



CARBON MANAGEMENT PORTAL (CMP):

METHODOLOGY FOR CALCULATING OPERATIONAL CARBON EMISSIONS AND ACHIEVING CARBON NEUTRAL STATUS

25th Feb 2022

Executive Summary

bp Target Neutral (bpTN) is committed to helping individuals and businesses tackle their carbon¹ emissions. Through the bp Target Neutral Carbon Neutral Protocol and the Castrol Path360 Carbon Neutral Dealer Programme, bpTN enables businesses to start their carbon reduction journey by becoming carbon neutral².

In the businesses first year's application, carbon neutrality can be achieved by quantifying its operational carbon emissions, creating a reduction plan, and then offsetting residual emissions. However, in all subsequent years, the carbon reduction plan will need to be implemented and the business must deliver on carbon reduction targets and offset residual emissions in order to maintain carbon neutral status.

This methodology statement supports:

- bp Target Neutral Carbon Neutral Protocol (bpTN CNP); and
- the Carbon Management Portal (the CMP); and

The bpTN CNP is the underlying carbon neutral standard behind the CMP. The bpTN CNP sets out requirements for achieving carbon neutrality based on a rigorous and transparent framework that is aligned with relevant international standards and tailored to bp and Castrol's customers' context. The bpTN CNP sets out requirements for the following:

- The scope and boundary of emissions sources that need to be quantified.
- The quantification approach that must be adhered to.
- Appropriate emissions reduction plans; and
- Process to offset residual emissions.

The CMP is a purpose-built online tool that allows businesses to digitally apply for, and maintain, carbon neutral status under the bpTN CNP.

The CMP allows businesses to submit an application and achieve carbon neutrality by undertaking the following steps:

- Collecting and submitting data for the mandatory emissions sources (listed in the emissions sources section below);
- Creating and committing to an emissions reduction plan; and obtaining senior sign off to the emissions reduction commitment and plan; and
- Purchasing carbon offsetting services for residual emissions through bpTN.

The CMP and this methodology adhere to the internationally recognised *WRI/WBCSD GHG Protocol Corporate Accounting Standard (2nd Edition, 2005)* and the *bpTN Carbon Neutral [Protocol](#)*.

¹ 'Carbon' is used throughout as shorthand to refer to CO₂e (carbon dioxide equivalent). CO₂e means the number of metric tons of CO₂ emissions with the same global warming potential as one metric ton of another greenhouse gas (GHG).

² The operational emissions of the business are carbon neutral in accordance with the bp Target Neutral (BPTN) Carbon Neutral Protocol, which has undergone a limited-level assurance by ClimateCheck. The business has quantified their operational carbon emissions, committed to a carbon reduction plan and offset their residual emissions. Emissions calculations are based on activity data provided solely by the dealership. The emissions from the use of vehicles sold are not included in the emissions calculations.

1. Overview and calculation Approach

1.1 Scope and boundaries

The subject is the name of the business (or business group) applying for carbon neutral status and encompasses the operation of each business site (e.g. workshop or office) within this defined group. Boundaries are drawn on the principle of operational control within each site. The name and address of each site is recorded in the CMP.

1.2 Reporting period

The reporting period must relate to a 12-month data period preceding the application. The final date of the relevant reporting period should not be earlier than three months prior to start of the Carbon Neutral claim.

1.3 Emission sources

Mandatory emission sources to be included in a Carbon Neutral application have been detailed in the bpTN CNP. The scope of emissions sources that that are mandatory to be included in an application under the bpTN CNP are:

- Stationary (Building emissions); and
- Mobile (Travel emissions);

These mandatory emissions sources are broken down further in Table 1 below

Table 1 - Mandatory Emissions Sources

Emissions Sources
Building Emissions
SCOPE 1 - Direct emissions
Gas consumption for heating
Liquid fuel consumption for heating
Fugitive emissions from air conditioning equipment & other
Other fuel combustion emissions
SCOPE 2- Indirect emissions from grid-sourced electricity
Consumed grid electricity
SCOPE 3- Indirect emissions
Water usage
Waste disposal
Purchased paper goods
Travel Emissions
SCOPE 1 - Direct emissions
Fuels used in company owned/controlled passenger vehicles
Fuel used for deliveries from the business in company owned/controlled vans and trucks
SCOPE 3- Indirect emissions
Employee flights
Employee commuting to/from work

All emission sources included in the mandatory emission source categories above must be included in the businesses application in the CMP, unless the business can demonstrate that the associated emissions from the source are not material (i.e. they comprise less than 1% of the total emissions and the sum of all non-material emissions are less than 5% of the total).

Mandatory Scope 3 emissions sources for bpTN and Castrol’s customers were analysed through a materiality assessment that narrowed down to the sources listed in the table above on the basis that their quantification was technically feasible, practicable or cost effective, and if both of the following criteria listed in the bpTN CNP applied:

1. The emissions from a particular source are likely to be material relative to the organisation’s electricity, stationary energy and fuel emissions
2. The responsible entity has the potential to influence the reduction of emissions from a particular source

1.4 Small Source Emissions and multi-site contingency buffer

The CMP includes a contingency buffer of 15% which is added to total emissions to account for small source emissions (water usage, waste disposal and purchased paper goods) to cover inaccuracy from the aggregation of data for multi-site businesses. This buffer will be kept under review and updated as required.

1.5 Input Data and Calculation Approach

The CMP prompts the business to input data for each mandatory emission source and requires primary activity data. Users of the CMP must input data sources and any assumptions, extrapolations and calculations undertaken prior to submission.

Table 2 - Data inputs

Emissions Source	Includes	Primary Data Required	Units
Building Emissions			
SCOPE 1 - Direct emissions			
Gas consumption for heating	Natural gas	Quantity of fuel consumed	kWh/m ³
Liquid fuel consumption for heating	Liquefied natural gas (LNG), fuel oil, burning oil	Quantity of fuel consumed	litres/kg
Fugitive emissions from air conditioning equipment & other	Refrigerant gases	Quantity of refrigerant recharged	kg
Other fuel combustion	Diesel	Quantity of fuel consumed	litres
SCOPE 2- Indirect emissions from grid-sourced electricity			
Consumed grid electricity	Electricity purchased from the grid.	Grid electricity consumption For purchased renewable power, contract details required.	kWh
SCOPE 3- Indirect emissions			
Water usage	Raw water	No raw data required. Automatically calculated as part of the 15% contingency buffer	
Waste disposal	Business waste		
Paper usage	Purchased paper goods		
Travel Emissions			
SCOPE 1 - Direct emissions			
Fuels used in company owned/controlled passenger vehicles and vans	Diesel or gasoline used un show vehicles, demo vehicles, leased vehicles, other company-owned vehicles (including vans, trucks etc.)	Hierarchy of data requirements below (from most preferred to least preferred) 1. fuel type & quantity 2. distance + fuel efficiency of the vehicle	litres/kg

		3. vehicle type, size & distance	
Fuel used for deliveries from the business in company owned/controlled vans and trucks	Contracted deliveries from the business	Same as Company-owned vehicles and additionally, loading of the vehicles	litres/kg
SCOPE 3- Indirect emissions			
Employee flights	Flights of employees working for the defined site.	Start and end destination. Return or one-way	n/a
Employee commuting to/from work	Driving, bus or train	Mode of transport and distance ranges. Assumes 245 working days per month round trip travel.	km/miles

1.6 Emissions Factors

1.61 Emission factors

Emission factors³ for all markets are derived from the 2021 UK Government Greenhouse Gas (GHG) Conversion Factors for Company Reporting (UK Government 2021) except for grid electricity where the CMP has country specific emissions factors for the following countries:

- Denmark
- Germany
- India
- South Africa
- USA

The WBSCD/WRI GHG Protocol recognises the most recent UK Government emissions factors for use as default emission factors where country specific values are not readily available. This document, previously known as the 'Guidelines to Defra/DECC's GHG Greenhouse Gas Conversion Factors for Company Reporting', is updated on an annual basis. To have alignment across bp Target Neutral's suite of tools, all emission factors are updated simultaneously for consistency, therefore there may be a short lag between emission factor release dates and when the calculators are updated.

1.62 Well-to-tank factors

When calculating transport emissions, not only are direct emissions of CO₂, CH₄ and N₂O from the combustion of fuel accounted for, but the indirect emissions associated with the extraction and transport of primary fuels as well as the refining, distribution, storage and retail of finished fuels, also known as the 'well-to-tank' emissions are also taken into consideration.

The applicable 'well-to-tank' emissions, whether relating to fuels or different travel modes, are used from the specific 'WTT' table in the most recent UK GHG Conversion Factors for Company Reporting document and added to the relevant conversion factor.

1.7 GHG emissions measured

Emissions of Kyoto Protocol GHGs of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) hydrofluorocarbons, perfluorocarbons, sulphur-hexafluoride (SF₆) and nitrogen trifluoride (NF₃) are calculated and expressed as metric tonnes CO₂ equivalent (CO₂e). Emission factors take account of all relevant gases according to their respective GWPs

1.8 Assumptions

³All emissions factors chosen are in carbon dioxide equivalent (CO₂e)

Table 3 - Calculation Assumptions

Emissions Sources	Assumptions
Building Emissions	
Gas consumption for heating	n/a
Liquid fuel consumption for heating	Emission factors assume an average biofuel blend and include well to tank (supply chain) GHG emissions.
Fugitive emissions from air conditioning equipment & other	Assumed that quantity of refrigerant used for recharging air conditioning equipment is equal to leakages
Other fuel combustion emissions	Emission factors assume an average biofuel blend and include well to tank (supply chain) GHG emissions.
Consumed grid electricity	The CMP is configured to adapt to market/country-specific locations using data from the International Energy Agency (IEA) including transitioning from figures derived from their Fuel Combustion online data service to the IEA Statistics Data Service Emissions Factor, 2020 publication.
Water usage	Calculated as part of the 15% contingency buffer
Waste disposal	
Purchased paper goods	
Travel Emissions	
Fuels used in company owned/controlled passenger vehicles	<p>When selecting the distance range, the CMP assumes:</p> <ul style="list-style-type: none"> • <12,500 miles is 20,000 km • 12,500-31,000 miles is 50,000 km • 31,000-62,000 miles is 100,000 km • 62,000 - 93,000 miles is 150,000 km • >93,000 miles is 300,000 km • <20,000 km is 20,000 km • 20,000-50,000 km is 50,000 km • 50,000-100,000 km is 100,000 km • 100,000-150,000 km is 150,000 km • >150,000 km is 300,000 km
Fuel used for deliveries from the business in company owned/controlled vans and trucks	<p>Same as company-owned vehicles</p> <p>By default, all trucks are assumed to be diesel fuelled as per the Defra 2021 emissions factor data set.</p>
Employee flights	<p>Two key elements form the basis of air travel emissions calculations:</p> <ol style="list-style-type: none"> 1. an uplift factor of 8% applied to the flight distance to factor in sub-optimal routing and stacking at airports during periods of heavy congestion; 2. and the Radiative Forcing Index (RFI) of 1.9 applied to the CO₂ emissions factor of any given flight type to account for non-CO₂ climate change effects of aviation, for example, those associated with vapour trails or NO_x emissions. <p>These two factors have already been incorporated into the Defra 2021 factors – these factors are applied for all markets. ‘WTT’ emissions have been included in the relevant emission factors.</p> <p>Flight distances are calculated using the Great Circle Flight methodology to account for the curvature of the Earth.</p>

	<p>Class information is not taken into consideration, i.e. the average conversion factor, instead of factors specific to economy, business or first-class travel, is used for each flight type.</p> <p>Furthermore, a fourth category of route length called 'International, to/from non-UK' is not taken into consideration as each of the categories i.e. domestic, short-haul international and long-haul international will be applied to all markets.</p>
Employee commuting to/from work	<p>When selecting the distance range, the CMP assumes:</p> <ul style="list-style-type: none"> • <12.5 miles is 20 km • 12.5-31 miles is 50km • >31 miles is 100 km • <20kms is 20 km • 20-50 kms is 50km • 50+ kms is 100 km <p>When selecting the most common mode of transport the CMP assumes:</p> <ul style="list-style-type: none"> • Driving (also "mostly driving") is by an average sized passenger vehicle with unknown fuel type and applies the average car unknown fuel emission factor from Defra 2021 • Train is equivalent to UK National Rail and applies the National rail emission factor from Defra 2021 • Bus is an average local bus and applies the local bus (not London) emission factor from Defra 2021 • Motorcycle is an average sized motorcycle and applies the average motorbike emission factor from Defra 2021 • Moped/Scooter is a small sized motorcycle and applies the small motorbike emission factor from Defra 2021 <p>The Calculator assumes 245 working days in the year and the route is travelled both to and from work. Part-time employees can be combined to approximate full-time employees.</p>
Small Source Emissions	
SCOPE 3- Indirect emissions	
Water usage	Calculated as part of the 15% contingency buffer
Waste disposal	
Purchased paper goods	

2 Example calculations

Slight variances will be seen between the CMP and the manual calculations laid out below due to formatting results to a set number of decimal places at the point of display to the end user. Calculations are undertaken automatically by the CMP based on activity data entered by the business. Example calculations undertaken by the CMP are presented below.

2.1 Building Emissions

2.1.1 Gas consumption for heating

User will input gas consumption in either kg, kWh or m³ and this is multiplied by the specific emissions factor

For example, emissions for 20,000 kWh of natural gas consumption:

$$\begin{aligned}
 &= \text{gas consumption in kWh} \times \text{emission factor} \\
 &= 20,000\text{kWh} \times 0.20778\text{kgCO}_2\text{e/kWh} \\
 &= 4,156 \text{ kgCO}_2\text{e} = 4.156 \text{ tCO}_2\text{e}
 \end{aligned}$$

2.12 Electricity Consumption

User will input electricity consumption in kWh and this will be multiplied by the country specific grid emissions factor (where this is available)

For example, emissions for 35,000 kWh of electricity consumption in USA:

$$\begin{aligned} &= \text{electricity consumption in kWh} \times \text{emission factor} \\ &= 35,000\text{kWh} \times 0.5008\text{kgCO}_2\text{e/kWh} \\ &= 17,527 \text{ kgCO}_2\text{e} = 17.53 \text{ tCO}_2\text{e} \end{aligned}$$

Where the user selects that 100% green electricity has been procured across all sites a zero emissions factor will be used

For example, emissions for 20,000 kWh of electricity consumption where 100% green electricity has been procured:

$$\begin{aligned} &= \text{electricity consumption in kWh} \times \text{emission factor} \\ &= 20,000\text{kWh} \times 0\text{kgCO}_2\text{e/kWh} \\ &= 0 \text{ kgCO}_2\text{e} = 0 \text{ tCO}_2\text{e} \end{aligned}$$

2.13 Refrigerant gases

User will choose the refrigerant type from the list and input refrigerant recharge quantity in kg and this will be multiplied by the specific emissions factor

For example, emissions for 2kg of HFC-125 refrigerant gas:

$$\begin{aligned} &= \text{refrigerant gas kg} \times \text{emission factor} \\ &= 2\text{kg} \times 3,500\text{kgCO}_2\text{e/kg} \\ &= 7,000 \text{ kgCO}_2\text{e} = 7\text{tCO}_2\text{e} \end{aligned}$$

2.2 Travel Emissions

2.21 Freight vehicle

After choosing the van or truck size the user will then choose the fuel type (diesel, LPG or Petrol), annual distance travelled and loading of the vehicle (unloaded, half loaded, fully loaded, average).

For example, emissions for a fully loaded diesel truck travelling 50,000-100,000 kms per year

$$\begin{aligned} &= \text{distance kms} \times \text{emission factor} \\ &= 100,000 \times 1.24182\text{kgCO}_2\text{e/km} \\ &= 124,182 \text{ kgCO}_2\text{e} = 124.18 \text{ tCO}_2\text{e} \end{aligned}$$

2.22 Passenger Vehicle by Fuel efficiency

After inputting annual distance travelled the user can enter the car's fuel efficiency value in either 'miles per gallon' (mpg), 'litres per 100 km' (l/100km) or the vehicle emissions value in gCO₂/km.

Where fuel efficiency is provided, emissions are calculated based on fuel usage and the fuel-specific conversion factor, as in the examples below.

For example, emissions for 10,000 miles travelled in a petrol-fuelled car with 'mpg' value of 36:

$$\begin{aligned}
 &= \text{fuel usage in litres} \times \text{emission factor} \\
 &= \left[\left(\frac{\text{mileage}}{\text{fuel efficiency}} \right) \times \text{conversion to litres} \right] \times \text{emission factor} \\
 &= \left[\left(\frac{10,000 \text{ miles}}{36 \text{ mpg}} \right) \times 4.5461 \right] \times 2.91199 \text{ kgCO}_2\text{e/litre} \\
 &= 3,544 \text{ kgCO}_2\text{e} = 3.5 \text{ tCO}_2\text{e}
 \end{aligned}$$

2.23 Rail Travel

UK users can enter the departure and arrival stations, select return trip and input the number of trips. The National Rail conversion factor is used across all markets for consistency. The shortest distance between stations, taking into account the curvature of the Earth, is calculated using their longitude and latitude coordinates. An uplift of 20% is subsequently applied to reflect the train route distance more accurately.

Emissions for a person travelling from London King's Cross to Cambridge once:

$$\begin{aligned}
 &= \text{distance between stations} \times \text{uplift factor} \times \text{emission factor} \times \text{number of trips} \\
 &= 75.6 \text{ km} \times 1.2 \times 0.04418 \text{ kgCO}_2\text{e/pkm} \times 1 \\
 &= 4.0 \text{ kgCO}_2\text{e}
 \end{aligned}$$

Emissions for someone travelling from London Paddington to Oxford and back five times:

$$\begin{aligned}
 &= 2 \times (\text{distance between stations} \times \text{uplift factor} \times \text{emission factor} \times \text{number of trips}) \\
 &= 2 \times (79.9 \text{ km} \times 1.2 \times 0.04418 \text{ kgCO}_2\text{e/pkm} \times 5) \\
 &= 42.4 \text{ kgCO}_2\text{e}
 \end{aligned}$$

All other users are able to input the trip distance in miles and in kilometres respectively, trip type, and number of trips. It is assumed that the user would obtain the distance travelled from a web mapping service, such as Google Maps or Bing Maps, which would return a road distance value. No uplift factor is applied to the distance entered by the user as driving distances are found to broadly correlate with train distances.

2.24 Air travel

Emission factors are applied according to the route length, e.g. domestic, short-haul international or long-haul international. Band distances are used to determine the flight type.

Table 5 below outlines the band start point for each flight type as well as the associated emission factor.

Table 5. Flight type band start points and emission factor

Flight type	Band start (km)	Grand Total GHG (kgCO ₂ e/pkm)
Domestic	0	0.27104
Short-haul international	400	0.17256
Long-haul international	3700	0.21175

As an example: emissions for a person making four return trips from San Francisco to London Heathrow

$$\begin{aligned} &= 2 \times (\text{distance} \times \text{long-haul international average emission factor} \times \text{number of trips}) \\ &= 2 \times (8615 \text{ km} \times 0.21175 \text{ kgCO}_2\text{e/pkm} \times 4) \\ &= 4,593.8 \text{ kgCO}_2\text{e} = 4.6 \text{ tCO}_2\text{e} \end{aligned}$$

2.25 Employee commuting

The user will choose the mode of transport and the one-way distance from home to the place of work. If the distance is selected in miles, then this will be converted kms for the purpose of the calculation and multiplied by the specific emissions factor for that transport mode.

As an example: emissions for a person making a <12 mile commute by train:

$$\begin{aligned} &= 2 \times [\text{distance travelled in miles} \times \text{km conversion factor}] \times 5 \text{ working days} \times 45.4 \text{ working weeks} \times \text{emissions factor} \\ &= 2 \times [12 \times 1.60924] \times 5 \times 45.4 \times 0.04418 \text{ kgCO}_2\text{e/km} \\ &= 387.3 \text{ kgCO}_2\text{e} = 0.39 \text{ tCO}_2\text{e} \end{aligned}$$

3. Emissions Reduction and Renewals

3.1 Reductions

Businesses must create a carbon emissions reduction plan to identify and target reductions in GHG emissions and ensure meaningful actions to reduce emissions are taken over the following 12-month period. Businesses are given tips as to how to reduce emissions but the method by which they reduce emissions will be the decision of each business. The carbon emissions reduction plan must result in a minimum of a 5% overall reduction in emissions on average for each 12-month period, against their baseline period.

3.2 Renewals

After 12 months, businesses must resubmit their emissions data as per section 1 and show progress against their carbon emissions reduction plan which will be reviewed by bpTN.

bpTN will check the data to confirm that reductions set out in the carbon management plan have been implemented and are evident in the emissions totals in the succeeding year. If the 5% average annual reduction against the baseline period has not been achieved, then the business will not be approved for renewal by bpTN.

4 Offsetting

4.1 Offset calculation and Carbon Offsetting Services purchase

The price of the carbon offsetting services required is calculated by multiplying the total tonnes of CO₂e emitted by the business in the reporting period by the latest bpTN carbon offsetting services portfolio price per tonne of CO₂e. A link to a payment option is provided to allow the user to complete the transaction.

Carbon Offsetting Services consist of bpTN arranging for the purchase and retirement of carbon offsets to compensate for relevant carbon emissions associated with the programme. Carbon offsets are retired in an international register on behalf of the business. Following payment, the registered offsets will be retired from the relevant international registry by bpTN within 13 months. All retirements undertaken by bpTN will be undertaken in accordance with the ICROA principles for offsetting, as set out in the bpTN CNP.

5. Quality Assurance

Several key validation steps are automatically actioned through the CMP and further manual quality assurance checks shall be undertaken by bpTN. The validation and quality checks required for CMP emissions quantification and reporting are:

1. CMP automatically checks the application to ensure minimum completeness parameters have been met and data has been entered for all mandatory emissions sources covering a 12 month period
2. The applicant must sign submission form to confirm a review of the data has been undertaken prior to submission and that the submission is a true and accurate reflection of company activity
3. A member of the business' leadership team must sign the submission form to confirm they have checked data is a true and accurate reflection of company activity and commits to carbon reductions as per the carbon emissions reduction plan
4. bpTN will undertake a high-level technical review of all applications prior to approval and reapproval to check for completeness of data and appropriateness of the carbon emissions reduction plan
5. bpTN will undertake a detailed technical review of a sample of applications every six months. This will be a remote verification of raw activity data entered into the CMP by the business for the carbon neutral application. Businesses selected for the sample will be contacted by email and will be required to submit the raw activity data for validation. If the detailed technical review finds material errors in the data, then during reapplication process these additional emissions must be included in the subsequent years data submission and the additional offsets must be purchased to bridge the emissions gap.

In addition to the internal quality assurance undertaken during the application and approval process the entire carbon neutral process enabled by the CMP shall be assured by an external independent third party every 12 months. This assurance will ensure the carbon neutral status is being awarded as per the processes and principles defined in the bpTN CNP and this methodology statement.