | Total Distance (km) | Tonne-kilometers (tkm) |
|------------------|-------------------|------------|----------------------------|-----------------|-----------------|---------------------|------------------------|
| Eastern Europe | Dilovasi-Lodz | 123 | 0.07881 | 283.56 | 35.08% | 266 137 | 3 597 856 |
| Southern Europe | Dilovasi-Zaragoza | 69 | 0.06393 | 300.98 | 37.23% | 229 468 | 4 707 740 |
| Southern Europe | Dilovasi-Cordoba | 41 | 0.06619 | 216.70 | 26.81% | 159 433 | 3 273 875 |
| Western Europe | Dilovasi-Brilon | 6 | 0.07890 | 7.19 | 0.89% | 14 830 | 91 070 |
| Total | | 239 | 0,06927 | 808,43 | 100,00% | 669 868 | 11 670 540 |



| Month | 2022 | 2023 | Total |
|--------------|---------------|---------------|---------------|
| January | | 99,11 | 99,11 |
| February | | 90,41 | 90,41 |
| March | | 174,57 | 174,57 |
| April | | 139,31 | 139,31 |
| May | | 135,36 | 135,36 |
| June | | 34,25 | 34,25 |
| September | 32,35 | | 32,35 |
| October | 59,64 | | 59,64 |
| November | 21,46 | | 21,46 |
| December | 21,97 | | 21,97 |
| Total | 135,43 | 673,01 | 808,43 |



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