The advice in this guide is applicable to freight transport via road networks. As solution providers for road based transport operators we are unequipped to provide guidance for rail, sea and air freight transport and the calculation of emissions produced through this mode of transportation.

121 Fast Facts

According to Wikipedia the definition of GHG Emissions is ‘green house gases are gases in an atmosphere that absorb and emit radiation within the thermal infra-red range. This process is the fundamental cause of the ‘Greenhouse Gas Effect’.

You might ask yourself, why do I need to report and measure our Greenhouse Gas (GHG) emissions? Consider the 4 C’s:

Compliance

All businesses listed in on the Main Market of the London Stock Exchange will have to start reporting their levels of GHG emissions from 1st April 2013. This may be extended to all UK large businesses from 2016. For all other companies, reporting is not mandatory but it is regarded as good practice and it may become mandatory in the future.

Corporate Responsibility

Understanding your organisation’s transport GHG emissions is the first step to controlling the impact it has on the environment. Businesses that are taking responsibility for the size of their carbon footprint, display a more forward thinking attitude.
Customers

If you are a 3rd party logistics provider, you need to be aware that your clients may start reporting on the GHG emissions associated with their organisation and products. This will prompt them to come to you for a report on the GHG emissions generated from the services you provide them with.

Cash

Measuring your transport GHG emissions means inevitably measuring fuel usage. Knowing how much fuel your fleet uses is the first step towards optimising your fuel management and if approached in the correct way, using the correct tools, will ultimately save you money.

As mentioned earlier, GHG emissions are those that contribute to climate change. 95% of your GHG emissions are carbon dioxide. The latest Euro standard engines are good for reducing localised air pollution from matter such as particulates & oxides of nitrogen. However, it is important to note that these engines DO NOTHING to reduce GHG emissions.

So, you are probably thinking, which emissions do I need to calculate then?

For the purpose of reporting, an organisation’s emissions are divided into three ‘scopes’. This is based on how much control an organisation has over them. You will be expected to report on those emissions over which you have the most control (Scope 1).

**Scope 1 (Direct Emissions)**
Emissions that are generated from activities & resources that are out of your control - for instance, transport operations and vehicles.

**Scope 2 (Energy Indirect)**
Emissions that are generated through the consumption of business utilities. For example; electricity, heating, cooling of your offices.

The emissions are the result of a use of energy, but take place somewhere else and aren’t under your direct control.

**Scope 3 (Other Indirect)**
Emissions that occur at sources of which you have no control over. For example, your suppliers’ emissions.

Before you even begin to calculate your emissions you need to define your company boundary (see figure 1). This is where you need to decide which aspects of your operation you are going to include.

As this is a guide for transport operators the government and best practice guides suggest you decide on whether to include your subcontractor’s emissions. In guides that we have read they recommend you base this on how you work with them operationally.
The world needs to cut carbon emissions by 50% by 2050 against 1990 levels. Cuts of this scale will reduce the risk of temperature rises of more than 2°C by 2100 which, although damaging, will avoid dangerous climate change.

Uh oh! It’s time to do the maths!

Stage 1
Fuel Usage

It is recommended that you workout or estimate based on distances travelled, or spend, how much fuel you used.

Stage 2
Emissions Factors

Look up the latest emission factor for your type of fuel. (for the full range of emissions factors, visit www.defra.gov.uk) Alternatively, look up a factor based on distance travelled by your vehicle type.

Stage 3
End Result

Multiply them together to calculate the total emissions.

How to report your emissions

You will need to report an absolute total emissions figure. This is a total that ideally will be reduced by the end. However, it may not reflect changes to your business growth, longer routes, outsourcing, etc.

As well as an absolute figure, you can report a measure of the ‘carbon intensity’ of your business - eg. 3.5 kgCO₂eq

What to include in your report:

1. How you came to the decision of your company ‘boundary’.
2. The reporting period.
3. Absolute emissions.
4. Emissions intensity measurement.
5. Baseline year.
6. Any changes to your company since baseline year.

You could if you desired, use a range of metrics to measure against. Tonnes, cubic metres, pallets etc, whatever you decide to choose, it should allow you to compare with different parts of your operation and not require you to collect any extra information.
Working out GHG Emissions for your customers

This may be a difficult process for you as working out the correct ‘share’ of emissions for different customers isn’t easy. The difficulty will lie where the same vehicle delivering on one route includes multiple deliveries for various customers.

Data Checklist

- Information on each vehicle type.
- Total distance travelled by each vehicle type.
- Total fuel used by each vehicle type (if possible).
- Number of drops for each customer.
- Load details including volume, weight or both.

The DFT have produced a simple spreadsheet that will enable you to divide emissions fairly based on loads carried and number of drops, for each customer. Visit - www.gov.uk/government/organisations/department-for-transport

The Solution

It’s advised that when setting a target for GHG emission reductions, ‘you should set both an absolute target, and a target based on your intensity measurement. The target could be based on an internal or external benchmark, on what you think is achievable through identified, or in line with other policies’ (GHG Quick Freight Guide by Defra)

Areas to consider when aiming for carbon reduction within your organisation

Driver Efficiency

Drivers can make a big contribution to a company’s performance by the way they drive vehicles, UK hauliers already have a culture of safe and efficient driving but we can do better. Set up regular performance reviews and/or telematics.

Vehicle Utilisation

Select the most appropriate vehicle for each job by considering vehicle specification, selection, maintenance and use of aerodynamics.

Vehicle Efficiency

Switch to more efficient vehicles and fuels.

Load Planning

By loading a vehicle or trailer bed in an effective manner, organisations will reduce fuel consumption. It will also mean that vehicles you operate will be less likely to run empty.

Transport Planning

Reduce time on the roads and mileage through optimised route planning and vehicle scheduling. This will reduce mileage and vehicle fuel consumption and in return will decrease your carbon emissions. Ways in which to do this include:

- efficient routing/maximising vehicle resource
- use maximum vehicle capacity
- shortages, missed delivery strategy
- telematics - vehicle/product tracking
- mobile communication
- sat nav for multiple drops
- increased night running
- back loading possibilities
- increased load consolidation
121 Systems supply truly integrated transport management tools that will enable you to reduce your carbon emissions & improve fleet management. Follow the links for more information.

**Roadnet**
Daily routing and scheduling tool. Roadnet will allow you to tactically plan your daily routes. You will see a reduction in mileage and empty running whilst also minimising CO₂ emissions.

**Territory Planner**
Strategic logistics planning software. Territory Planner will allow you to respond to seasonal volume hikes, rising fuel costs, long term traffic issues and allow you to create ‘what if’ analysis.

**Pulse**
Dispatch management control centre. Pulse transmits valuable data to and from mobile handheld devices. Allowing you to have more control over the delivery process. This will ultimately reduce time spent on the roads and mileage.

**NetScheduler**
Daily scheduling software. NetScheduler schedules orders at the point of order capture. One of its many functionalities is its ability to assign special orders to the correct type of vehicle. For example, inner city deliveries can be assigned to low emission vehicles, if required.

**Roadnet Info Center**
Roadnet Info Center is a statistical reporting tool that will show you detailed reports relating to your transport operation over long periods of time. This will allow you to optimise your plans and efficiently route vehicles enabling you to save time, money and fuel.

**Pulse Mobile**
Mobile software for use on a handheld device. Gain maximum visibility across your fleet of vehicles. Know in real-time, where vehicles are, where they should be and use the data gathered in the field to learn where they could be.

For a more in depth, freight specific guide for transport operators please download ‘The guidance on measuring & reporting greenhouse gas emissions for freight transport operators’. This can currently be found on www.defra.gov.uk

According to the Logistics Carbon Reduction Scheme (LCRS), their high profile members have reduced HGV miles by 19.7 million since 2010, as a result of reducing empty running.

The graph below (data taken from The Role & Achievements of the Logistics Carbon Reduction Scheme) enables you to see which interventions have achieved the greatest saving in HGV mileage. The number of miles saved will not only have reduced carbon emissions but fuel usage too.