Sustainability e-News Q1 2017 Edition

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We are pleased to share the first edition of our GoGreen Brief – DHL Global Forwarding's Sustainability Newsletter. With this quarterly newsletter we are aiming to share our insights and knowledge on carbon reporting, reduction approaches and climate change abatement trends as well as other related sustainability topics. We hope you find it of value and we welcome your comments and suggestions.

The first issue focuses on standards and challenges in emission calculation methodologies. In particular we will provide answers to the following questions:

- How are transport emissions calculated?
- How to compare carbon reports from different forwarders and carriers?
- What are the challenges preventing 100% comparability of emission calculation?

Carbon Footprint Reporting – 'Apples with Apples' or Just 'Fruit Salad'?

In the last few years the demand for regular carbon footprint reports for transportation services has been growing exponentially. Some shippers have started to ask for CO2 quotes in tenders or make carbon reports a mandatory element of their RFQs. This is not surprising since transportation accounts for a significant part of the global greenhouse gases and therewith contributes to global warming.

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Hence, if the Paris Agreement and a world with global warming well below 2°C above pre-industrial levels shall become reality, the transport sector will have to play a key role. This is why shippers need to have transparency on their transport emissions so that they can take the "right" decisions and choose less carbon-intense or, if feasible, carbon neutral "offsetting" shipping options.

Carbon emissions calculation is sometimes also referred to as Carbon Accounting. This is, in many aspects, a very suitable analogy. Just like in financial accounting there are several ways of pulling a report, of setting boundaries and of selecting a standard. As the saying goes: "The devil is in the detail". Unfortunately, this means that unless you have read the small print – if there is at all a section describing the applied methodologies – you cannot compare the carbon footprint or carbon efficiency of different reports or CO2 quotes of different providers.

The first financial accounting standards were developed in the 1970s. It took over 20 years until the world agreed to one universal accounting standard. In comparison, standard setting in carbon reporting is developing at a high speed. The launch of the Greenhouse Gas Protocol in 2001 marked an important milestone. Today the differentiation of emissions into scope 1 (direct emissions), scope 2 (indirect emissions from usage of electricity, district heating and cooling), and scope 3 (emissions from other indirect emission, e.g. subcontracted emissions from transport) are a universal standard to differentiate emissions.

While is it is fairly straight forward to convert your own fuel and electricity bills into the equivalent carbon emissions, it is a complex endeavor to derive the carbon footprint of a subcontracted shipment transport. Naturally it would be easiest if all carriers would just report the fuel consumption and fuel type per shipment. However, this is currently not possible due to commercial disadvantages that might result from disclosing this information. Hence, the fuel consumption needs to be calculated or simulated using a common approach following the same rules. In 2012 the European Standard EN16258 was released to provide guidance and a possible joint standard to calculate and report emissions in all scopes. In addition, more standards and national laws were passed e.g. French Environmental Law Grenelle 2. All follow the same logic: If you don't have access to fuel consumption, use: weight x distance x emission factor.

While generally similar in approach, all methods and standards use slightly different ways on how to derive weight, distance and, most importantly, the used emission factors. It is possible to comply with several standards but not with all. It is also possible to be compliant with a standard or norm but use different calculation parameters. Hence, two forwarders can claim to be compliant with the EN16258 but report a different carbon footprint for a 1 tonne shipment from e.g. London to Singapore. Both reports are correct and according to the EN16258. This is why shippers should make sure to ask for more background information on the calculation method including the below aspects:

- Scope of report? Scope 1, 2, & 3
- What is the underlying standard? GHG Protocol? EN16258 etc.?
- Definition of weight? Actual weight? Chargeable weight?
- Definition of distance? Great-Circle-Distance (GCD), real distance? Weighted averages, GCD + correction factors (e.g. 95km per leg for air freight shipments), etc.
- What is the reference source for emission factors by transport mode? IMO, IATA, NTM, CCWG, HBEFA, etc. see Glossary for explanations)
- Are load factors of aircrafts, vessels, trucks, etc. taken into account? Nominal emissions, calibrated emissions, source of load factor information?
- Is the calculation method verified? What is the scope of verification? Who is the verification body?

For DHL this information can be obtained from the documentation sections and disclaimers being provided online or together with our reporting services.

Despite the outlined challenges and potential differences in footprint reporting it needs to be stressed that while still a fairly new subject, the progress & speed in developing carbon reporting standards is remarkable. This journey may last a few more years but most of the available carbon reports are detailed and reliable enough to base business decisions on them – as long as there is consistency and transparency on the methods applied. Actually consistency between LSPs is getting better and better. DHL Global Forwarding helped to shape the Greenhouse Gas Protocol standards so that while you were in a land of fruit salads with all different flavors, at least everyone in the industry was having “fruit” as a common ground and everyone understood it. In a European initiative, we advised on the EN 16258 calculation standard, which essentially defined the single types of fruits: It was the first official standard defining methods for emissions calculation specifically for logistics. The industry recognized that with the ingredients and end product being defined, the only missing link was the recipe: With GLEC we are trying to fill this gap so that in the future, comparing emissions reports is really like comparing apples with apples.

An Ocean Freight shipment will always have a lower footprint than an Air Freight shipment. Two containers instead of three will always be more carbon efficient when transporting identical weight. A direct flight will always have a shorter distance than any indirect flight and therefore emit less CO2. Hence, business decisions towards a “2° world” can and should already be confidently made now.

Emission Factors – ‘The Secret Ingredient’

Ocean Freight Emissions

80% of the world trade is shipped by less than 15 Ocean Freight carriers. Luckily this industry has been a frontrunner in carbon reporting and for more than a decade container carriers have been working jointly in the Clean Cargo Working Group (CCWG) aiming to provide transparency on carbon emissions.

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Once a year all Ocean Freight carriers in this group provide average emission factors for all defined 25 CCWG trade lanes to its members (carriers, shippers and forwarders). Additionally, carrier specific information is made available of those carriers agreeing to the disclosure of their carbon efficiency data. A methodology guideline on how to apply the emission factors is also available and updated on a regular basis.

The CCWG is sometimes criticized for not being more granular and for not reporting emission factors by vessel and for only providing one single load factor of 70%. Equally not all carriers submit 3rd party verified data making a cross carrier comparison possible but not yet with 100% accuracy. These facts should be analyzed and evaluated when making carrier on carrier comparison.

Air Freight Emissions

An industry initiative similar to the CCWG is still to come in the Air Freight industry. The high amount of stakeholders and a much more fragmented carrier landscape may have slowed down the process in the past. In the meantime, shippers and forwards can choose from rather generic to very sophisticated calculation methods to derive the carbon footprint of their shipments. Average emission factors are published by some airlines and aviation associations. Generally a global network average or emission factors for short-, medium- and long-haul are made available. This is a good basis to derive the magnitude of Air Freight carbon emissions. In order to obtain more specific emissions a different level of granularity is needed. Organizations like the Network for Transport Measures provide emission factors by aircraft type. If the shipper has transparency on the aircraft type being used, the routing as well as the utilization (load factor) of the aircraft, it is possible to derive a very sound footprint calculation. Unsurprisingly, load factor information is limited. At most, the airline’s system load factor is available (the airlines utilization across its entire network) from sources like IATA. The impact of the utilization factor is significant. 1%pt decline in utilization will lead to a decrease in efficiency of ~2%pts.

Find Out More About Aircraft EduCard (Type: Acrobat Reader file, Size: 49.3 KB)

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Forwarders are increasingly faced with two key questions:

- Every month new aircrafts are phased into the market. How come this is not reflected in the carbon reports? The increased fuel efficiency of the new aircrafts is often cannibalized by the overcapacities (lower utilization rates). A shipment on a brand new but half empty aircraft will have a higher carbon footprint than the same shipment on an older but fully utilized aircraft.
- Why do belly freight shipments have a higher carbon footprint than the same shipment on a pure freighter aircraft? This is due to the allocation principle of emissions found in many of the predominant standards and guidelines, such as the aforementioned EN16258, the EU Emissions Trading Systems and others. Everything on board of an aircraft (Freight and Passengers including their luggage is accounted for according to the weight. As a default, a passenger including luggage would be represented by a default weight of100 kg. As freight does not need cabin crews, food, seats and restrooms, one might argue whether a pure weight based allocation is the right one to take. Or in other words, belly freight shipments are faced with 'overhead' emissions from the passengers.

Amongst others these two questions show how carbon footprints are driven by the level of transparency and calculation standards. A few standards are currently under development and also required to provide comparable emission transparency. Today the accuracy in carbon footprints largely depends on the available data transparency and business intelligence.

In our next GoGreen Brief we will take a closer look at the The Global Logistics Emissions Council (GLEC) framework, how it will help to harmonize calculation standards and share our insights.

For further information or assistance, please contact our GoGreen team or your DHL Global Forwarding Customer Service representative.

Glossary:

Abbreviations

- **CCWG** – Clean Cargo Working Group
- **EN16258** – European Norm 16258
- **GHG Protocol** – Greenhouse Gas Protocol
- **GLEC** – Global Logistics Emissions Council
- **HBEFA** - Handbook Emission Factors for Road Transport
- **IATA** - International Air Transport Association
- **IMO** – International Maritime Organization
- **NTM** – Network for Transport Measures

Explanations

- **Scope 1**: All direct GHG emissions.
- **Scope 2**: Indirect GHG emissions from consumption of purchased electricity, heat or steam.
- **Scope 3**: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. T&D losses) not covered in Scope 2, outsourced activities, waste disposal, etc. Source
- **Load factor**: ratio of the average load to total vehicle, vessel or aircraft freight capacity
- **Emission factor**: average emission rate of a given GHG for a given source, relative to units of activity. Source
- **Shipper**: an individual or firm that sends freight (a freight originator). Source
- **Forwarder**: organization which provides logistics services as an intermediary between the shipper and the carrier, typically on international shipments. Freight forwarders provide the ability to respond quickly and efficiently to changing customer and consumer demands and international shipping (import/export) requirements. Source
- **Carrier**: company that transports goods or people via land