South Pole **Climate Solutions**

Final report

# 2022 Greenhouse gas (GHG) accounting report

XO

Reporting Period 01/01/2022 to 31/12/2022

October 2023

south pole
The Climate Company

# Details

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# Acronyms and abbreviations

| | |
|---|---|
| $CH_4$ | Methane |
| $CO_2$ | Carbon dioxide |
| $tCO_2e$ | Tonnes of carbon dioxide equivalent |
| GHG | Greenhouse gases |
| HFCs | Hydrofluorocarbons |
| kg | Kilogram |
| MWh | Megawatt hour |
| $N_2O$ | Nitrous oxide |
| t | tonne |
| UNFCCC | United Nations Framework Convention on Climate Change |
| US | United States |
| WFH | Work-From-Home |
| GJ | Gigajoules |
| CEDA | Comprehensive Environmental Data Archive |
| BEIS | UK Department for Business, Energy & Industrial Strategy |

# Executive summary

This report presents the inventory of XO's operational greenhouse gas (GHG) emissions for the 2022 calendar year, based on its reported data.

An operational control approach was taken for this accounting exercise, meaning emissions for all activities conducted under the control of XO were calculated, using a combination of primary and extrapolated data.

A breakdown of emissions and relevant analysis is provided in this report for key sources of emissions, as per the categorisation specified in the GHG Protocol. All assumptions, data challenges, extrapolations, and limitations are described within this report and its annexes.

Based on the data provided by XO, the total GHG emissions reported for the year 2022 are estimated to be **145,948.81** tonnes of carbon dioxide equivalent ($tCO_2e$). This represents a 1,574.71% increase in emissions from 2021. Scope 3 emissions from the use of sold products was the largest contributor to the footprint, and accounted for 143,949.8 $tCO_2e$), 98.60% of the total footprint. This change was mainly driven by improvements to the quality of data provision for the use of sold products (flight tickets), which prompted a change in methodology to more accurately account for emissions associated with an entire jet flying rather than just emissions generated per passenger.

Key performance indicators (KPIs) are found in Table 1, and an overview of GHG emissions by source is provided in Table 2, Figure 1 and Figure 2. The emissions intensity of XO has increased from 83.50 $tCO_2e$ per employee in 2021 to 1,131.39 $tCO_2e$ per employee in 2022.
Please note that, due to rounding of numbers, the figures in the tables in this report may not add up exactly to the totals provided.

**Table 1: Summary of key performance indicators (KPIs)**

| | | | |
|---|---|---|---|
| **Number of employees** | 129 | **$tCO_2e$/**employee | 1,131.39 |
| **Total area (m2)** | 1076 | **$tCO_2e$/**m2 | 135.64 |

(Source: South Pole, based on XO, 2023)

**Table 2: GHG emissions by scope and greenhouse gas**

| Scope | Total ($tCO_2e$) | Percentage of total (%) |
|---|---|---|
| Scope 1: direct GHG emissions | 0.13 | <0.01% |
| Scope 2: indirect GHG emissions (market based) | 104.70 | 0.07% |
| Dual reporting Scope 2: indirect GHG emissions (location-based[1]) | 104.70 | - |
| Scope 3: other indirect GHG emissions | 145,843.98 | 99.9% |
| Total GHG emissions (market-based) | 145,948.81 | 100% |

(Source: South Pole, based on XO, 2023)

[1] A location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data). A market-based method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice): it derives emission factors from contractual instruments, which include any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation or for unbundled attribute claims (e.g. RECs, GOs, etc.).

As a residual mix emission factor in XO countries is not available, the same emission factor used for location-based estimation has been applied, in line with the GHG Protocol Scope 2 Guidance.

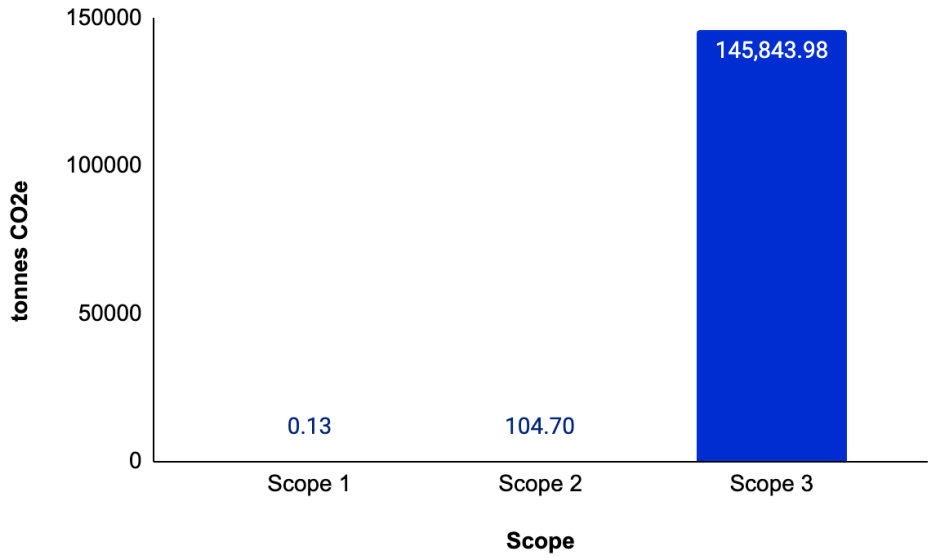


Figure 1: XO's 2022 GHG emissions by scope
(Source: South Pole, based on XO, 2023)

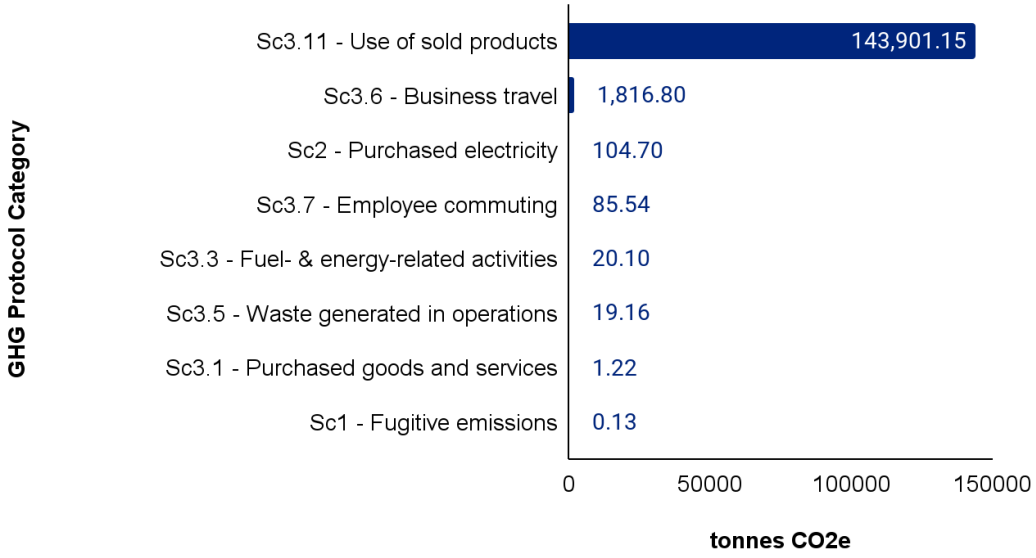


Figure 2: XO's 2022 GHG emissions by GHG protocol category
(Source: South Pole, based on XO, 2023)

# Introduction

Vista Global Holding Limited (Vista), the world's leading global private aviation group, has previously undertaken GHG inventories for 2019, 2020 and 2021. XO was included in the 2021 inventory. This report provides an account of the GHG emissions from XO's global operations from 1st January 2022 to the 31st December 2022, based on reported data by the client. It includes an analysis of key sources of emissions, as well as targeted recommendations focused on data improvement and decarbonisation.

Company information and the reporting period are presented in Table 3.

**Table 3: Company information**

| Company information | |
|---|---|
| Website | https://flyxo.com |
| Business function | Private aviation company |
| Reporting period | January 1 to December 31, 2022 |

(Source: South Pole, based on XO, 2023)

# Methodology

The GHG accounting and reporting procedure is based on the 'The Greenhouse Gas Protocol: GHG Protocol: A Corporate Accounting and Reporting Standard – Revised Edition' (GHG Protocol) and the complementary 'Corporate Value Chain (Scope 3) Accounting and Reporting Standard' – the most widely used international accounting tools for government and business leaders to understand, quantify, and manage GHG emissions. The standards were developed in partnership between the World Resources Institute and the World Business Council for Sustainable Development.

All accounting is based on the principles of the 'GHG Protocol':

- **Relevance:** establishing an appropriate inventory boundary that reflects the GHG emissions of the company and serves the decision-making needs of users;
- **Completeness:** including all emission sources within the chosen inventory boundary. Any specific exclusion is disclosed and specified;
- **Consistency:** ensuring meaningful comparison of information over time and transparently documented changes to the data;
- **Transparency:** guaranteeing data inventory sufficiency and clarity, where relevant issues are addressed in a coherent manner; and
- **Accuracy:** minimising uncertainty and avoiding systematic over- or under-quantification of GHG emissions.

## Global warming potential (GWP)

Global warming potential (GWP) is a measure of the climate impact of a GHG compared to carbon dioxide over a time horizon. GHG emissions have different GWP values depending on their efficiency at absorbing longwave radiation, and the atmospheric lifetime of the gas. The GWP values used in GHG accounting include the six GHGs covered by the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol, as presented in Table 4. These are the GWP used by the United Kingdom Department for Business, Energy and Industrial Strategy (BEIS) and are based on the 'Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5)', unless otherwise stated.

**Table 4: Applied global warming potentials (GWPs)**

| GHG | GWP (100 years) |
|---|---|
| Carbon dioxide ($CO_2$) | 1 |
| Methane ($CH_4$) | 28 |
| Nitrous oxide ($N_2O$) | 265 |
| Hydrofluorocarbons (HFCs) | See IPCC AR5 |
| Perfluorocarbons (PFCs) | See IPCC AR5 |
| Refrigerants | See IPCC AR5 |

(Source: IPCC AR5, 2014)

# System Boundaries

## Organisational boundaries

XO's GHG inventory follows the operational control approach, in accordance with the GHG Protocol. Under the operational control approach, a company accounts for 100% of emissions from operations over which it or one of its subsidiaries has operational control. This GHG inventory covers all activity from XO's global offices. It also includes activities carried out by third parties that partially conduct activities for XO.

Table 5 shows the countries and offices that were included in the 2022 GHG inventory.

**Table 5: Key figures for XO sites**

| Site location | Type of facility | Area ($m^2$) | Headcount |
|---|---|---|---|
| XO Fort Lauderdale | Office | 1,052 | 124 |
| XO Moscow | Office | 24 | 5 |
| Total | - | 1,076 | 129 |

(Source: South Pole, based on XO 2023)

## Operational boundaries

Under the 'GHG Protocol', emissions are divided into direct and indirect emissions. Direct emissions are those originating from sources owned or controlled by the reporting entity. Indirect

emissions are generated as a result of the reporting entity's activities but occur at sources owned or controlled by another entity. The direct and indirect emissions are divided into three scopes as found below.

# Scope 1

Scope 1 emissions are all carbon emissions originating from sources that are directly managed by the organisation (direct GHG emissions). This includes the emissions from the combustion of fossil fuels in mobile and stationary sources (e.g. owned or controlled aircrafts, boilers, power generators and vehicles) and carbon emissions generated by chemical and physical processes, as well as fugitive emissions from the use of cooling and air-conditioning (AC) equipment. Table 6 (below) gives an overview of the emission sources considered in scope 1, based on the information provided by XO.

**Table 6: Overview of scope 1 emission sources for 2022**

| Category | Emission sources | Boundary and justification for exclusion |
|---|---|---|
| Stationary combustion | Generation of electricity and heat | Not applicable |
| Mobile combustion | Company-owned or leased vehicles | Not applicable |
| Physical or chemical processing | Manufacture or processing of chemicals and materials | Not applicable |
| Fugitive emissions | Emissions from the use of cooling systems and AC equipment, leakage from $CO_2$ tanks or methane tubes | Included |

# Scope 2

Scope 2 includes indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling purchased by the organisation from external energy providers.

As required by the GHG Protocol, Scope 2 emissions are reported using both the location-based method and the market-based method[2]. This dual reporting allows corporations to compare their individual purchasing decisions to the overall GHG-intensity of the grids on which they operate.

The market-based method reflects emissions that result from electricity purchases that the company has purposefully chosen. When a contract is set up for the sale of electricity and the origin of energy generation can be guaranteed, then those specific and relevant emissions factors can be applied. The location-based method applies average emission factors that correspond to

[2] A location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data). A market-based method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice): it derives emission factors from contractual instruments, which include any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation for unbundled attribute claims (e.g. RECs, GOs, etc.).

the grid where consumption occurs. The default method applied to XO reporting is market-based; location-based results are shown for completeness and transparency.

Table 7 presents an overview of the emission sources considered in scope 2.

**Table 7: Overview of scope 2 emission sources for 2022**

| Category | Emission sources | Boundary |
|---|---|---|
| Electricity | Purchased electricity | Included |
| Steam | Purchased steam | Not applicable |
| District heating | Purchased heating | Not applicable |
| District cooling | Purchased district cooling | Not applicable |

## Scope 3

Scope 3 includes other indirect emissions, such as emissions from the extraction and production of purchased materials and services, vehicles not owned or controlled by the reporting entity, outsourced activities, or waste disposal.

According to the 'GHG Protocol', companies shall separately account for and report for emissions from scope 1 and 2. Scope 3 is an optional reporting category according to the 'GHG Protocol', but as it is the most important scope for many organisations, companies are expected to assess at least the most relevant categories. In addition, it is best practice to include scope 3 emissions and it is a requirement for setting science-based targets (SBTs).

Table 8 presents an overview of the emission sources considered in scope 3.

**Table 8: Overview of scope 3 emission sources for 2022**

| Category | Emission sources | Boundary |
|---|---|---|
| Purchased goods and services | Purchased goods (raw materials) and services | Included |
| Capital goods | Production of capital goods (information technology [IT] equipment, machinery, buildings etc.) | Not material. Not included |
| Fuel- and energy-related activities | Emissions from fuel and electricity generation, including transmission and distribution (T&D) losses | Included |
| Upstream transportation and distribution | Transportation and distribution of goods and services purchased by the reporting company | Not material. Not included |
| Waste generated in operations | Waste management of operational waste (landfilling, recycling, etc.) | Included |
| Business travel | Travel and accommodation of employees/contractors | Included |

| Category | Emission sources | Boundary |
|---|---|---|
| Employee commuting and teleworking | Employee travel between home and work and incremental emissions related to working from home | Included |
| Upstream leased assets | Operation of assets leased by the organisation (lessee) in the reporting year and not included in scope 1 or 2 | Not material. Not included |
| Downstream transportation and distribution | Transportation and distribution of products not purchased by the reporting company | Not material. Not included |
| Processing of sold products | Processing of intermediate products sold by the organisation | Not material. Not included |
| Use of sold products | Emissions from the use of sold products (e.g. energy consumption during use) | Included |
| End-of-life treatment of sold products | Waste disposal and treatment of sold products | Not material. Not included |
| Downstream leased assets | Operation of assets owned by the company (lessor) and leased to other entities, not included in scope 1 or 2 | Not material. Not included |
| Franchises | Operation of franchises not included in scope 1 or 2 | Not material. Not included |
| Investments | Operation of investments not included in scope 1 or 2 | Not material. Not included |

## Data inventory and assumptions

Overall, the data inventory, emission factors, and assumptions are based on the 'GHG Protocol'. Unless otherwise specified, all emission values in this report are given in metric tonnes of carbon dioxide equivalent ($tCO_2e$).

Where activity data of the inventory was lacking, extrapolations and estimations were made. The complete overview of activity data, extrapolations, and estimations is summarised in Annex II. Whilst every effort has been made to calculate emissions as accurately as possible, GHG emissions calculations carry an inherent level of limitation and uncertainty. As standard practice and in line with the GHG Protocol, the choice of assumptions and emission factors followed a conservative approach.

The quality of activity data provided for a GHG inventory has a significant impact on the reliability and accuracy of emissions calculations. Primary activity data, such as the kWh of electricity purchased within a reporting year, yields to the highest quality calculations. Spend based data, which relies on a far greater number of assumptions, results in the least accurate.

# Results

Based on the data provided by XO, the total GHG emissions for the year 2022 are estimated to be **145,948.81 $tCO_2e$.** Table 9 below illustrates the key figures in terms of GHG emissions (in $tCO_2e$) and energy intensity (in gigajoules [GJ]) relevant to corporate sustainability reporting, in accordance with the GRI Standards. Please note that, due to rounding of numbers, the figures may not add up exactly to the total provided.

**Table 9: Key figures according to the Global Reporting Initiative (GRI)**

| GRI Standard | | Topic | Quantity | Unit |
|---|---|---|---|---|
| 302-1 | e | Energy consumption within the organisation | 580.62 | GJ |
| | a | Total fuel consumption from non-renewable sources | 0 | GJ |
| | b | Total fuel consumption from renewable sources | 0 | GJ |
| | c | Total electricity consumption | 580.62 | GJ |
| 305-1 | a | Direct GHG emissions (scope 1) | 0.13 | $tCO_2e$ |
| 305-2 | a | Location-based energy indirect GHG emissions (scope 2) | 104.70 | $tCO_2e$ |
| | b | Market-based energy indirect GHG emissions (scope 2) | 104.70 | $tCO_2e$ |
| 305-3 | a | Other indirect GHG emissions (scope 3) | 145,843.98 | $tCO_2e$ |
| 302-4 | | GHG emissions intensity | 1,131.39 | $tCO_2e$/ employee |

(Source: South Pole, based on XO data, 2023)

**Table 10: GHG emissions by scope and activity for 2022**

| Activity | Consumption | Unit | Emissions ($tCO_2e$) | Percentage of total (%) |
|---|---|---|---|---|
| Scope 1: direct GHG emissions | | | 0.13 | <0.01% |
| Fugitive emissions | | | 0.13 | <0.01% |
| Refrigerants | 1,076.20 | m2 | 0.13 | <0.01% |
| Scope 2: indirect GHG emissions from purchased electricity, heating and cooling (market-based) | | | 104.70 | 0.07% |
| Purchased Electricity | | | 104.70 | 0.07% |
| Grid | 154,548.00 | kWh | 58.62 | 0.04% |
| Grid | 17,290.00 | RUB | 46.08 | 0.03% |
| Scope 3: other indirect GHG emissions | | | 145,843.98 | 99.93% |
| Category 1: Purchased goods and services | | | 1.2 | <0.01% |
| Food and drink products | 372.85 | kg | 0.57 | <0.01% |
| Food and drink products | 647.00 | unit | 0.32 | <0.01% |
| IT services | 999.00 | users | 0.14 | <0.01% |

| Activity | Consumption | Unit | Emissions ($tCO_2e$) | Percentage of total (%) |
|---|---|---|---|---|
| Paper | 114.00 | sheets | <0.01 | <0.01% |
| Water supply | 1,305.00 | users | 0.19 | <0.01% |
| Category 3: Fuel- and energy-related activities | | | 20.10 | <0.01% |
| Grid | 154,548.00 | kWh | 2.64 | <0.01% |
| Grid | 17,290.00 | RUB | 17.46 | 0.01% |
| Category 5: Waste generated in operations | | | 19.16 | 0.01% |
| Commercial and industrial waste | 34.09 | ton | 13.05 | 0.01% |
| Glass | 1.03 | ton | 0.03 | 0.00% |
| Oil waste | 1.43 | ton | 0.03 | 0.00% |
| Paper/Cardboard | 9.68 | ton | 6.06 | 0.00% |
| Category 6: Business travel | | | 1,816.80 | 1.24% |
| Air travel | 10,585,952.74 | pkm | 1,236.52 | 0.85% |
| Ground transportation | 1,349,294.00 | USD | 580.28 | 0.40% |
| Category 7: Employee commuting | | | 85.54 | 0.06% |
| Car | 292,594.85 | km | 64.17 | 0.04% |
| Other | 67,053.37 | km | 13.54 | 0.01% |
| Public transport | 23,440.99 | pkm | 1.94 | 0.00% |
| Teleworking | 4,255.00 | person days | 5.88 | 0.00% |
| Walk | 6,851.32 | km | 0.00 | 0.00% |
| Category 7: Use of sold products | | | 143,901.15 | 98.60 |
| Short haul | 45,862.37 | km | 282.91 | 5.33% |
| Medium haul | 22,021,678.87 | km | 135,844.16 | 93.08% |
| Long haul | 1,260,255.82 | km | 7,774.08 | 0.19% |
| Total GHG emissions (location-based) | | | 145,948.81 | - |
| Total GHG emissions (market-based) | | | 145,948.81 | 100% |

(Source: South Pole, based on XO, 2023)

## Overall results - Vista

Figure 3 presents a breakdown of Vista's GHG emissions for each of its eight business units. In 2022 XO had the fifth highest GHG footprint of all eight global entities, at 145,948.81, $tCO_2e$, accounting for 10.12% of the overall global footprint.

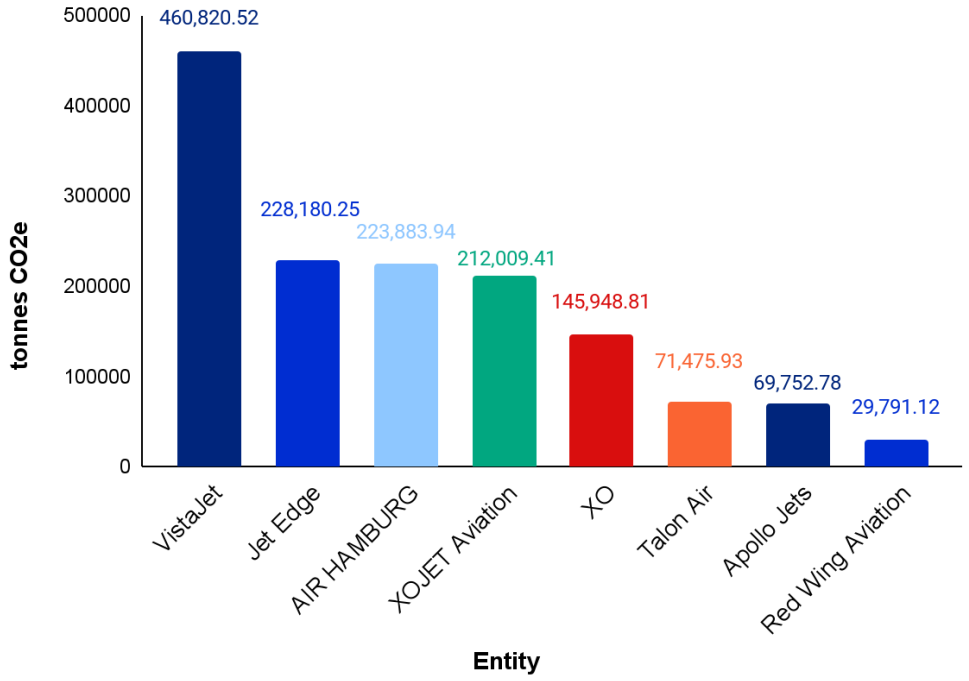


Figure 3: Vista overall 2022 GHG emissions by business entity
(Source: South Pole, based on Vista, 2023)

## Site-level results

Figure 4 presents a breakdown of emissions for each of XO's two sites. Over 99% of emissions fall under XO's global operations in this GHG inventory. This is due to scope 3 category 11 emissions from the use of sold products, and scope 3 category 6 emissions from business travel, being accounted for under global operations rather than a specific site.

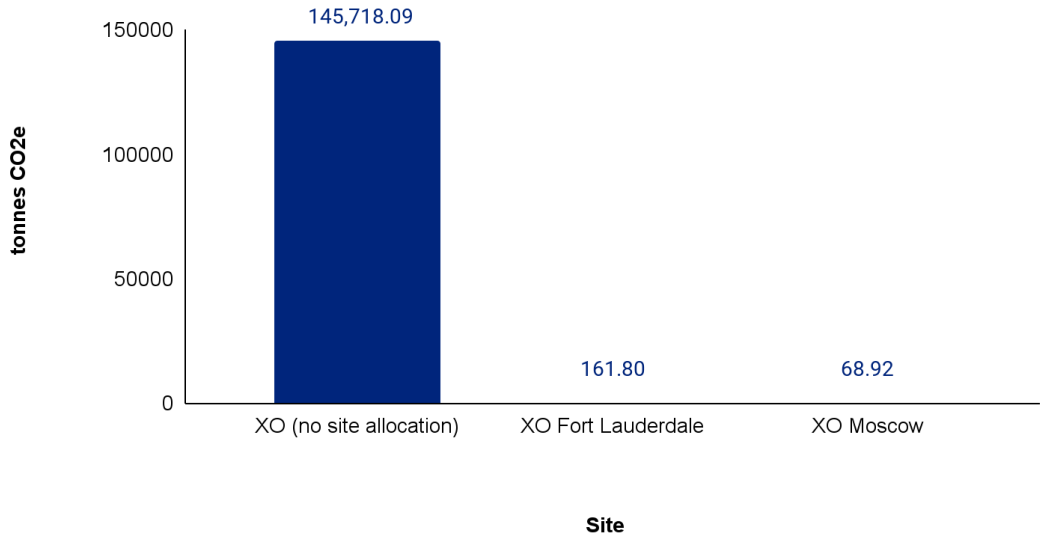


Figure 4: XO's 2022 GHG emissions by site
(Source: South Pole, based on XO, 2023)

# Category-level results

Figure 5 presents a breakdown of XO's overall 2022 emissions by scope, and figure 6 presents a breakdown of XO's GHG emissions by GHG Protocol category.

Almost all emissions, 99.93%, fall under Scope 3. This is predominantly due to emissions associated with the use of sold products (flight ticket sales), which account for over 99% of the Scope 3 footprint. As shown in figure 6, 1.24% of overall footprint emissions arise from business travel. 68.06% of business travel emissions relate to air travel, 31.94% from ground transportation. All other scope 3 categories each account for less than 0.1% of the scope and overall footprints.

Fugitive emissions from the leakage of refrigerants are the only source of Scope 1 emissions in XO's 2022 GHG footprint, and account for less than 0.01% of the overall emissions.

Purchased electricity from the grid is the only source of scope 2 emissions in the 2022 footprint. Scope 2 electricity emissions are higher in the Fort Lauderdale office because more electricity was consumed. Notably, electricity emissions under category 3, fuel and energy related activities, were higher in Moscow than Fort Lauderdale (as shown in table 9). Category 3 accounts for the upstream GHG emissions associated with the production, transportation and distribution of energy used to develop electricity, suggesting that the production of electricity that supplies XO's Moscow office was more emissions intensive than electricity that supplied the Fort Lauderdale office in 2022.

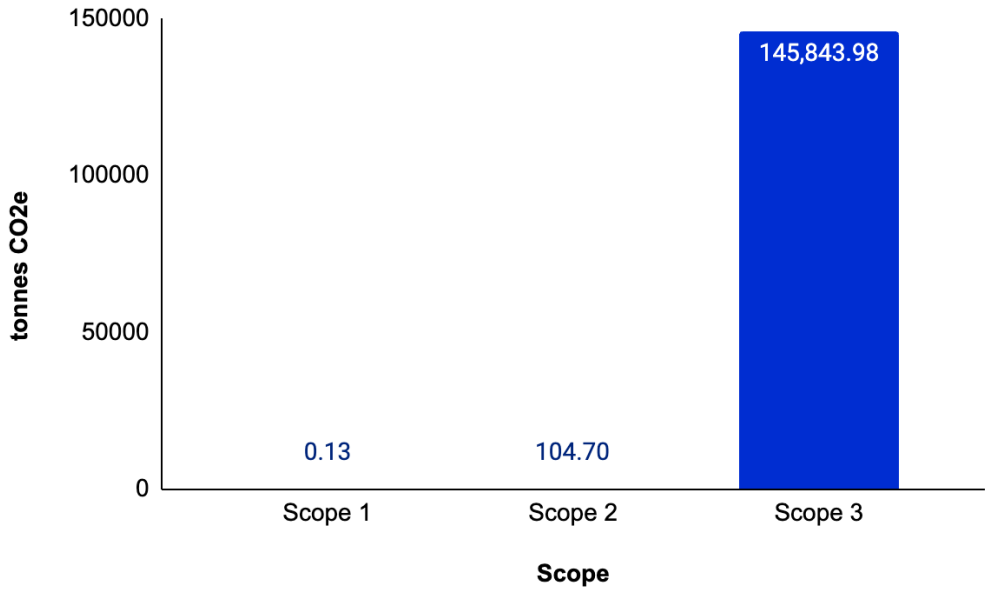


Figure 5: XO's 2022 GHG emissions by scope
(Source: South Pole, based on XO, 2023)

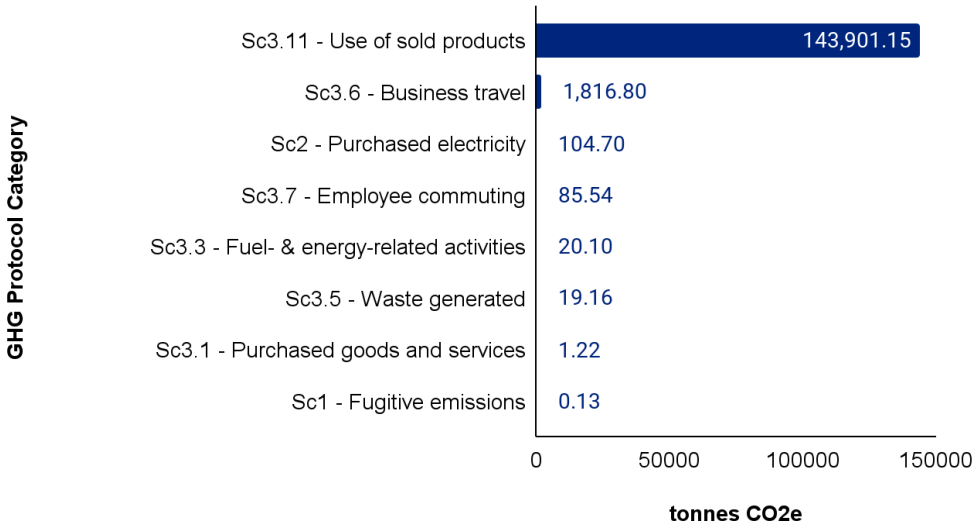


Figure 6: XO's 2022 GHG emissions by GHG Protocol category
(Source: South Pole, based on XO, 2023)

Figure 7 presents a breakdown of XO's emissions from category 11, use of sold products. over 93% of ticket sale emissions are from medium haul flights, with 5.33% from short haul flights and 0.19% from long haul.

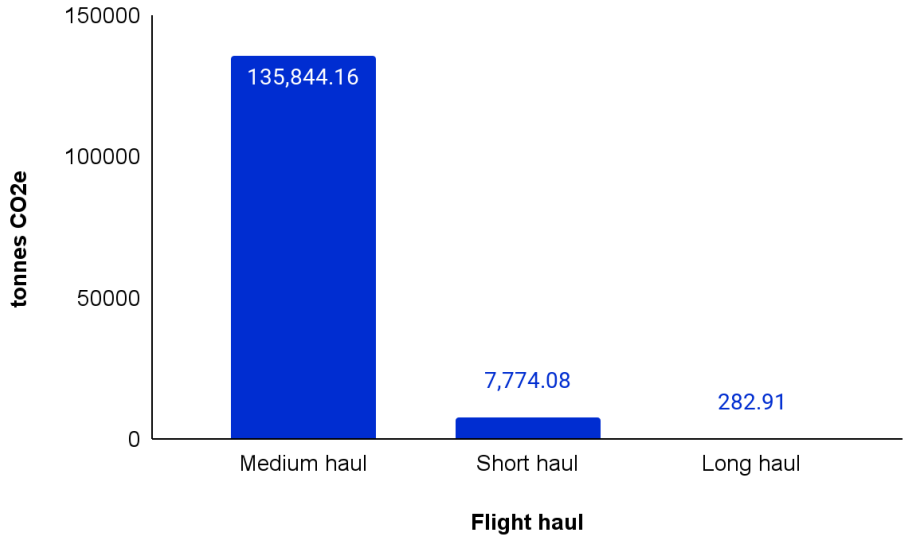


Figure 7: XO's emissions from the use of sold products
(Source: South Pole, based on XO, 2023)

Figure 8 provides a comparison of XO's emissions from the use of sold products and all other emission sources, to highlight the dominance of flight-related emissions in XO's total 2022 footprint.

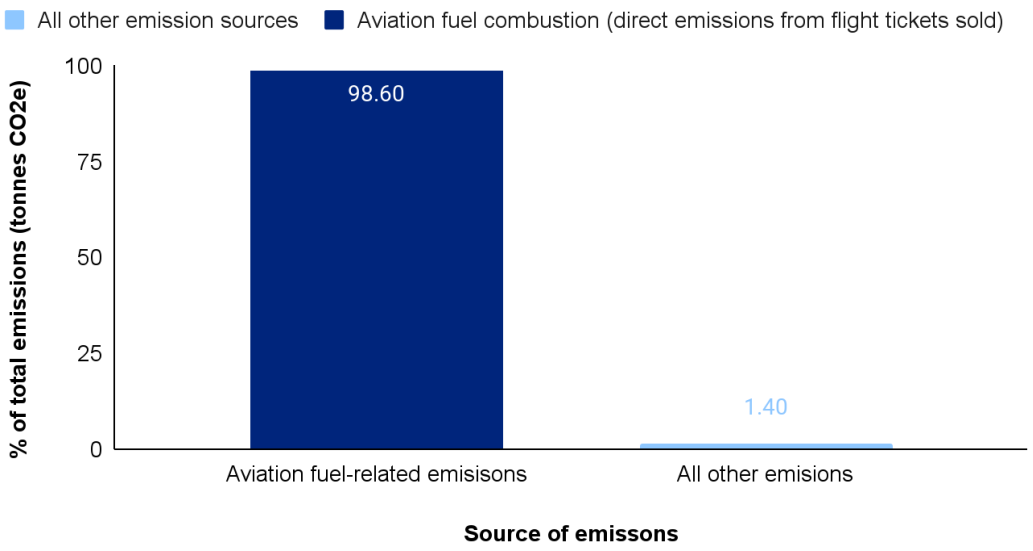


Figure 8: Comparison of XO's direct flight-related emissions and all other emissions
(Source: South Pole, based on VistaJet, 2023)

Figure 9 presents a comparison of XO's GHG inventory for 2021 and 2022. The overall pattern of emissions is relatively similar across years; scope 3 emissions from the use of sold products dominate the footprint, with scope 1 and scope 2 emissions contributing minimally. There are, however, some significant points of difference between the two years.

In particular, the 2022 footprint is significantly larger than the 2021 footprint, by around 1,567%, or 136,805.31 $tCO_2e$. This is largely driven by a 136,697.78 $tCO_2e$ increase in emissions from the use of sold products. This is happening for 3 key reasons. First, there has been an improvement to the emissions calculation approach in 2022, so that the emissions from flights reflect the entire flight emissions rather than the emissions per passenger. This is a more appropriate way to account for private emissions, since unlike standard commercial flights, flight tickets are often for a full aircraft rather than one of many seats. An increase in ticket sales, as well as poor data in 2021 (which meant many assumptions were required) also contributed to the change seen in 2022.

In 2022 there is also a 1,615.20 $tCO_2e$ increase in business travel emissions. This is likely a reflection of COVID travel restrictions in 2021.

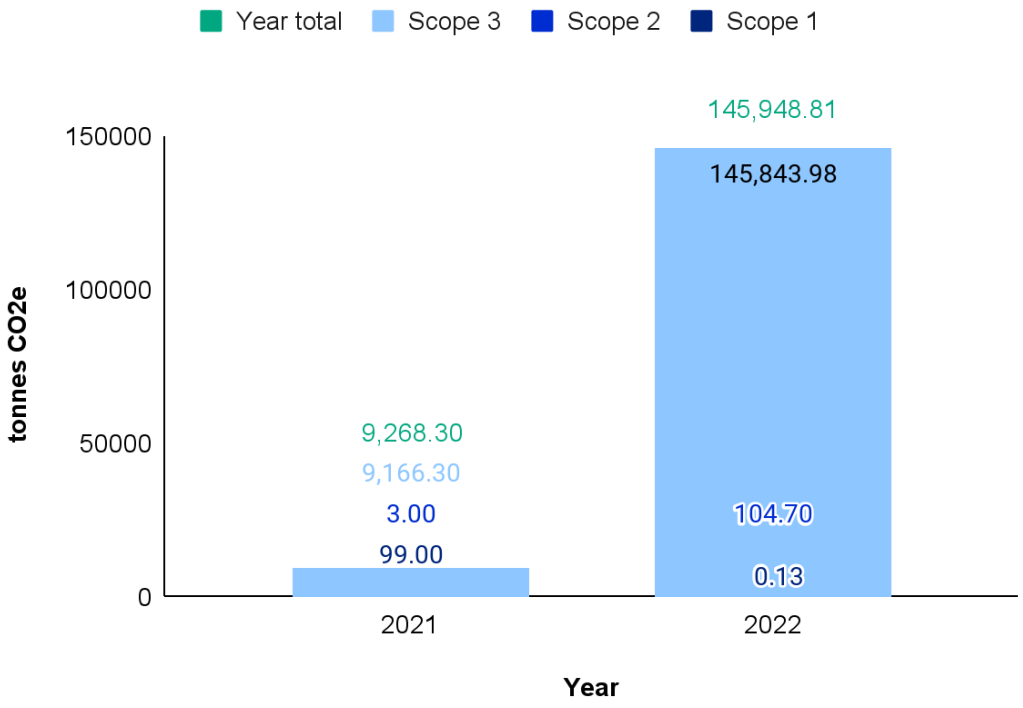


Figure 9: XO's total GHG emissions in 2021 and 2022
(Source: South Pole, based on XO, 2023)

# Conclusions

The annual measurement of GHG emissions is an essential first step that organisations must take on their journey to mitigating climate impact.

This report has presented a summary of XO's 2022 GHG footprint. In 2022, emissions were significantly higher than in 2021, reflecting an increased sale of flights, vastly improved data availability on ticket sales, and improvements to calculation methodologies.

It is important that XO takes steps to continue improving the quality and accuracy of its GHG footprint, and implements measures to decarbonise its operations. Glasgow's COP26 and the 2021 IPCC report shone a spotlight on the critical need to achieve Net Zero emissions to keep global warming within the 1.5 degree limit. Private aviation is a highly emissions intensive industry, and XO has an important role to play in this transition.

In order to improve the quality of the GHG footprint, the following courses of action are recommended:

- **Collect primary activity data:** The data quality for the 2022 footprint was a significant improvement from 2021. XO can continue to improve data quality by collecting primary consumption data as activity volumes for all sources of emissions. In particular, XO should seek to collect primary activity data (rather than spend-based data) for business travel, ground transportation. This would allow for more accurate and reliable GHG calculations.

- **Continue establishing formalised data collection procedures:** Formalised data collection procedures, with internal quality controls, supplier communication, assigned roles, and clear frameworks, allow for more streamlined data collection processes and limits the risk of missed data.

- **Review data assumptions in Annex 2:** Annex 2 in this document provides a more granular breakdown of key data assumptions. Treat these as priority emission sources to act on and improve data collection procedures for.

The following next steps are recommended for XO to continue on its decarbonisation journey:

- **Influence investment in and uptake of Sustainable Aviation Fuel (SAF):** While XO does not directly operate or have direct control over the fuel source of aircrafts, it is the emissions from burning aviation fuel that contributes predominantly to its overall 2022 footprint. XO should seek to work with other Vista subsidiaries to manage the transition from aviation fuel to SAF, and, for instance, work to incentivise this transition through its technology platform for flight operators as well as ticket purchasers.

- **Set science based targets with SBTi:** The Science Based Targets initiative drives ambitious climate action in the private sector by enabling companies to set science-based emissions targets. XO, and Vista, should demonstrate its commitment to sustainability in the aviation sector, and cement its position as a sector leader, by setting targets with SBTi.

- **Switch to a renewable energy supplier:** While emissions from purchased electricity only contribute minimally to XO's overall footprint, this can be a very cost effective way to reduce overall scope 2 emissions.

# Annex I

## Emission factors sources

**Table 11: Emission factors sources**

| Activity | Emission factor reference[3] |
|---|---|
| Fugitive emissions | ADEME 2022; BC V8.8 |
| Electricity and electricity related activities | eGRID, 2021; IEA, 2022; Ecoinvent v3.9.1 |
| Refrigerants | ADEME, 2022; BC V8.8 |
| Business travel | BEIS, 2022; CEDA, 2022 |
| Commuter travel | BEIS, 2022 |
| Teleworking | IEA energy indicators 2022; Anthesis, 2020; BEIS 2022; eGRID, 2021; SP custom EF's |
| Purchased goods and services | CEDA, 2022; Agribalyse, 2021; BEIS, 2022 |
| IT services | Microsoft, 2022 |
| Waste | BEIS, 2022 |
| Use of sold products | EU Transport and Environment, 2021 |

[3] South Pole derives its emission factors from reliable and credible sources. South Pole is not responsible for inaccuracies in emission factors provided by third parties.

# Annex II

## Data assumptions and extrapolations

**Table 12: Data assumptions and extrapolations**

| Category | Sub-Category | Relevant sites | Assumption |
|---|---|---|---|
| Fugitive emissions | Refrigerants | All sites | Emissions from refrigerant leakage were estimated based on average sectoral consumption values and applied to XO sites based on total site area. |
| Purchased goods and services | Water supply | All sites | Emissions from water supply were estimated based on figures for country/regional level water consumption and extrapolated based on site headcount. |
| Fuel and energy related activities | Electricity | Moscow | Spend-based data was provided for Moscow electricity consumption. To estimate upstream fuel and energy related activity emissions, overall kWh electricity consumption was estimated based on average electricity prices for Moscow in 2022, and applied to the available local kWh/kgCO2e emission factors for upstream electricity emissions. |
| Waste generated in operations | Solid waste | Moscow | Emissions from solid waste generation were estimated based on country/regional figures for waste consumption, waste type and waste disposal, and applied to each site based on the area (m2). |
| Business travel | All | All | When applicable, Scope 3 emissions include Well-to-tank (WTT) emissions, which are those associated with the upstream production and distribution of the fuel and energy.<br><br>Business travel consumption was provided as a combined figure for XOJet and XO. Emissions were apportioned based on headcount. |
| Business travel | Flights | All | Flight emissions include a radiative forcing index (RFI) multiplier of 1.9, which accounts for the effects of non-CO2 emissions (contrails, water vapour, nitrogen oxides and soot). This is in line with BEIS recommendations, which are informed by wider industry research. |
| Employee commuting | Teleworking | All sites | Teleworking emissions were estimated based on country and regional electricity and heating consumption for employees working from home, and applied to sites based on headcount. |
| Employee commuting | Travel | All sites | Employee travel emissions were estimated based on country and regional travel data for modes of commuter transport and applied to sites based on headcount. |

| | | | |
|---|---|---|---|
| Use of sold products | Flights | All sites | Emissions from ticket sales were estimated based on average private jet per km travelled emission factors published by EU Transport and Environment. This is an updated approach from the 2021 methodology. |


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