



10th International Workshop on Sustainable Road Freight Transport 2023

**Robust decarbonisation and resilient logistics:
Progress in the last decade and a roadmap to 2035**

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Emission calculation of road freight transports based on an
energy-based bottom-up approach

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The company IVE mbH provides the emission calculation tool EcoTransIT World, which enables the emission calculation in the freight transport for all transport modes on a global basis, as well as logistic sites. With over 250 (mainly big) companies and more than 4,3 billion shipments calculated yearly, EcoTransIT World is the leading software for emission calculation in logistics.

The methodology of the tool is based on an energy-based bottom-up approach which enables a detailed modelling of all freight transports. All formulas and sources come from independent scientific institutions, ensuring a well-founded approach.

In the presentation we will focus on explaining the EcoTransIT World methodology for the calculation of emissions in the road freight transports, as well as explaining how it can help facing the current challenges of the industry.

More specifically, we will cover the following topics:

- General explanation of the energy-based bottom-up approach compared to the widely used top-down calculations.
- Usage of measured fuel consumption for the emissions calculation
 - Via Handbook of Emission Factors
 - Via user-specific fuel consumption as Tank-to-Wheel
- Description of the different truck properties covered by the bottom-up approach and their impact in the carbon footprint.
 - Truck types
 - Different truck sizes
 - Differentiation between European and American trucks
 - Emission classes worldwide
 - Additional truck parameters, like vehicle empty weight
 - Influence of the truck body on the emissions
 - Allocation (Load Factor), Full truck load (FTL / FCL), Less than truck load (LTL)
 - Fuel types
 - Comparison diesel vs. natural gas
 - BEV and FCEV and where does the emission come from
 - Influence of Biofuels on the emissions:
 - Different Biodiesel contents in different countries
 - Impact of the feedstock
 - Bridge between emission calculation and the insetting / book & claim principle

To presentation concludes showing how a bottom-up approach provides the best balance between accuracy and robustness to estimate the carbon footprint of road freight transport, as well as the impact of the decarbonization measures taken by the transport companies.