# Understanding Your Freight's $CO_2e$ Footprint

**Trusted Standards**
Our methodology aligns with the GHG Protocol and the GLEC Framework. Our provider has been audited and accredited by Smart Freight Center, and is compliant with ISO 14083.

**Estimation Model**
Emissions are calculated per-shipment based on distanced traveled, cargo weight, and mode-specific emissions intensity.

The unit of measure is $CO_2e$, or carbon dioxide equivalent. This accounts for all greenhouse gases and their varied warming potentials but expresses them in terms of carbon dioxide.

## Calculation Details

*If any of the required input data is missing, we use conservative defaults to avoid underestimating emissions (in line with the GLEC Framework).*

**1. Distance Travelled**

We determine the geo coordinates for each location along the route. Then we calculate the distance between each location using Mapbox (land), Great Circle Distance (air), or government port data and a custom algorithm (sea).

**2. Cargo Weight**

We convert cargo weight into tonnes based on actual mass or shipment type (container only, lightweight, average, or heavyweight).

**3. Emissions Intensity**

Emissions intensity is the amount of $CO_2e$ per Tonne-km, based on the specific transport mode being used.

Each mode uses standardized intensity factors per the GLEC framework. If we have details on the type of vehicle or vessel being used (e.g. fuel type, vehicle/vessel size, etc.), that is taken into account for a more accurate estimation.

**4. Final $CO_2e$ estimate**

We multiply distance traveled × cargo weight × emissions intensity to get your shipment's estimated $CO_2e$ footprint.