



Crown Oil
sustainability



Carbon Assessment Report

PAS 2060: 2014 specification for the demonstration of carbon neutrality

Achievement period: 1st August 2021 – 31st July 2022

Commitment period: 1st August 2022 – 31st July 2023

Date: 1st February 2023



PAS 2060 - Carbon Neutral

The British Standard Institute (BSI) has developed an internationally applicable specification for demonstrating carbon neutrality. Verification to this standard substantiates claims that a business is carbon neutral.

Conformity with this specification can be achieved in three ways:

1. 3rd party certification
2. Other party validation
3. Self-validation

Crown Oil Ltd has chosen “other party verification” through Tunley Engineering. This provided us with the support, documentation and protection required from external criticism, ensuring high confidence in the carbon neutrality statement. Table 1 provides the PAS 2060 Qualifying Explanatory Statement to demonstrate that we have achieved carbon neutrality in accordance with PAS 2060:2014 on 1st February 2023 for the baseline year period of 1st August 2021 to 31st July 2022.

Table 1: Declaration of achievement of carbon neutrality

PAS 2060 Requirement	Response
Entity making declaration	Crown Oil Ltd (Group) including: Crown Oil Ltd (company) Speedy Fuels Ltd, Crown Oil Environmental Ltd, Beesley Fuels Ltd, Nationwide Fuels and Lubricants Ltd
Subject of PAS 2060 declaration	All offices, commercial premises, vehicles, goods and services for which Crown Oil Ltd (Group) has operational control
Description of subject	Crown Oil Ltd (Group) is a group of commercial fuel and lubricant distribution companies providing service coverage across the UK
Rationale for selection of subject	<p>The subject was selected given it represents the operational control boundary of Crown Oil following the WRI GHG Protocol methodology. The boundary is summarised as follows:</p> <ul style="list-style-type: none">• Scope 1 emissions: Combustion of gas, Combustion of fuel (stationary & mobile), Refrigerant leakage• Scope 2 emissions: Purchased electricity & heat (location based)• Scope 3 emissions: Purchased Goods & services, Capital goods, Well-to-tank & Transmission & distribution losses, Upstream transportation & distribution, Business travel, employee commuting, excluded scope 3 emissions are those associated with: Upstream & downstream leased assets. Use of sold products, processing and end-of-life treatment of sold products. Franchises and investments
Type of conformity assessment	Other party validation
Baseline date for PAS 2060 programme	1st August 2020 to 31st July 2021

Period during which the entity is demonstrating carbon neutrality of the subject has been achieved	1st August 2021 to 31st July 2022
Recorded carbon footprint of the subject during the period stated above	5,366 tonnes CO ₂ e p.a.
Which PAS 2060 recognised methodology has been followed to achieve carbon neutrality?	Reductions primarily made by substituting mobile combustion of diesel fuel with that of hydrotreated vegetable oil. Please see Comparison to the Baseline Footprint and Carbon Reduction Opportunities for further information
Has there been material changes to the subject?	No, the scope and boundary of the assessment is the same as the baseline FY2020/21
Actual reduction in GHG emissions	3,568 tCO ₂ e p.a.
Carbon Offset standard and methodology	Verified Carbon Standard (VCS) (see 'Carbon Offsetting' report section)
UK economic growth rate over the application period	2021: 7.5% https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG
Other-party validation statement	Tunley Engineering declare that the information presented in this qualifying explanatory statement in support of PAS 2060:2014 is true and accurate to the best of our knowledge, ability and experience
Name of senior representative	Matthew Greensmith, Managing Director with overall responsibility of Group sustainability, February 2023
Signature	<i>M. Greensmith</i>



Introduction

This assessment has been conducted by Tunley Engineering using the standard protocols and data provided by Crown Oil Limited (Ltd) for our business activities. Greenhouse gas emissions (GHG) are quantified in terms of carbon dioxide equivalents (CO₂e) and thus are occasionally referred to as carbon emissions.

The objective of this business carbon assessment is to provide us with the necessary information to declare our commitment to achieving carbon neutral status as an organisation in accordance to PAS 2060, a globally recognised standard produced by the British Standards Institute.



**We achieved
carbon neutral
status in 2022**

Quantification standards

This document forms the PAS 2060 Qualifying Explanatory Statement whereby Tunley Engineering verifies that Crown Oil Ltd has achieved carbon neutrality in accordance with PAS 2060:2014 on 1st February 2023 for the baseline year period of 1st August 2021 to 31st July 2022.

The business carbon assessment involves a detailed and transparent carbon footprint study that covers all aspects of our operations (scope 1, 2 and 3). Business carbon emissions have been quantified and a business carbon emissions inventory is reported.

Significant emission sources are identified and highlighted. Our carbon footprint for the 2021/22 financial year has been calculated following the World Resources Institute GHG Protocol - A Corporate Accounting and Reporting Standard, Revised Edition (the GHG Protocol).

This assessment provides a comparison to the baseline inventory measured in the Financial Year (FY) 20/21 and enables a current footprint for the FY21/22 which carbon reduction achievements can be measured, monitored, and reported.

The quantification and analysis facilitate the setting of strategic targets for carbon reduction measures, including areas of 6 focus for carbon reduction efforts and facilitates monitoring of progress towards those targets. The total GHG for Crown Oil Ltd from 1st of August 2021 to the 31st of July 2022 was 5,366 tonnes of carbon dioxide equivalent (tCO₂e) per year.

Quantification of GHG Emissions

We've taken the operational control approach, ensuring everything in our operational control is accounted for in our carbon footprint. To ensure the validation of the Carbon Neutral statement, the carbon inventory is available when requested and a detailed methodology is provided within the Appendix A: GHG Emissions Methodology and Assessment. This ensures our carbon neutral claim is truthful, accurate, clear and unambiguous; in line with the UK's Competition and Markets Authority (CMA) Green Claims Code.

Table 2: Emissions summary

Summary table		
GHG Emissions (tCO ₂ e per annum)		
Scope	Baseline year FY20/21	FY21/22
Scope 1	2,844	343
Scope 2	201	156
Scope 3	5,889	4,868
Total	8,934	5,366
% change in comparison to baseline	0.0%	-39.9%

Scope	Category	FY20/21 tCO ₂ e p.a	FY21/22 tCO ₂ e p.a	% Change tCO ₂ e p.a
S1.1	Stationary combustion	24	36	49.65
S1.2	Mobile combustion	2,812	307	-89.10
S1.3	Refrigerants	8	0	-100.00
S2.1	Purchased heat	21	0	-100.00
S2.2	Purchased electricity	179	143	-20.57
S3.1	Purchased goods & services	2,976	1,134	-61.9%
S3.2	Capital goods	944	1,966	108.2%
S3.3	Fuel and energy related activities not included in S1 or S2	946	57	-94.0%
S3.4	Upstream transportation and distribution	921	664	27.9%
S3.5	Waste generated in operations	35	19	-44.1%
S3.6	Business travel	16	17	10.1%
S3.7	Employee commuting (& remote working)	49	110	125.2%
S3.8	Upstream leased assets	1	excluded	N/A
S3.9	Downstream transportation and distribution	excluded	912	N/A
Total		8,933.5	5,365.9	-39.9

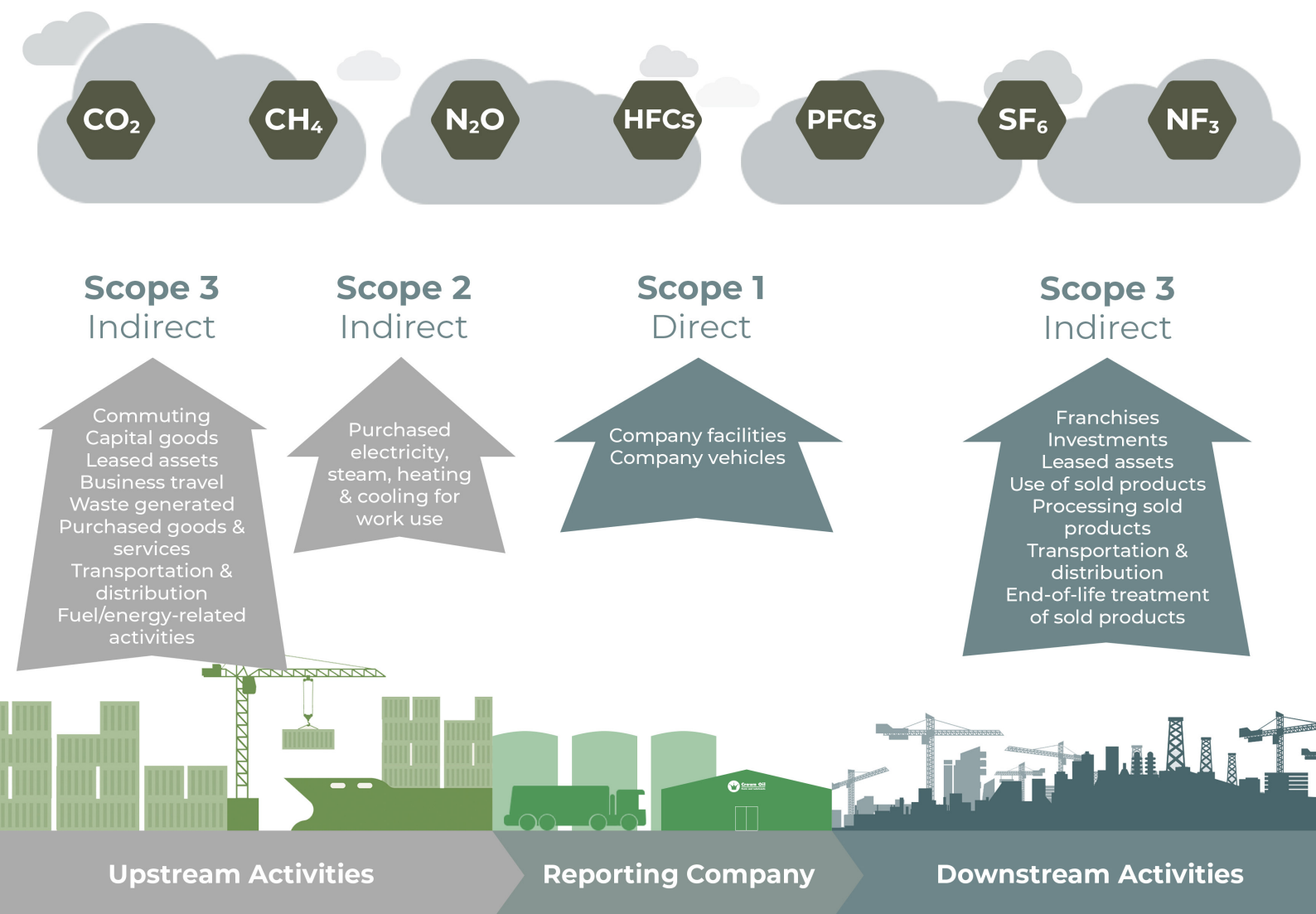
A business carbon assessment is based on data categorised into three scopes, as defined by The Greenhouse Protocol. For each year, the assessment provides detailed quantification of GHG emissions due to:

- **Scope 1:** Direct emissions such as those arising from business travel in company controlled or owned vehicles and fuel consumption by heating
- **Scope 2:** Indirect emissions from purchased electricity usage
- **Scope 3:** Other indirect emissions. This includes usage of water, business travelling, waste disposal, transportation and distribution, and the use of supplies such as food and drink

Appreciating the importance of determining major contributors to the emissions, Tunley Engineering has provided detailed analysis and discussion on different components in each scope to support us in our decision making processes to reduce our carbon emissions.

The carbon emission calculations have been completed in accordance with ISO 14064-1. Following the GHG Protocol, all three scopes of emissions are reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain Standard. Figure 1 presents all the business activities to be quantified from a carbon assessment.

Fig 1: An overview of the GHG Protocol scopes and emissions across an entire value chain



Carbon emissions methodology

Carbon emissions context

Carbon dioxide (CO₂) and other greenhouse gasses (GHG) must be reduced to avoid the devastating impact from climate change. From local commitments (such as the Greater Manchester's commitment to zero carbon by 2038) to global commitments (such as the Paris Agreement), it's more important than ever for business to reduce their GHG emissions.

We are committed to making significant changes to our business in order to become more sustainable and reduce emissions. To do this, we:

- calculate our carbon footprint per year
- offset these emissions to become carbon neutral
- plan to reduce emissions in the future with aspirations to achieving Net Zero direct emissions

It's important to understand the phrases often used for sustainability and carbon reduction:

Carbon Neutral

Being carbon neutral is to balance carbon emissions with an equivalent amount sequestered or offset. Thus, it's often achieved by calculating the total amount of GHG emissions produced per year and this amount is offset through credits to make up the difference between its emissions and a zero-carbon baseline.

According to PAS 2060:2014, carbon neutral is:

“ A condition in which during a specified period there has been no net increase in the global emission of greenhouse gases to the atmosphere as a result of the greenhouse gas emissions associated with the subject during the same period. ”

Net Zero Carbon

Becoming Net Zero is the goal every company should aspire to. It refers to balancing the amount of emitted GHG emissions with the equivalent emissions through offsets or sequestration. However, this should primarily be achieved through a reduction in the amount of GHG emissions produced. Offsets are required when the GHG emissions cannot be reduced any further.

Crown Oil Ltd is a carbon neutral company and aims to achieve Net Zero Scope 1 & 2 emissions by 2030.



Business Activities

A business carbon assessment is based on data categorised into three scopes, as defined by The Greenhouse Protocol. For each year, the assessment provides detailed quantification of GHG emissions due to:

Scope 1: Direct emissions:

- Stationary combustion of fuels e.g. burning natural gas for heating
- Mobile combustion of fuels e.g. burning diesel in company owned vehicles
- F-gases emitted to the atmosphere e.g. refrigerant leaks from air conditioning

Scope 2: indirect emissions from using energy:

- The emissions produced from the generation of purchased electricity used

Scope 3: Other indirect emissions:

- This includes both upstream and downstream business activities from a total of 15 business categories. For example, usage of water, business travelling, waste disposal, transportation and distribution, and the use of supplies such as food and drink

Exclusions

In accordance with guidelines that ensures the carbon neutrality statement does not hide or omit important information, the business activities that are excluded from the business carbon footprint are:

3.8 – Upstream Leased Assets
3.10 – Processing of Sold Products
3.11 – Use of Sold Products
3.12 – End of Life Treatment of Sold Products

3.13 – Downstream Leased Assets
3.14 – Franchises
3.15 – Investments

The decision to omit some scope 3 emission activities was chosen to ensure the accuracy of the carbon assessment. In this report, scope 3 GHG emissions are estimated from factual data collected only.

Further, the global carbon footprint must represent a relevant baseline to our current operation. This approach is in-line with draft guidance from the Science Based Targets institute (SBTi) for the oil & gas industry, which identifies the scope of emissions for downstream distribution companies such as Crown Oil Ltd.



Limitations

It's important to understand the limitations of the carbon assessment that are inherently created by the use of certain assumptions required to calculate the GHG emissions. These assumptions and limitations are inevitable and essential when suitable quantified data is unavailable. The limitations undertaken to complete this assessment are as follows:

Estimated Data Used from Assumptions in Place of Primary Data

In certain circumstances, the data required to calculate the GHG emissions were unavailable. For example, the amount of kerosene used at the Oil Centre for heating is unknown because we use our own kerosene supplies and do not record fillings. Therefore, it's estimated that an additional 5,000 litres of kerosene are used for stationary combustion.

The assumptions are noted within Appendix A: GHG Emissions Methodology and Assessment for each subcategory.

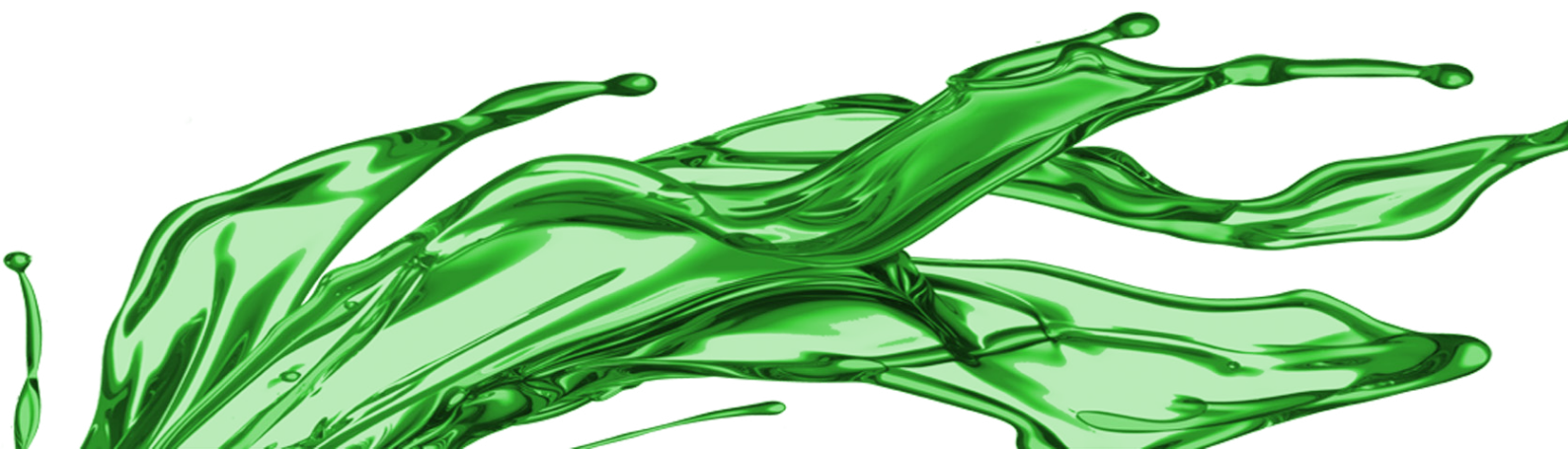
Spend Based Emission Calculations

Primary data that accurately measures the amount (in terms of weights and volumes) of business activities conducted was used where available. However, for the purchased goods and services and capitals costs, the data available was in costs instead of amounts. This means the spend based methodology was used reducing the accuracy of the emission calculations.

For example, for office supplies, the amount of money spent on paper was used to calculate the emissions instead of amount of paper purchased. It is beneficial that emissions from the top 20% of suppliers for purchased goods and services are based on quantity of goods/services in place of spend; however, the current approach is appropriate for the large scale of accounts in place.

Emissions Based of Average Emission Factors

Currently, the emission factors used are best available from DEFRA 2022. For certain business activities, emission factors can vary significantly based on suppliers. For example, stainless steel from a supplier in China could be significantly worse than that from a supplier in Europe depending on multiple factors. Therefore, it is beneficial to begin working with the top 20% of suppliers used to collect accurate emission factors to improve accuracy and reduce emissions from collaboration on joint incentives.



Crown Oil's Carbon Footprint

GHG Emissions Summary

In the financial year 2021/22, we have reduced our GHG emissions by 3,568 tCO₂e per annum (p.a.) in comparison to the 2020/21 baseline.

For the 12-month period from 1st of August 2021 to the 31st of July 2022, our carbon footprint was calculated to be 5,366 tCO₂e per year.

Table 3 provides a summary of the carbon footprint in the financial year 2021/22 in comparison to the baseline 2020/21.

It's important to set an emissions scope boundary in accordance with the operational control approach previously stated.

Figure 1 presented these boundaries for the quantification of our GHG emissions.

Table 3: A summary of Crown Oil Ltd's GHG emissions per financial year

Summary table		
GHG Emissions (tCO ₂ e per annum)		
Scope	Baseline year FY20/21	FY21/22
Scope 1	2,844	343
Scope 2	201	156
Scope 3	5,889	4,868
Total	8,934	5,366

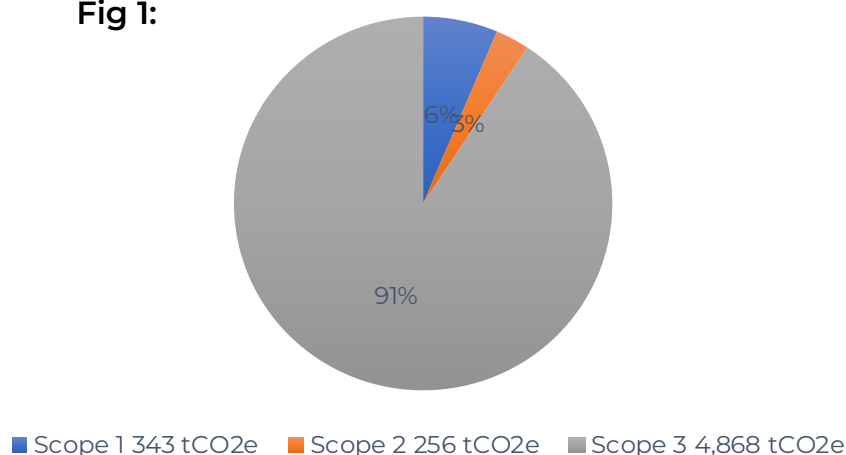
Figure 1 shows the 5,366 tCO₂e p.a. as percentage contributions per scope as defined by the GHG Protocol. It shows that we produce GHG emissions directly in our boundary as scope 1 direct emissions, constitute 6.39% of the carbon footprint at 343 tCO₂e per annum.

Scope 2 indirect emissions from purchased electricity, constitutes another proportion of our emissions, making up 156 tCO₂e per annum.

Finally, scope 3 contributes the largest proportion of emissions, totalling 90.7% of the total footprint, showing the majority of our GHG total is from indirect emissions caused as consequences of our activities.

The carbon emissions in tCO₂e for the FY 2021/22 by percentage contribution per scope as defined by the GHG protocol.

Fig 1:

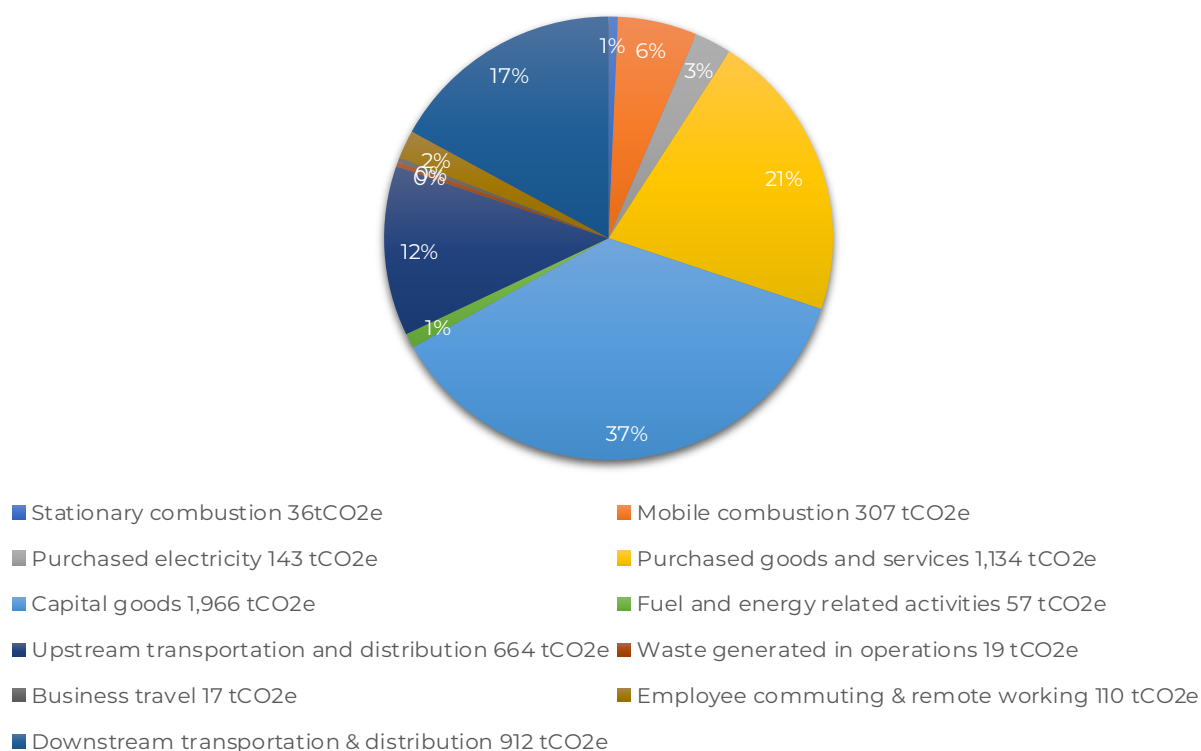


Granularity of GHG emissions

To provide greater granularity and detail of our GHG emission sources and to allow for the development of a carbon reduction plan, the distribution of GHG emissions from the emission sources of business activities are presented. Firstly, the total emissions per business activity are analysed, followed by further detail.

The below figure provides a detailed breakdown of the emissions from our business activities. The emissions are divided between many activities found in all three scopes. Here, scope 1 includes stationary and mobile combustion, electricity is the only source from scope 2, and the remaining are scope 3 emissions.

Fig 2: CO₂ emissions in tCO₂e p.a by percentage contribution per business activity



Scope 1

The direct GHG emissions we produce and release include three major subcategories within scope 1.

The first is stationary combustion of fuels within our facilities, for example burning natural gas in boilers to provide heating.

We contribute to just 36.1 tCO₂e p.a. from stationary combustion at the Oil Centre and at Bridge House. At the Oil Centre, kerosene is used for heating and the jet wash, contributing to 12.9 tCO₂e in the FY21/22.

Additionally, petrol is used to power the compressor, producing a further 3.0 tCO₂e p.a. at the Oil Centre.

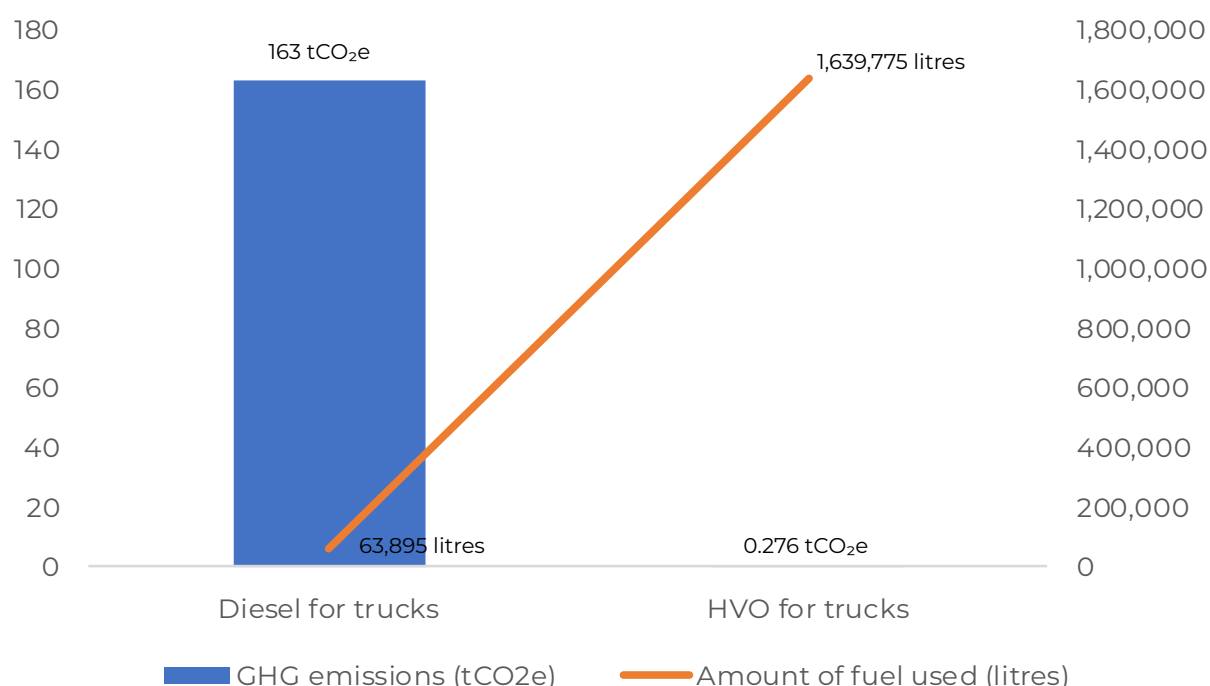
Whereas, at the Bridge House, natural gas is combusted in the boiler to provide heating, releasing 20.2 tCO₂e per year.

Mobile combustion from company-owned (or leased) vehicles is the subcategory that contributed to the largest amount of GHG emissions in scope 1.

This is due to our large fleet of vehicles used to transport and distribute oil-based products across the UK. Our transport fleet includes cars, vans, trucks and tankers which use either Hydrotreated Vegetable Oil (HVO) or diesel. Just over half (163 tCO₂e out of 307 tCO₂e) of the emissions released from mobile combustion are from the use of fuels in our trucks.

The below figure presents the amount of fuel used in the trucks in comparison to the GHG emissions released by using each fuel. We use significantly more HVO than diesel, yet the use of diesel is responsible for 99.8% from our use of trucks.

Fig 3: The GHG emissions produced by the fuel used in the trucks in comparison to the amount of fuel used



The final subcategory within scope 1 emissions is fugitive emissions from refrigeration gases from air conditioning and heat pumps within our facilities. These refrigerants are GHGs themselves with the global warming potential calculated based on its impact by comparison to carbon dioxide.

For example, R134a (one of the most common refrigerants used) has a GWP of 1430 kgCO₂e. Every 1 kg of R134a leaked into the atmosphere is equivalent to 1 kg of carbon dioxide. In the financial year 2021/22, we reported to refrigerant leaks or air conditioning top up. Therefore, we produced zero emissions from fugitive emissions. However, it's vital that we record any known leaks and the amount of refrigerant gases that are used to top up the systems during maintenance each year.

Scope 2

Our scope 2 emissions make up 2.66% of overall GHG emissions: with all the emissions coming from purchased electricity; 143 tCO₂e per year.

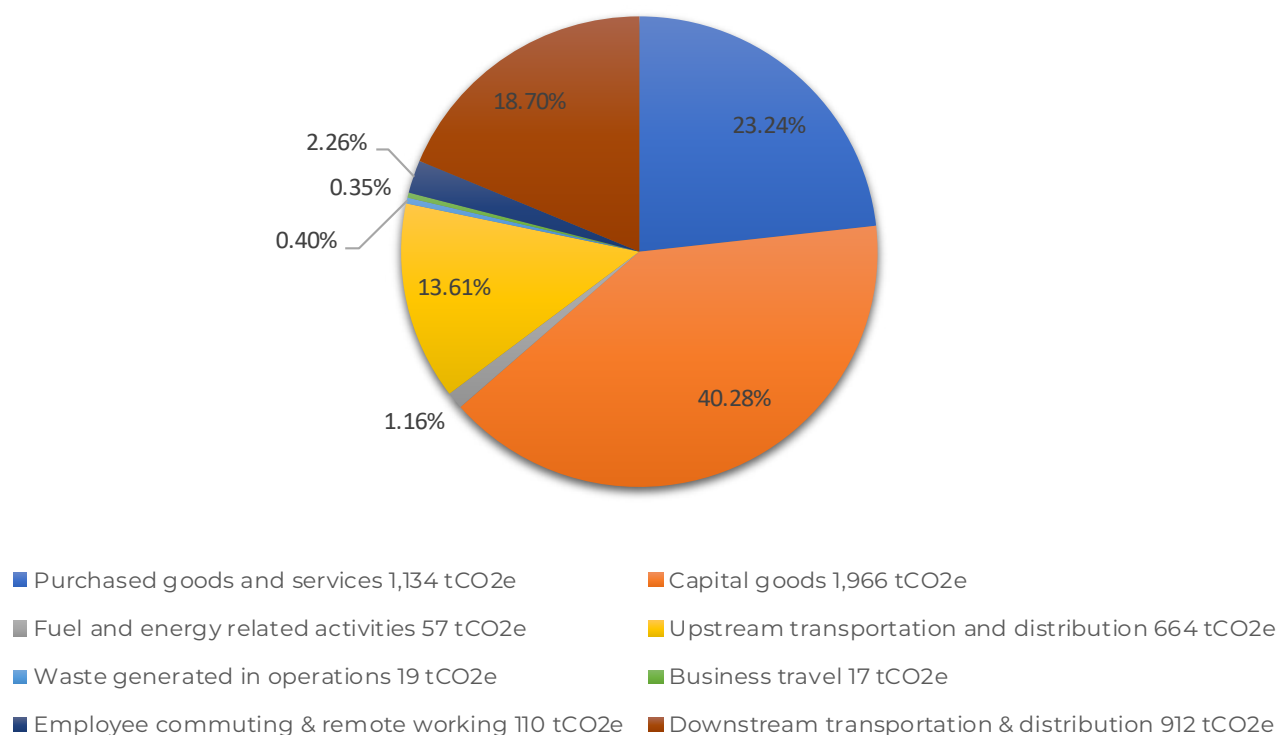
Scope 3

The GHG emissions that we produce indirectly (excluding scope 2) are our scope 3 emissions. This includes all business activities from both upstream and downstream business activities as per the fifteen subcategories given by the GHG protocol.

In total, scope 3 emissions are responsible for 90.7% (4,868 tCO₂e p.a.) of our carbon footprint, with a significant proportion being from Capital Goods and Purchased Goods and Services; 3,100 tCO₂e per year.

A breakdown of the eight (seven excluded categories) applicable subcategories within scope 3 counted in our carbon footprint is shown in figure 4.

Fig 4: A breakdown of Crown Oil's scope 3 emissions



Comparison to the Baseline Footprint

The financial year 2021/22 is Crown Oil Ltd's second business carbon assessment. The first was completed for the 12-month period from 1st August 2020 to the 31st July 2021, providing a baseline value of 8,934 tCO₂e per year.

The baseline assessment has established the environmental impact from carbon emissions, enabling the identification of carbon hotspots. The baseline enables performance monitoring to assess our environmental responsibility. Altogether the baseline:

- Creates a reference level against which future performance can be compared with respect to the desired outcome
- Assists with finding carbon emissions hotspots, on which to focus efforts to reduce emissions
- Transparently states any assumptions used to fill data gaps and the limitations this may have on the relevance of the baseline
- Follows the principles of GHG emissions quantification to be followed during this carbon assessment (FY 2021/22) and future assessments
- Follows a process of continual improvement to ensure future baselines reflect current good practices in GHG emissions quantification

A breakdown of GHG emissions in the baseline FY 2020/21 is compared to the current assessment (FY 2021/22) in Table 5.

It is clear to see that we are actively reducing our emissions as our total carbon footprint has decreased by 39.9% in one year since the baseline was completed.

Table 5 shows a significant reduction in S1.2 Mobile Combustion, S3.1 Purchased Goods and Services, and S3.3 Fuel and Energy Related Activities (not included in S1 and S2). Further information regarding the changes in each subcategory for the FY 2021/22 in comparison to the baseline is reviewed within the detailed results, presented in Appendix A: GHG Emissions Methodology and Assessment.

Plus, we have significantly reduced GHG emissions from mobile combustion by 89.1% in comparison to the FY20/21 baseline.

This has been due to a significant decrease in the amount of diesel used due to replacement with Hydrotreated Vegetable Oil (HVO).

What is HVO?

HVO is a biodiesel which is a direct substitute for diesel, with a significantly lower emission factor, and therefore enables lower carbon emissions (Table 3). HVO is derived from waste oils and crops to produce vegetable oil which is then hydrotreated to make biodiesel. Table 2 shows the emission factor for HVO as provided by both DERA and our current HVO supplier.

Emission factors for fuels have two key components. The emission factor at end use from combusting the fuel (scope 1) and emission factor for 'well-to-tank' so called as it accounts for the additional emissions to extract, process and transport fuels to the end-user (scope 3). The supplier calculates the emission factor for end use of HVO based on real data and calculations that follow mass balance equations.

Table 4: Emission factors for fuels used for mobile combustion as provided by DEFRA and supplier data

Fuel	Use of fuel kgCO₂e/ litre	Well to tank kgCO₂e/ litre	Total kgCO₂e/litre
Diesel	2.55784	0.60986	3.16770
HVO	0.03558	0.35178	0.38736
HVO (supplier data)	0.00024	0.35178	0.35202

Table 5: Crown Oil Ltd's GHG emissions breakdown in FY20/21 and FY21/22

Scope	Category	FY20/21 tCO₂e p.a	FY21/22 tCO₂e p.a	% Change tCO₂e p.a
S1.1	Stationary combustion	24	36	49.65
S1.2	Mobile combustion	2,812	307	-89.10
S1.3	Refrigerants	8	0	-100.00
S2.1	Purchased heat	21	0	-100.00
S2.2	Purchased electricity	179	143	-20.57
S3.1	Purchased goods & services	2,976	1,134	-61.9%
S3.2	Capital goods	944	1,966	108.2%
S3.3	Fuel and energy related activities not included in S1 or S2	946	57	-94.0%
S3.4	Upstream transportation and distribution	921	664	27.9%
S3.5	Waste generated in operations	35	19	-44.1%
S3.6	Business travel	16	17	10.1%
S3.7	Employee commuting (& remote working)	49	110	125.2%
S3.8	Upstream leased assets	1	excluded	N/A
S3.9	Downstream transportation and distribution	excluded	912	N/A
S3.10	Processing of sold products	excluded	excluded	N/A
S3.11	Use of sold products	excluded	excluded	N/A
S3.12	End of life treatment of sold products	excluded	excluded	N/A
S3.13	Downstream leased assets	0	excluded	N/A
S3.14	Franchises	excluded	excluded	N/A
S3.15	Investments	excluded	excluded	N/A
Total		8,933.5	5,365.9	-39.9

Emissions Intensity Ratio

We previously chose to compare GHG emissions annually based on business performance using per million litres of product delivered as an intensity ratio.

Table 6 presents the results in the financial year 2021/22 in comparison to that calculated for the baseline.

This intensity ratio is expressed as tonnes of carbon dioxide equivalent per million litres of product sold (tCO₂e/ML). The intensity ratio has reduced by 48.6% due to their carbon footprint decreasing significantly, while simultaneously increasing the total amount of products delivered.

Table 6: Crown Oil Ltd's carbon intensity ratio

	FY20/21	FY21/22
Carbon footprint (tCO ₂ e)	8,934	5,366
Total product delivered	487,800,727	570,785,377
Carbon intensity (tCO ₂ e/ML)	18.3	9.40



Crown Oil
Fuels and Lubricants

Carbon Reduction Opportunities

We are already actively reducing our GHG emissions, resulting in a reduction of 3,568 tCO₂e, primarily due to the substitution of diesel with Hydrotreated Vegetable Oil (HVO).

Turnley Engineering believes that Crown Oil Ltd can become Net Zero Carbon by 2030. To achieve this, we must reduce carbon emissions using all the feasible reduction opportunities, and then offset the remaining emissions.

Here is our roadmap to Net Zero Scope 1 & 2 emissions.

Fig 5: Crown Oil's roadmap to Net Zero

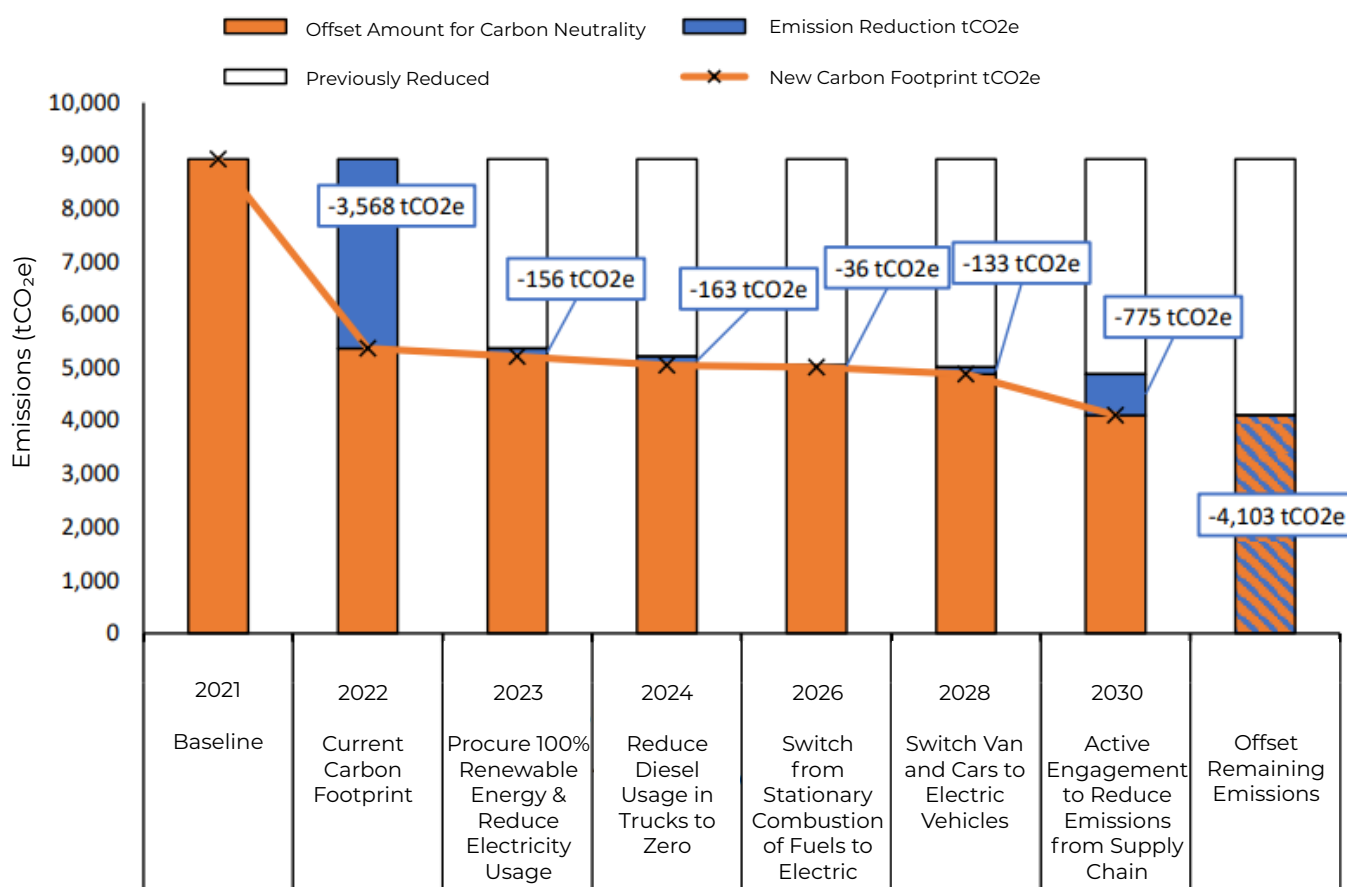



Figure 5 outlines the chosen carbon reduction strategies that will enable us to become Net Zero Carbon. From the 2021 baseline, 54.1% of the total emissions can be reduced through the implementation of the strategic carbon reduction initiatives.

Activities such as raising carbon awareness and the implementation of supplier requirements to include a carbon reduction plan in procurement terms are becoming increasingly popular. The necessary residual emissions that remain could be offset to achieve net zero carbon.



We have previously set carbon reduction targets to reduce scope 1 and 2 emissions to zero, then subsequently develop a scope 3 reduction target.

Specific projects to achieve these goals include:

- Switching all fleet fuel from diesel to renewable HVO fuel
- Switching van and car fleet vehicles to electric
- Using heat recovery ventilation systems
- Installing onsite Solar PV
- Improving heating controls
- Switching from oil to electric heating
- Switching yard equipment (such as forklifts) to electric
- Installing additional insulation and draught proofing
- Upgrades to fuel pump motors
- Replacement of lighting with LED lights
- Installation of automatic lighting controls

While these projects are very important in terms of energy saving and reducing scope 1 and 2 emissions, the Baseline report has shown that these projects would reduce GHG emissions by just 29.4%.

Therefore, it is recommended that we develop a scope 3 reduction program by collecting scope 3 data in more detail.

Currently, the spend-based method is used to calculate GHG emissions from purchased goods and services and capital goods.

Although this method is considered appropriate for this carbon assessment, it does not provide the granularity required to develop a targeted carbon reduction plan for scope 3 emissions.

A more targeted reduction plan can be developed once primary data for scope 3 business activities (such as waste disposal, business travel and material usage) are obtained.

The following opportunities could further significantly reduce emissions in the future:



Zero Waste to Landfill

We could actively reduce waste and seek independent verification by The Carbon Trust to provide certification for Zero Waste to Landfill. Our ultimate goal is to ensure 99% of our waste is either reused, recycled, composted or used for energy recovery. For many companies, the achievement of zero waste to landfill results in large reductions of our GHG emissions.



Currently, it is estimated that Crown Oil Ltd produces 377 tonnes of waste per year with only 10.2 tonnes sent to landfill. Currently, this waste to landfill is responsible for 4.74 tCO₂e per year. We will look to ensure this waste is either reused, recycled, composted or sent to energy recovery to reduce emissions to just 0.22 tCO₂e per year.

Reducing Emissions from Business Travel



Crown Oil Ltd currently releases 4.16 tCO₂e from business travel in private vehicles. We are exploring providing incentives to conduct business travel via public transport such as trains. Additionally, business travel could be further reduced by increasing the amount of meeting conducted virtually. As many meetings are already virtual, a target of 25% reduction of in person meetings is recommended.

Low Carbon Suppliers

The most important initiative for us to consider is to use low carbon suppliers, or encourage current suppliers to reduce their CO₂ emissions. Currently, the emissions that suppliers produce from manufacturing products sold to Crown Oil Ltd account for 57.8% of its emissions, emitting 3,100 tCO₂e per year. Therefore, it is of utmost importance to reduce this amount by actively pushing suppliers to reduce their CO₂ emissions, or to procure low carbon suppliers.



For example, low carbon stainless steel is available, and timber should be sourced from a FSC certified supplier making the timber purchased a carbon store. FSC certified timber would reduce the GHG emissions from timber past zero to a negative value that sequesters GHG emissions.

It is incredibly important for us to develop supplier relationships so that together, we can collaborate and work on carbon reduction opportunities across the whole supply chain.

Carbon offsetting

For the purposes of achieving “Carbon Neutral” to PAS 2060 in the financial year 2021/22, the following verified offsets were purchased:

Table 6: Offsets purchased to become carbon neutral for the FY21/22

Project name	Mai Ndombe REDD+	Southern Caradmom REDD+	Three Gorges New Energy
Country	Congo - Kinshasa	Cambodia	China
Project type	Reduced emissions from deforestation and degradation	Reduced emissions from deforestation and degradation	100MW solar power project
Verified standard	Verified Carbon Standard (VCS)	Verified Carbon Standard (VCS)	Verified Carbon Standard (VCS)
Project ID	Project 934	Project 1748	Project 1444
Order description	Scope 1 emissions	Scope 2 emissions	Scope 3 emissions
tCO ₂ e offsets purchased	343	156	4,868



Date: 2022-01-03

Serial number: 000-1114-106

Carbon Compensation Confirmation

Emissions addressed:

343.00 tonnes of CO₂e

Project information

Mai Ndombe REDD+ , Congo - Kinshasa

On behalf of

Crown Oil

Crown Oil, The Oil Centre, Heap Bridge, . BURY, GB

Order name: Crown Oil Group

Description: Scope 1 emissions

Status: Reserved, pending retirement



Approved by Andreas Stahndl, CEO

Andreas Stahndl

CEO/POB



Date 2023-01-03

Serial number 233-1114-107

Carbon Compensation Confirmation

Emissions addressed:

156.00 tonnes of CO₂e

Project information

Southern Cardamom REDD+, Cambodia

On behalf of

Crown Oil

Crown Oil, The Oil Centre, Heap
Bridge, , BURY, GB

Order name: Crown Oil Group

Description: Scope 2 emissions

Status: Reserved, pending retirement



Approved by Andreas Slettvoll, CEO

A Slettvoll
CEO



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Carbon Compensation Confirmation

Emissions addressed:

4,868 tonnes of CO₂e

Project information

Three Gorges New Energy, China

On behalf of

Crown Oil

Crown Oil, The Oil Centre, Heap
Bridge, , BURY, GB

Order name: Crown Oil Group

Description: Scope 3 emissions

Status: Reserved, pending retirement



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Appendix A

GHG Emissions Methodology and Assessment

To ensure full transparency, the full methodology and assessment is presented in this section as a summary for each subcategory. To begin, an inventory scope was completed to ensure all sub-categories have been considered with justification when deemed “out of scope”.

Table 7: The inventory scope for Crown Oil Ltd’s carbon assessment in the FY21/22

Category	in scope?	Justification if out of scope
S1.1: Stationary combustion	In	
S1.2: Mobile combustion	In	
S2.1: Refrigerants	In	
S2.2: Purchased electricity	In	
S3.1: Purchased goods & services	In	
S3.2: Capital goods	In	
S3.3: Fuel & energy related activities not included in S1 & S2	In	
S3.4: Upstream transportation & distribution	In	
S3.5: Waste generated in operations	In	
S3.6: Business travel	In	
S3.7: Employee commuting (& remote working)	In	
S3.8: Upstream leased assets	Out	Buildings leased by Crown Oil included in scope 1 and scope 2 categories
S3.9: Downstream transportation & distribution	In	
S3.10: Processing of sold products	Out	Little to no downstream processing of sold products, no control
S3.11: Use of sold products	Out	Minimal stake compared to product value (<5%), and limited control
S3.12: End of life treatment of sold products	Out	As per 3-11
S3.13: Downstream leased assets	Out	Crown Oil lease tanks to customers with limited control
S3.14: Franchises	Out	No franchises in the business

S3.15: Investments	Out	No significant active revenue investments
GHG Emissions Scope	1	
Scope Sub Category	S1.1	Stationary Combustion
Emission Source Description	Fuel used directly in stationary combustion e.g. natural gas for heating and diesel used in industrial machines	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	4	The Crown Group including Crown Oil, Speedy Fuels, Beesley Fuels
Sites	1	The Oil Centre
GHG Emissions	36.1	tCO ₂ e
% of Carbon Footprint	1%	
Description of Data	The Oil Centre using kerosene for heating (estimated usage) and for the jet washer. Unleaded petrol is also used for the compressor at the Oil Centre. Natural gas is also used at Bridge House for heating by stationary combustion. However, Bridge House is a leased facility where heating is included with the rent with no heating (electricity has sub metering). Therefore, the kWh value is estimated from the heating charged per year.	
Recommendations	It is essential that records are up to date to ensure the amount of fuel used at all sites are updated or collected automatically. Concerns are with the amount of kerosene used for the heating at the Oil Centre. HVO is also used within the Oil Centre for stationary combustion however due to double counting this is reported with the remaining HVO emissions in mobile combustion.	
Variations to Last Year	Emissions from stationary combustion have increased by 12.0 tCO ₂ e (+3%), which could be considered within the variation of measurement. This is an insignificant increase that is expected as reduction opportunities have not been implemented for stationary combustion. In terms of the business activities, nothing has changed. Except this year, the heating at Bridge House impacts stationary combustion (S1.1) and not purchased heat (S2.1).	

GHG Emissions Scope	1	
Scope Sub Category	S1.2	Mobile Combustion
Emission Source Description	Fuel used directly in mobile combustion in company-owned vehicles. For example, diesel used in forklifts.	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	5	The Crown Group including Crown Oil, Speedy, Beesley Fuels, Enviro and Crown Energy.
Sites	2	Fleet and the Oil Centre
GHG Emissions	306.51%	tCO ₂ e
% of Carbon Footprint	6%	
Description of Data	The Crown Group uses a significant amount of fuel for mobile combustion across the whole company. Fuel is burnt for mobile combustion on site at the oil centre using forklifts and the shunt, across the globe in the truck fleet, and from use of company-owned cars. A detailed breakdown of the emissions from mobile combustion can be seen in the report. However, the majority of these emissions (80%) are from the fleet of trucks used within the business.	
Recommendations	In comparison to last year, the emissions have been reduced by 89.1% due to the significant decrease in diesel used for the fleet as this has been replaced with HVO usage. This is more impressive when Mobile Combustion (S1.2) now includes the usage of company owned cars, forklifts, shunt vehicles and the van fleet. This is an improvement in GHG emissions and data collection as mobile combustion is not just the truck fleet this year.	
GHG Emissions Scope	1	
Scope Sub Category	S1.3	Refrigerants
Emission Source Description	Refrigerants used in air conditioning units and refrigeration equipment	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	0	

Sites	0	
GHG Emissions	0.00	tCO ₂ e
% of Carbon Footprint	0%	
Description of Data	Refrigerants are present within air conditioning units at office locations. Maintenance records have shown that the AC units did not require any top ups this year. Therefore, it is assumed zero refrigerants have leaked into the atmosphere.	
Recommendations	It is essential that maintenance records include refrigerant leakage. Top up values must be recorded to know how much refrigerant was leaked. Small amounts of leakage will occur during a year even without top up. However, it is assumed that these will be counted when the AC units are topped up and accounted for in a year instead of spreading out over a longer time frame.	
Variations to Last Year	In comparison to last year, the emissions have been reduced to zero. This pattern of emissions will continue as small amounts of leakage is inevitable so some years will require a top up and some years will not.	
GHG Emissions Scope	2	
Scope Sub Category	S2.1	Purchased heat
Emission Source Description	Heat purchased (e.g. steam)	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	0	
Sites	0	
GHG Emissions	0.00	tCO ₂ e
% of Carbon Footprint	0%	
Description of Data	Crown do not purchase heat as all the heat in the offices is generated on site within the system boundary.	
Recommendations		

Variations to Last Year	In comparison to last year, the emissions have been reduced to zero. This is because the heating at Bridge House is now accounted for under Stationary Combustion (S1.1). This change has been made because the heating at Bridge House is generated by the combustion of natural gas that is purchased within the rental contract. The heat is generated within the system boundary. Alternatively, the limited control could allow for this to be categorised as Upstream Leased Assets (S3.8) because Bridge House is leased.	
GHG Emissions Scope	2	
Scope Sub Category	S2.2	Purchased electricity
Emission Source Description	Electricity purchased	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	4	The Crown Group including Crown Oil, Speedy, Beesley Fuels.
Sites	8	Oldbury, Bridge House, Crown House, Crown Point, Doncaster, The Oil Centre, Iver, Rainham
GHG Emissions	142.54	tCO ₂ e
% of Carbon Footprint	2.66%	
Description of Data	Electricity use was collected from electricity invoices, so the amount used were accurately known. A few exceptions had to have the amount of electricity purchased estimated from the cost of electricity.	
Recommendations	GHG emissions from the generation of electricity can be saved by moving all electricity tariffs to an Ofgem certified eco-tariff.	
Variations to Last Year	In comparison to last year, the emissions have been reduced by 20.6%. This is primarily because the amount of electricity used has decreased from 845,118 kWh to 737,101 kWh. Additionally, the UK national grid used more renewable energy sources causing the emission factor to decrease.	
GHG Emissions Scope	3	
Scope Sub Category	S3.1	Purchased Goods & Services

Emission Source Description	The GHG emissions produced from the manufacture of the goods and services (from extracting raw materials to transportation) used by Crown Oil.	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	5	The Crown Group including Crown Oil, Speedy, Beesley Fuels, Enviro and Crown Energy
Sites	8	Oldbury, Bridge House, Crown House, Crown Point, Doncaster, The Oil Centre, Iver, Rainham
GHG Emissions	1,134.33	tCO ₂ e
& of Carbon Footprint	21%	
Description of Data		
Recommendations	Although the breakdown of the accounts was very detailed, the emission factors used were unspecific and based on costs from categories. Therefore, it would be recommended to begin collecting data on supplier specific purchased goods starting from highest spends.	
Variations to Last Year	In comparison to last year, emissions from purchased goods and services have decreased by 61.45%. This is primarily because the total spend on Purchased Goods and Services has decreased from £8.1 million to £4.4 million.	
GHG Emissions Scope	3	
Scope Sub Category	S3.2	Capital goods
Emission Source Description	The GHG emissions produced from the manufacture of the capital goods (from extracting raw materials to transportation) purchased by Crown Oil (e.g. equipment and machinery).	

Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	5	The Crown Group including Crown Oil, Speedy, Beesley Fuels, Enviro and Crown Energy
Sites	8	Oldbury, Bridge House, Crown House, Crown Point, Doncaster, The Oil Centre, Iver, Rainham
GHG Emissions	1,966.11	tCO ₂ e
% of Carbon Footprint	37%	
Description of Data	Data was provided by the accounts for the spend from each of the five businesses (Beesley Fuels, Crown Oil, Environmental, Nationwide, and Speedy Fuels). Therefore, the spend-based method was used with emission factors from DEFRA	
Recommendations	Although the breakdown of the accounts were very detailed, the emission factors used were unspecific and based on costs from categories. Therefore, it would be recommended to begin collecting data on supplier specific capital goods starting from highest spends.	
Variations to Last Year	In comparison to last year, emissions from capital goods increased by 108%. This is primarily because the total spend on capital goods increased from £2.8 million to £3.5 million	
GHG Emissions Scope	3	
Scope Sub Category	S3.3	Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2
Emission Source Description	The GHG emissions produced from upstream generation of fuel and energy. This includes the well-to-tank emissions from producing fuels and the transmission and distribution losses for electricity.	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	5	The Crown Group including Crown Oil, Speedy, Beesley Fuels, Enviro and Crown Energy.

Sites	8	Oldbury, Bridge House, Crown House, Crown Point, Doncaster, The Oil Centre, Iver, Rainham, and the Fleets
GHG Emissions	56.84	tCO ₂ e
% of Carbon Footprint	1%	
Description of Data	This is all of the data collected for S1.1, S1.2 and S2.2.	
Recommendations	Instead of using the DEFRA value for well-to-tank for HVO it would better to use the supplier values.	
Variations to Last Year	In comparison to last year, emissions decreased by 47.58%. This is primarily because the amount of fuel and energy used has decreased due to the increase in use of HVO.	
GHG Emissions Scope	3	
Scope Sub Category	S3.4	Upstream transportation and distribution
Emission Source Description	The GHG emissions produced from the transportation and distribution between suppliers and Crown Oil. This includes the freighting of foods inbound to Crown Oil and within company facilities.	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies		
Sites		
GHG Emissions	664.10	tCO ₂ e
% of Carbon Footprint	12%	
Description of Data	This data was collected within three main spreadsheets. The main is the vessel data that provides information on freights in cargo ships from Amsterdam, Rotterdam and Antwerp. The other data is from the inter movement of good between facilities using HGVs.	
Recommendations	Increase communication with suppliers to engage in optimisation strategies to ensure freighting distances are reduced to a minimum.	

Variations to Last Year	This cannot be compared to last year as the data was not previously calculated.	
GHG Emissions Scope	3	
Scope Sub Category	S3.5	Waste generated in operations
Emission Source Description	The GHG emissions produced from disposal and treatment of waste.	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	4	Crown Oil, Environmental, Speedy Fuels and Beesley Fuels
Sites	4	The Oil Centre, Iver, Rainham and Oldbury
GHG Emissions	19.31	tCO ₂ e
% of Carbon Footprint	0.36%	
Description of Data	Waste providers typically provide quantity of waste reports in tonnes, m3 or number of skips with an average recycled content ratio. Where only volume is known, this has been converted to tonnes by estimation.	
Recommendations	Aim to reduce emissions from waste generated by seeking independent verification by The Carbon Trust to provide certification for Zero Waste to Landfill. This initiative will be made possible by using a common waste provider across the businesses and standardise waste reporting, particularly with traceable waste and recycling streams if possible	
Variations to Last Year	In comparison to last year, emissions decreased by 44.04%. This is primarily because the amount of waste has decreased.	
GHG Emissions Scope	3	
Scope Sub Category	S3.6	Business travel
Emission Source Description	The GHG emissions produced from employees travelling for business related activities.	
Included in Footprint	Yes	
Companies	5	The Crown Group including Crown Oil, Speedy, Beesley Fuels, Enviro and Crown Energy.

Sites	8	Oldbury, Bridge House, Crown House, Crown Point, Doncaster, The Oil Centre, Iver, Rainham
GHG Emissions	17.09	tCO ₂ e
% of Carbon Footprint	0.32%	
Description of Data	Business travel is recorded as mileage driven by personal vehicles. This category should include taxis, trains, hotels and subsistence; however, this has been identified based on costs in purchased Services on a spend basis within the accounts.	
Recommendations	All business travel including trains, taxis etc. should record distance data e.g., via a travel app to better allow GHG emissions on distance rather than spend. All mileage claims should include car make, model & engine type for more accurate emissions factors.	
Variations to Last Year	In comparison to last year, emissions increase by 10.26%. This is primarily because the number of miles has increased as the country came out of the pandemic.	
GHG Emissions Scope	3	
Scope Sub Category	S3.7	Employee Commuting
Emission Source Reduction	The GHG emissions produced from employees travelling to and from work.	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies	5	The Crown Group including Crown Oil, Speedy, Beesley Fuels, Enviro and Crown Energy.
Sites	8	Oldbury, Bridge House, Crown House, Crown Point, Doncaster, The Oil Centre, Iver, Rainham
GHG Emissions	110.45	tCO ₂ e
% of Carbon Footprint	2.06%	
Description of Data	Employee commuting survey carried out across all businesses. Not captured by all employees, but with 100 respondents, the survey counts for a high proportion of them.	
Recommendations	Incentivise car sharing and cycle to work schemes. Additionally, a salary sacrifice scheme for electric vehicles would reduce emissions from commuting. Future surveys should include more detail regarding the model of the vehicle used for commuting.	

Variations to Last Year	Emissions from employee commuting have increased in comparison to last year due to an increase number of miles driven to work.	
GHG Emissions Scope	3	
Scope Sub Category	S3.9	Downstream transportation & distribution
Emission Source Description	The GHG emissions produced from the transport and distribution of products sold by the company.	
Included in Footprint	Yes	
Year of Reporting	FY 21/22	
Companies		
Sites		
GHG Emissions	912.48	tCO ₂ e
% of Carbon Footprint	17%	
Description of Data	This is the distribution of sold products by third party companies. Crown Oil deliver the majority of their products through company owned delivery vehicles. However, third party distributors are used to enable Crown Oil to cover a larger geographical area of the UK. The data is estimated based on the total number of tankers delivered and the amount of fuel used per tanker delivered using Crown Oil company owned vehicles.	
Recommendations	In the future it would be highly recommended to attempt to collect this information from the third party suppliers.	
Variations to Last Year	In comparison to last year's data, this has changed from S3.4 Upstream Transport and Distribution to S3.9 Downstream Transport and Distribution because it is the delivery of products to customers from Crown Oil using a supplier. The value itself has decreased by 8.92 tCO ₂ e.	
GHG Emissions Scope	3	
Scope Sub Category	S3.11	Use of sold products
Emission Source Description	The GHG emissions produced from end use of goods and services sold by the company.	

Included in Footprint	No	Use of sold products is out of Crown Oil's operational control. This approach is in-line with the draft guidance from the Science Based Targets institute (SBTi) for the Oil & Gas industry, which identifies the scope of emissions for downstream distribution companies such as Crown Oil. From a financial viewpoint, Crown Oil's value stake represents much less than 5% of the sold product and therefore responsibility lies with primary extraction and processing companies. For general information, if use of sold products were to be included it would account for >99% of all company emissions.
Year of Reporting	FY 21/22	
Companies		
Sites		
GHG Emissions	0.00	tCO ₂ e
% of Carbon Footprint	0%	
GHG Emissions Outside of Scope	1,391,966	tCO ₂ e
Description of Data	Collected from the accounts, the total amount of oil delivered is used to calculate an estimation of the emissions based on the assumption each oil is used as expected (i.e., diesel is used for combustion).	



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