

synergy

# Annual GHG Inventory AXYS Technologies

August 1<sup>st</sup>, 2024 – July 31<sup>st</sup>, 2025



**AXYS**  
TECHNOLOGIES INC.

# What is a GHG Inventory?

The purpose of a greenhouse gas (GHG) inventory report is to measure a company's impact on climate change by measuring GHG emissions produced in company operations. Frequent measurement is essential for identifying key areas where emissions increase or decrease over time, making it possible to develop targeted strategies to curb those emissions. This GHG emissions report details the emissions generated by the company throughout the reporting period. Preparing the report involves four key steps:

- **Scoping:** Determining the relevant emission sources that must be measured.
- **Data Collection:** Gathering all the necessary activity data.
- **Calculation and Report Writing:** Converting the activity data into GHG emission figures and compiling the final report.
- **Review:** Discussing the report and validating all assumptions.

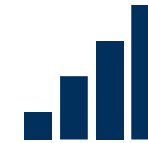
## Project Steps



Scoping



Data Collection

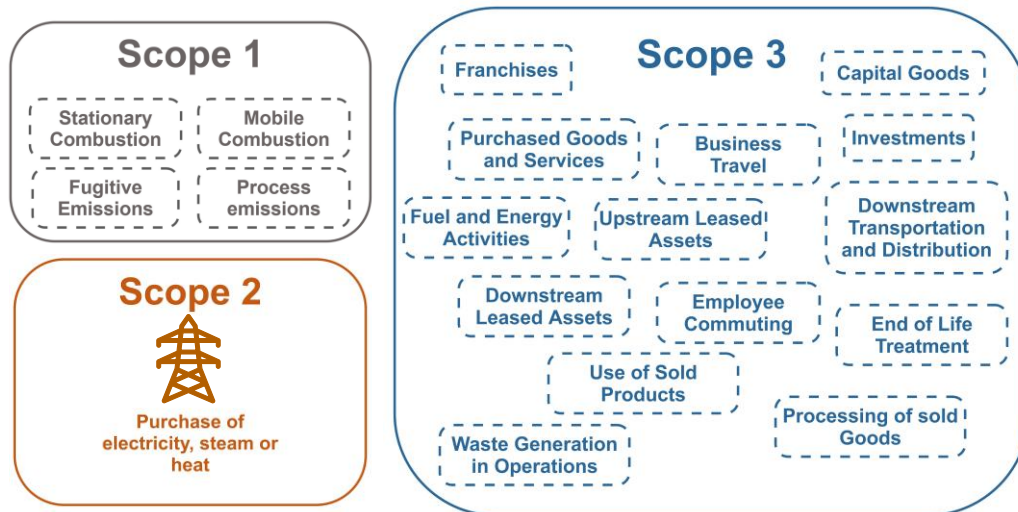


Calculate & Report



Review

## GHG Protocol Scope Examples



In this report emissions are categorized into three scopes, Scope 1, 2, and 3, to reflect the company's level of control.

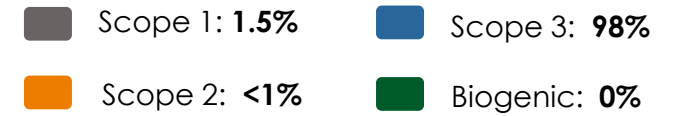
- **Scope 1** covers direct GHG emissions from sources the company owns or controls, such as fuel combustion in its vehicles.
- **Scope 2** covers indirect GHG emissions from purchased electricity or steam.
- **Scope 3** includes all other indirect emissions resulting from company operations but not from company-owned assets, such as employee commuting or business travel.

While companies have the most direct control over Scope 1 emissions and the least over Scope 3, they can still have significant influence over Scope 3 emissions by, for example, lobbying key suppliers to reduce their emissions intensity.

An aerial photograph of a beach with waves crashing onto the shore. The water is a mix of light and dark blue, with white foam from the waves. The sand is a light tan color. The text "2024 GHG Inventory Results" is overlaid in the center in a dark blue, sans-serif font.

# 2024 GHG Inventory Results

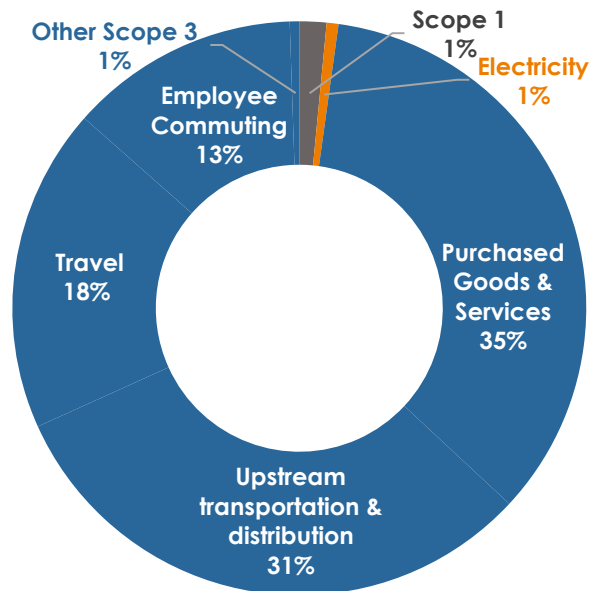
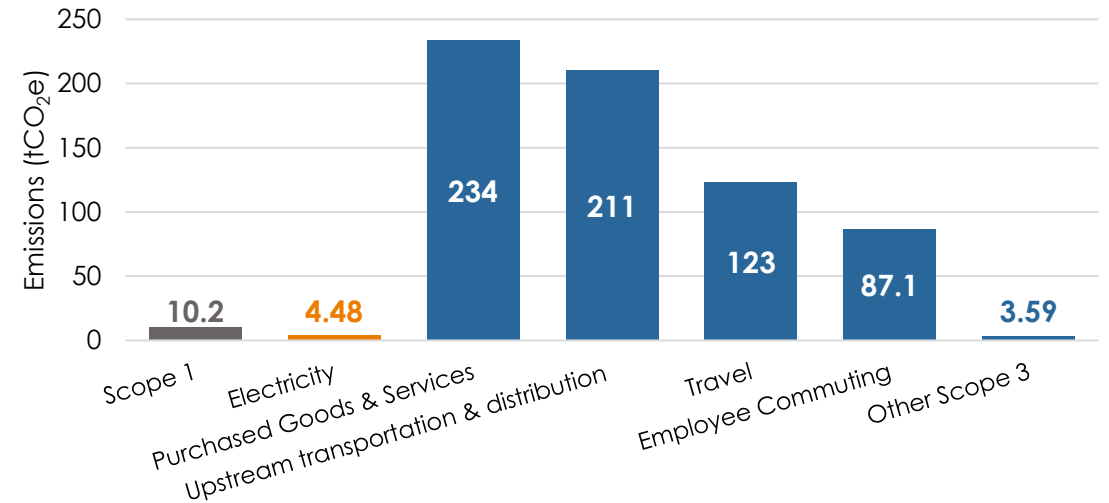
# Executive Summary



AXYS Technologies (AXYS) designs, manufactures, and installs remote environmental monitoring systems. AXYS is headquartered in Sidney, BC at its warehouse and office facility. AXYS also has a small backup warehouse that is used infrequently, one support vehicle, and 57 staff. Prior to fiscal year 2025 (FY25), AXYS had reported for fiscal years 2014, 2016, 2017, and 2022. This is its first GHG inventory report in three years, and its emissions profile has changed substantially.

Total emissions decreased by 21% from FY22 to FY25, driven primarily by a 58% reduction in shipping emissions. Business travel and employee commuting emissions both increased, while fuel and electricity emissions decreased.

## Emissions by Activity



New for this reporting period, the impact of materials used in buoy manufacturing was included. These emissions were calculated both for the embodied carbon of the materials (captured in Scope 3.01) and future emissions that will occur at the end of the product's life (Scope 3.12). Total emissions from these materials were 40.6 tCO<sub>2</sub>e, representing 6% of the total footprint.

**673**  
Total tCO<sub>2</sub>e

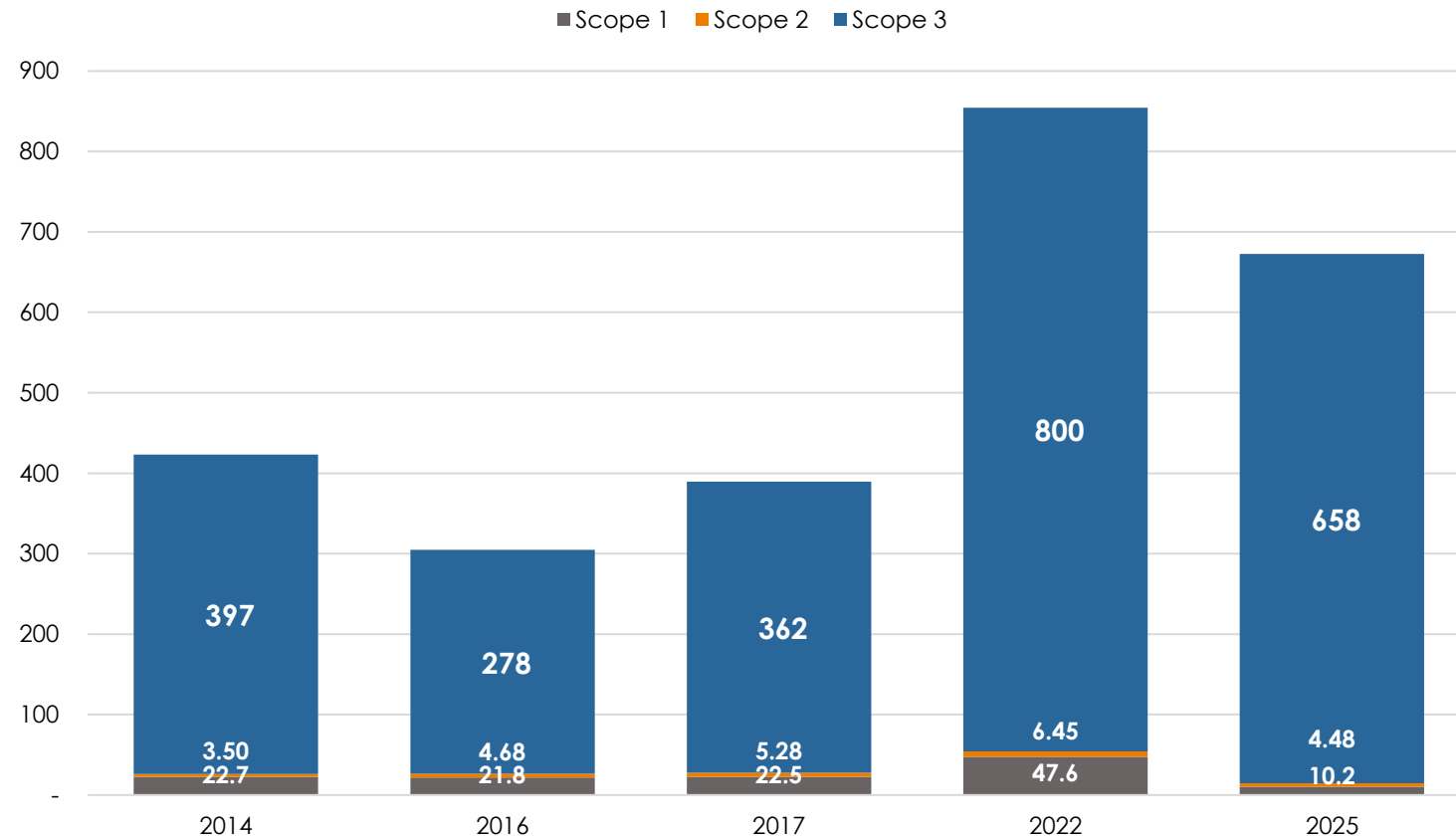
**21%**  
Decrease from 2022

**19.2**  
tCO<sub>2</sub>e/Buoy

# Year Over Year Analysis

FY25 emissions decreased overall by 21% compared to FY22. Emissions decreased across all three scopes despite two additional emission sources being added to scope 3. Scope 1 emissions decreased by 78%, scope 2 by 31%, and scope 3 by 18%. Emissions from fuel consumption, electricity, and shipping were all lower in FY25, while those from employee travel, staff commuting, and purchased goods & services all increased.

## Year over Year Emissions by Scope



The largest decrease was seen in shipping emissions, which were 58% lower than in FY22, mostly due to a decline in air freight. Emissions from electricity were lower because of both a reduction in electricity consumption and a reduction in BC's electricity grid emissions intensity.

# Reduction Targets

Reduction Target

**66%**  
By 2030\*

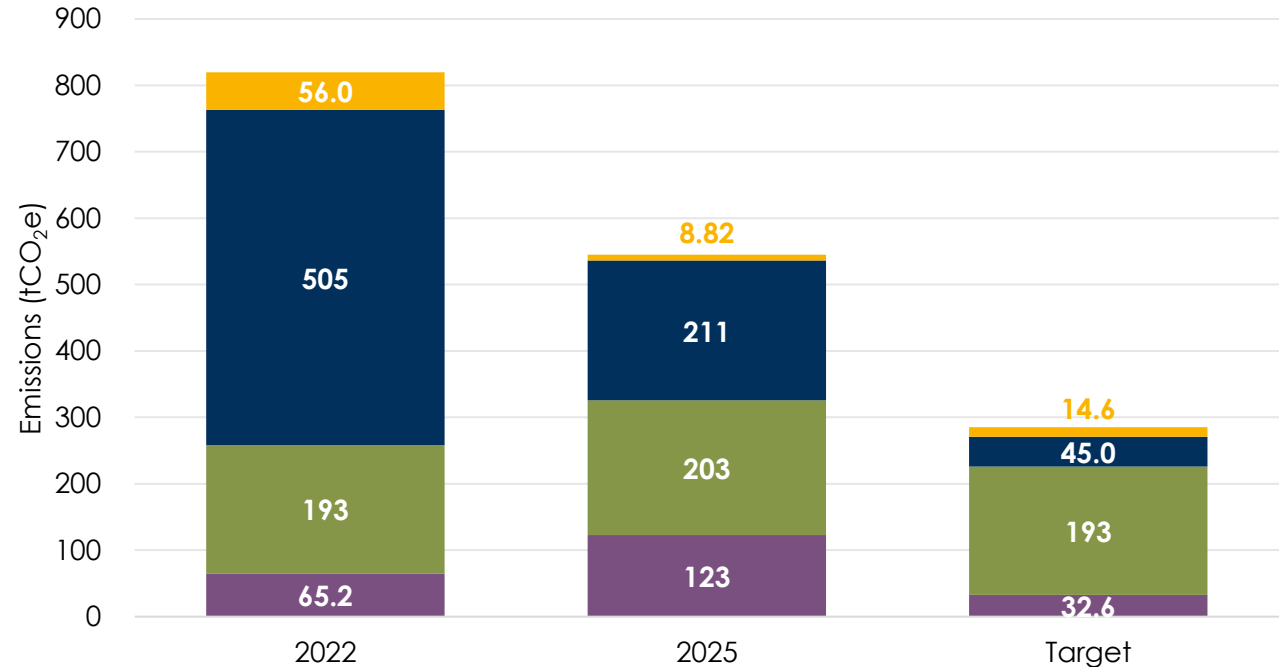
% Achieved

**21%**  
In 2025

Over 2022 Base Year

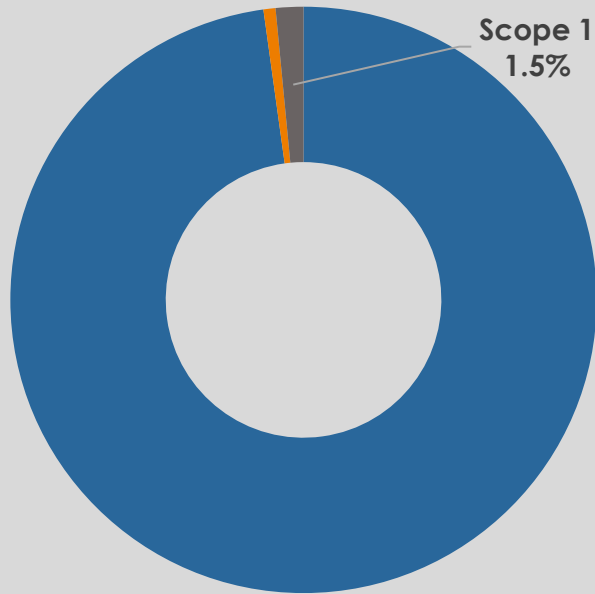
Reduction Targets by Major Emission Sources

- The Office
- Shipping
- Buoy Servicing
- Travel



## Notes on Targets

AXYS has demonstrated notable progress toward its 2030\* goal of reducing emissions by 66% compared to the FY22 base year by reducing total emissions by 21% in FY25. As such, AXYS has completed 32% of its reduction goal in the past three years, with four years remaining to achieve the balance. Moving forward, AXYS should look to reduce emissions from business travel as much as possible, or at the least return to the level of travel seen in FY22. Additionally, more opportunities may exist to reduce shipping emissions by further prioritizing the use of sea freight.



## Scope 1: Direct Emissions

Scope 1 includes direct emissions from combustion, process and fugitive emissions owned or controlled by the company. This includes emission sources such as natural gas, company vehicles, and refrigerants.

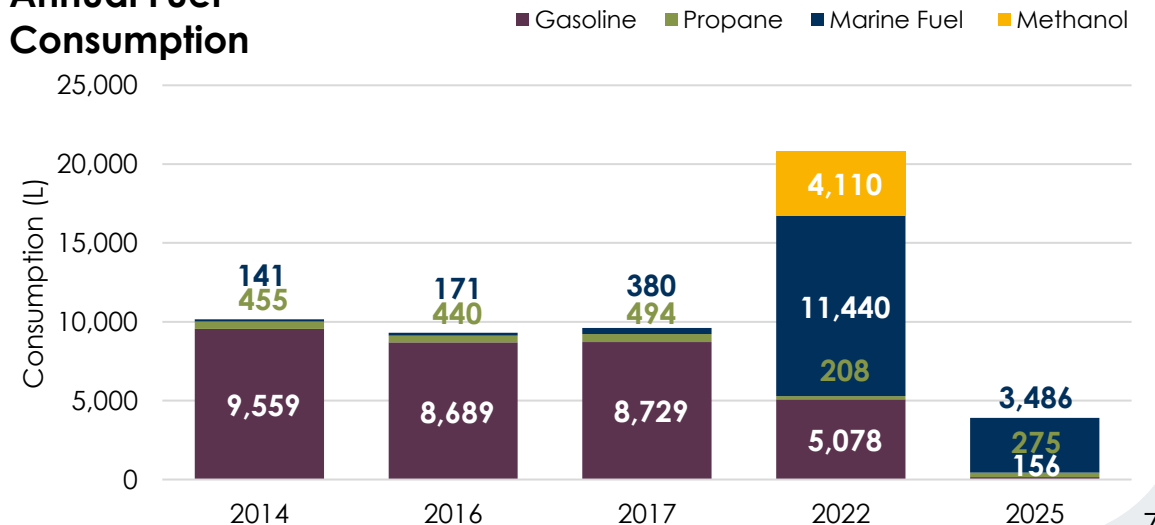
## Scope 1: Fuel Use

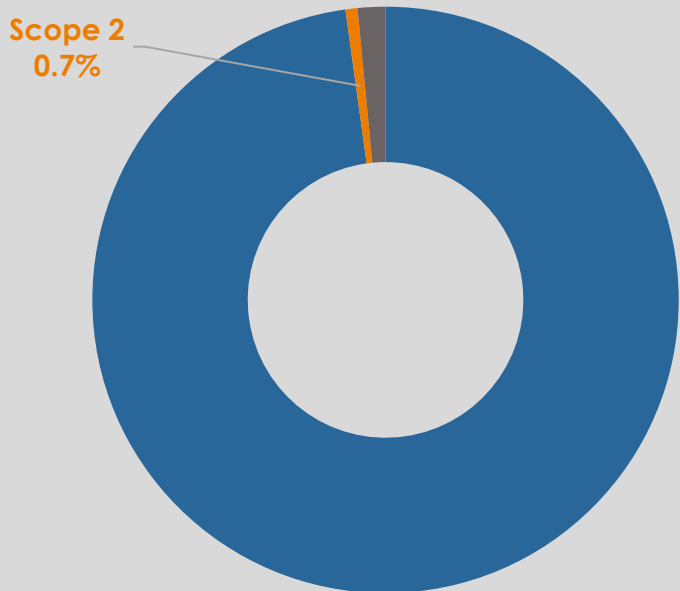
**10.2**  
Total tCO<sub>2</sub>e

**1.5%**  
% of Total

Fuel use includes the consumption of gasoline in the company vehicle, propane used in forklifts, and marine fuel used in buoys. Emissions from fuel use accounted for 1.5% of the inventory total in FY25, driven primarily by marine fuel, which represented 92% of fuel emissions. Propane and gasoline each accounted for 4% of fuel emissions. In 2022, methanol was used in some buoys; however, this has been discontinued and so no methanol consumption is reported in FY25. Marine fuel consumption and gasoline consumption both dropped substantially, by 70% and 97% respectively, from FY22 to FY25.

### Annual Fuel Consumption





## Scope 2: Indirect Emissions

Scope 2 includes indirect emissions from the generation of purchased electricity, steam, or heat at sources not owned or controlled by the reporting company.

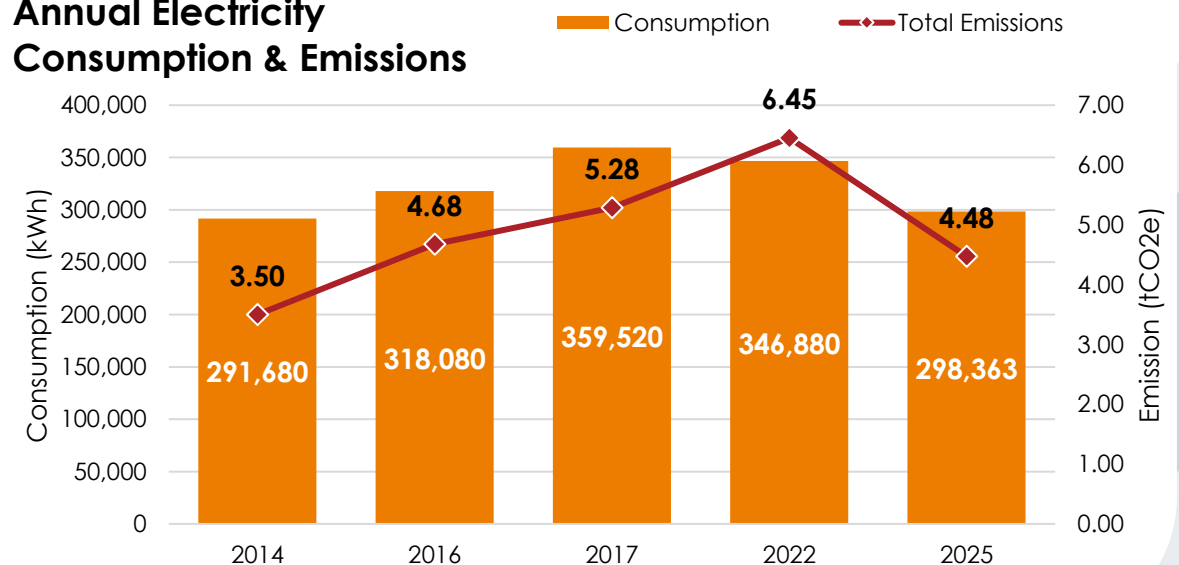
## Scope 2: Electricity

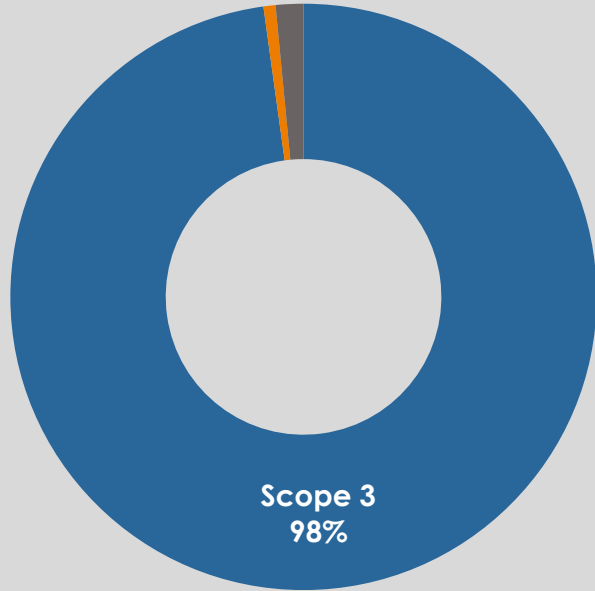
**4.48**  
Total tCO<sub>2</sub>e

**0.7%**  
% of Total

AXYS' electricity consumption occurs at the HQ and warehouse located in Sidney, BC. Total electricity consumption and emissions both decreased. Due to a reduction in the emissions intensity of the BC electricity grid (19% reduction compared to 2022), consumption and emissions trends were decoupled: consumption was reduced by 14% and emissions were reduced by 31%.

### Annual Electricity Consumption & Emissions





## Scope 3: Indirect Emissions

Scope 3 includes all remaining indirect emissions generated through business operations. This includes emission sources such as business travel, commuting, and purchased goods & services.

## Scope 3: Business Travel

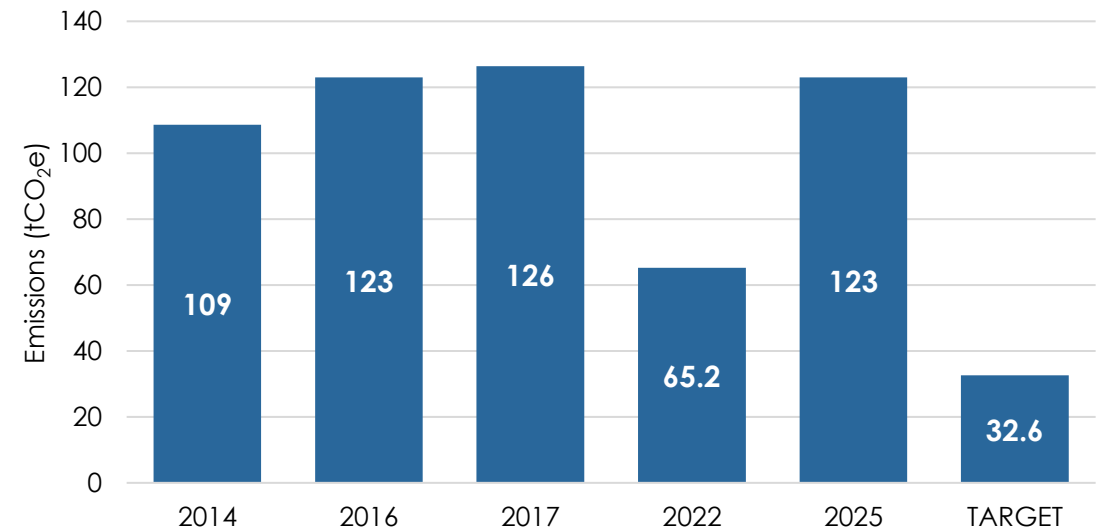
**123**  
Total tCO<sub>2</sub>e

**18%**  
% of Total

**2.16**  
tCO<sub>2</sub>e/  
employee

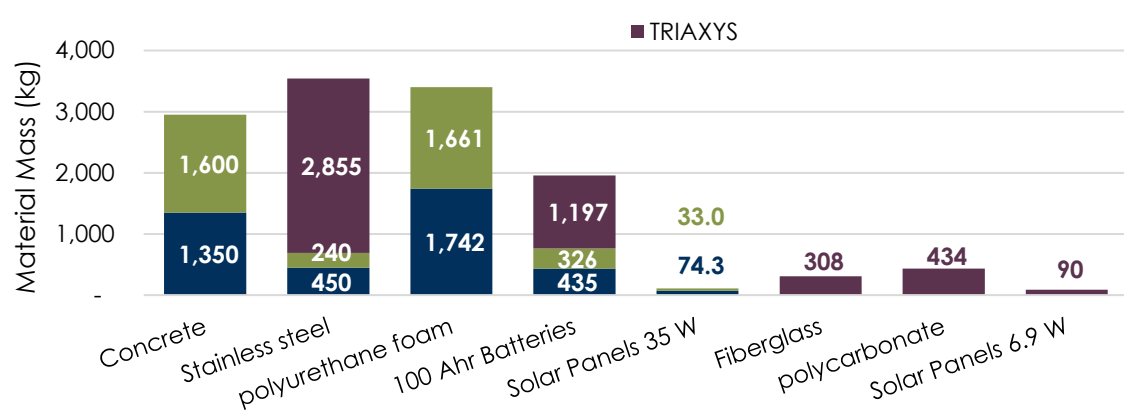
Staff travel nearly doubled in FY25 compared to FY22, due almost exclusively to an increase in air travel. Total distance flown in FY25 was almost exactly double that of FY22, while other travel activity stayed relatively consistent. Travel in FY25 is consistent with reporting years that occurred prior to the COVID-19 pandemic, signaling a return to business travel practices from that period.

### Annual Travel Emissions



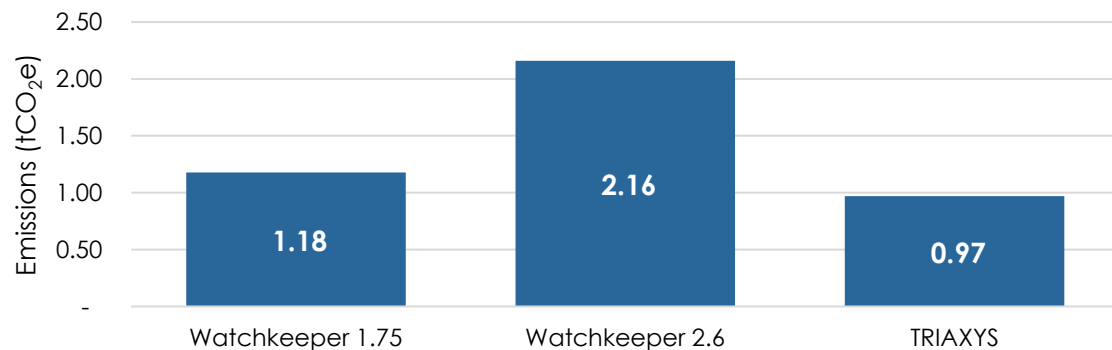
# Scope 3: Purchased Goods & Services and End-of-life Treatment of Buoy Materials

**Material Purchases by Buoy Type** ■ Watchkeeper 1.75 ■ Watchkeeper 2.6 ■ TRIAXYS



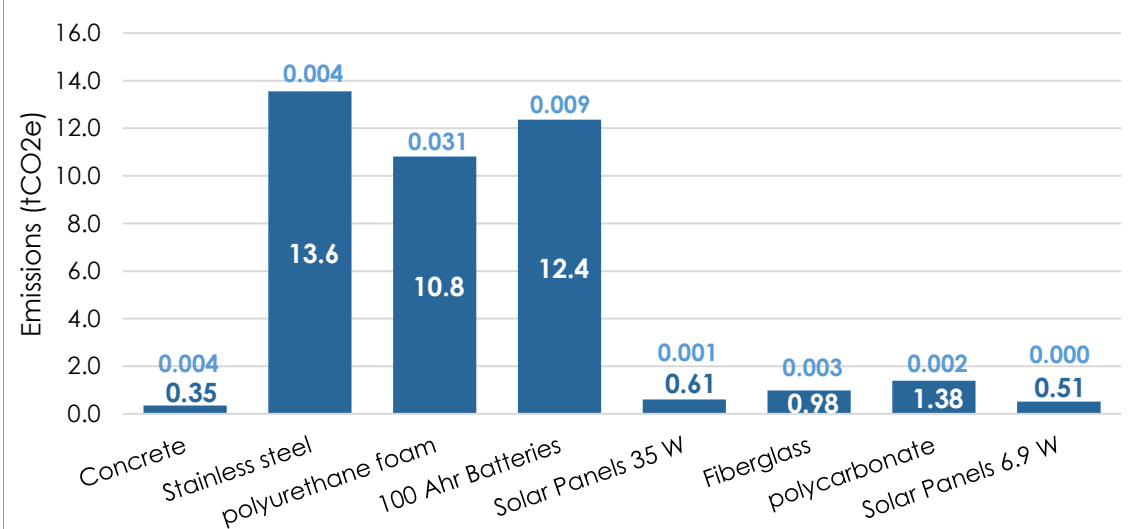
AXYS purchases material for manufacturing of buoys. Each of these materials has an embodied carbon footprint due to the activities that occur prior to the product reaching AXYS. Of the included materials, stainless steel was the most used by mass, followed by polyurethane foam and concrete.

**Emissions per Buoy by Type**



The impacts of these materials being processed at the end of a buoy's life are also included. Embodied carbon makes up nearly all these emissions, with end-of-life treatment contributing only a fraction. The most emissions-intensive product is the batteries used, followed by stainless steel and polyurethane foam. Concrete, solar panels, fiberglass, and polycarbonate contribute only a small portion of total product and material emissions.

**Emissions by Material** ■ PG&S Emissions ■ End-of-life Emissions



**40.5**

PG&S Emissions  
(tCO<sub>2</sub>e)

**0.05**

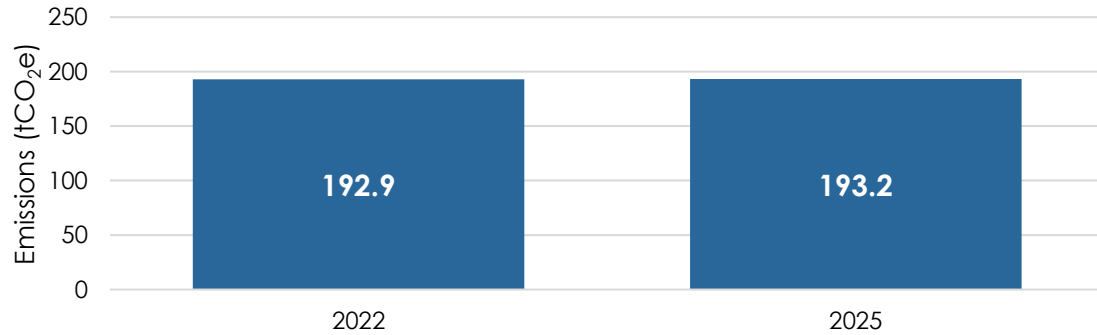
End-of-Life  
Emissions  
(tCO<sub>2</sub>e)

**1.16**

tCO<sub>2</sub>e/Buoy

# Scope 3: Buoy Servicing

## Buoy Servicing

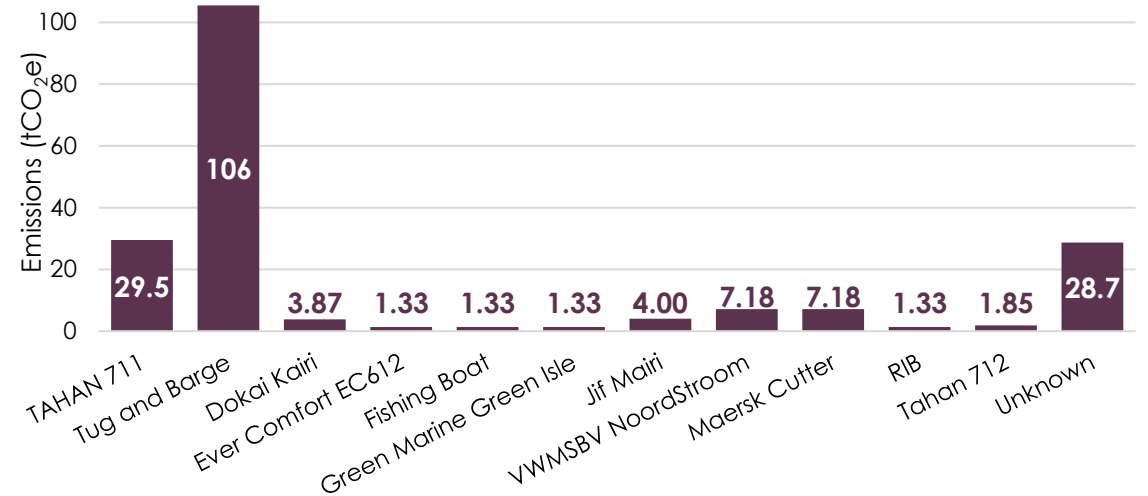


Activity undertaken by buoy support vessels in FY25 was nearly identical overall compared to FY22<sup>1</sup>. Tug & barge setups, along with the TAHAN 711, were the most deployed vessels, together accounting for 67% of all servicing days.

Vessel Name	# of Days	Emissions per Day	Total Emissions
TAHAN 711	16	1.85	29.5
Tug and Barge	14	7.54	106
Dokai Kairi	1	3.87	3.87
Ever Comfort EC612	1	1.33	1.33
Fishing Boat	1	1.33	1.33
Green Marine Green Isle	1	1.33	1.33
Jif Mairi	3	1.33	4.00
VWMSBV NoordStroom	1	7.18	7.18
Maersk Cutter	1	7.18	7.18
RIB	1	1.33	1.33
Tahan 712	1	1.85	1.85
Unknown	4	7.18	28.7

Amongst individual vessels, the TAHAN 711 was used the most frequently, providing 36% of all servicing days. This vessel appears to be right-sized to the operation, demonstrating one of the lowest emissions per day figures of all the vessels used. This outcome is supported by the analysis, where, despite its large share of activity, the TAHAN 711 accounts for only 15% of support vessel emissions. By comparison, tug & barge setups were used for 31% of support activities but contributed 55% of the total emissions.

## Buoy Servicing Emissions by Support Vessel



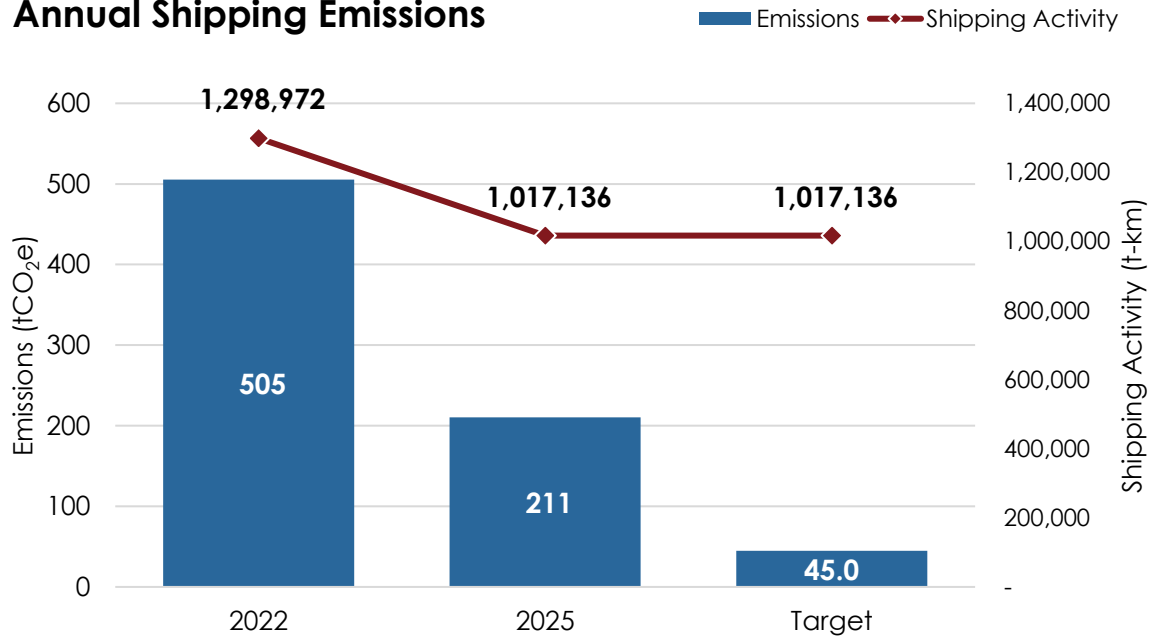
**193**  
Total tCO<sub>2</sub>e

**29%**  
of Total Emissions

**4.29**  
tCO<sub>2</sub>e/  
Servicing Day

## Scope 3: Upstream Shipping

### Annual Shipping Emissions



Shipping emissions decreased by 58%<sup>2</sup> in FY25 compared to FY22. By contrast, total shipping activity (represented by total tonne-kms) decreased by only 22%. This decoupling is due in large part to a 97% reduction in air shipments. Much of this air shipping activity appears to have been replaced with heavy ground shipping, which increased by 93% in FY25.

**211**  
Total tCO<sub>2</sub>e

**31%**  
% of Total

## Scope 3: Employee Commuting & Work from Home

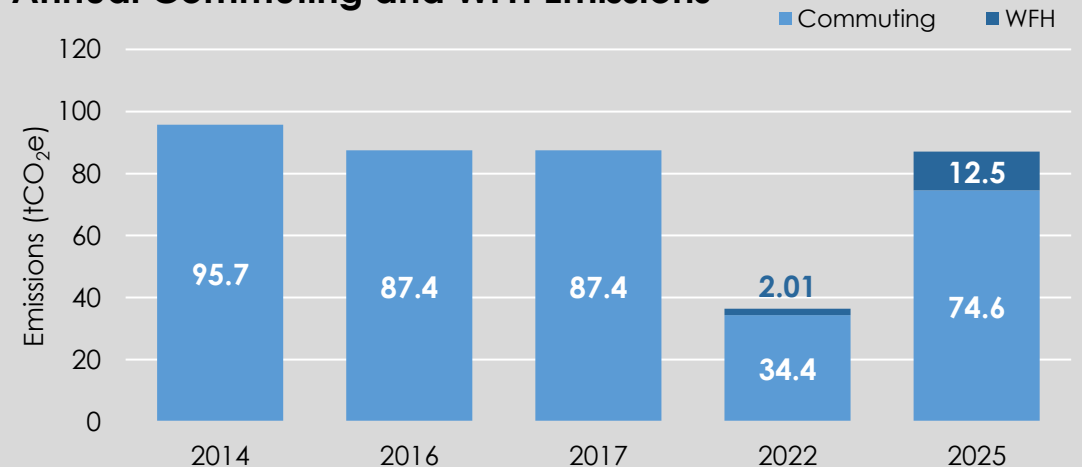
**87.1**  
Total tCO<sub>2</sub>e

**13**  
% of Total

**1.53**  
tCO<sub>2</sub>e/  
employee

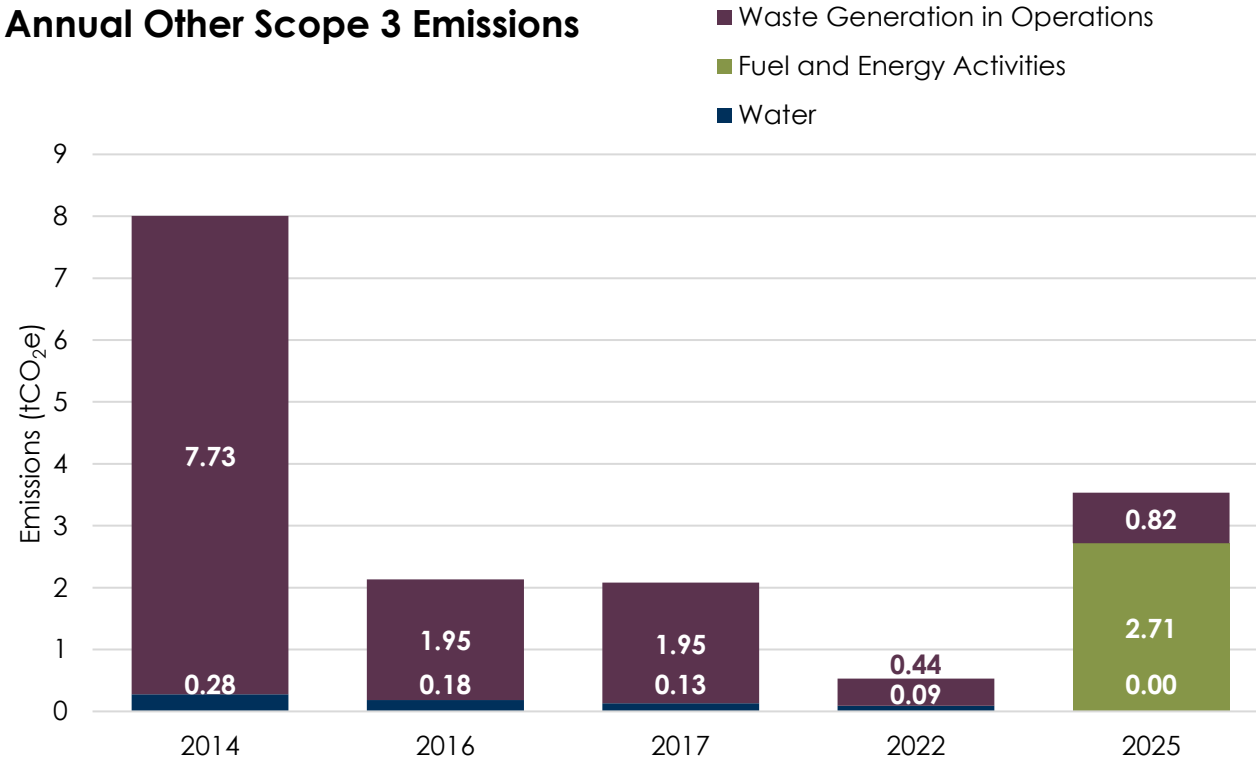
Like with company travel, employee commuting activity appears to have returned to pre-COVID levels. This resulted in commuting emissions increasing by 105% in FY25 compared to FY22. Activity increased uniformly across travel in personal vehicles and via public transport. Looking back to 2017, however, demonstrates that emissions from personal vehicle travel have decreased by over 15 tCO<sub>2</sub>e and emissions from public transit have increased by 2.7 tCO<sub>2</sub>e – an indication that a greater number of staff are choosing to use transit than in previous years.

### Annual Commuting and WFH Emissions



# Scope 3: Other Scope 3

## Annual Other Scope 3 Emissions



The remainder of emissions come from three minor sources: water consumption, fuel & energy activities, and waste generated in operations.

AXYS continues to demonstrate leadership in waste management, as evidenced by a very low emissions total due to waste. Fuel & energy activities, which represents the emissions associated with fuel production and transportation, were the largest source of other scope 3 emissions at 2.71 tCO<sub>2</sub>e. Despite this, these emissions together accounted for only 0.5% of the total GHG inventory.

**3.53**  
Total tCO<sub>2</sub>e

**0.5%**  
% of Total

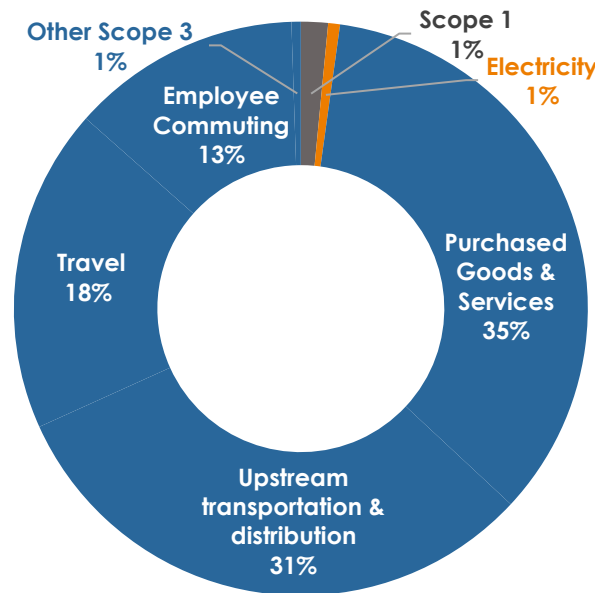
# Conclusion

AXYS has made notable progress in decreasing its emissions compared to its FY22 base year. A 97% reduction in air shipments led to a 58% decrease in shipping emissions and demonstrated the impact of AXYS' decision to reduce the volume of materials it ships by air.

Total emissions for FY25 were 673 tCO<sub>2</sub>e. The reduction in shipping emissions meant that, despite business travel and employee commuting emissions having both increased, the overall footprint was 21% lower than in FY22. The scope of AXYS' inventory was expanded to include the impacts of materials used in buoy manufacturing (6% of the total), while fuel and electricity emissions decreased.

## Key Takeaways:

- Purchased goods & services overtook shipping as the largest emission source
- Shipping emissions decreased by 58%
- Despite an expansion of scope, total emissions still decreased by 21%



## Priority Areas for Decarbonization:

- Business travel doubled compared to FY22
- Employee commuting emission returned to pre-COVID levels, but more staff opted to take transit over personal vehicles
- Reducing buoy servicing performed by tug & barge setups will reduce these emissions

An aerial photograph of a sandy beach with waves crashing onto the shore. The water is a mix of light and dark tones, with white foam from the waves. The sand is a light beige color. The word "Appendices" is overlaid in a dark blue font on the left side of the image.

# Appendices

# Inventory Information

**Company Name:** AXYS Technologies  
**Contact:** Hayton Cramphorn, [hcramporn@axys.com](mailto:hcramporn@axys.com)

**Company Description:** Headquarters and two warehouses in Sidney, BC. One company vehicle and 57 staff.

**Reporting Period:** August 1, 2024, to July 31, 2025

**Scope 2 Approach:** Location-based Emissions Calculations

**Consolidation approach:** Operational Control: Accounting for 100% of emissions from operations over which the company has operational control

**Primary Measurement:** Greenhouse gas emissions measured in Carbon Dioxide Equivalent (CO<sub>2</sub>e)

**Reporting Guidelines:** Aligned with those defined in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition* (The GHG Protocol, [www.ghgprotocol.org](http://www.ghgprotocol.org)).

1.5%

Scope 1	tCO <sub>2</sub> e	% of total
Gasoline	0.39	<1%
Propane	0.42	<1%
Marine Diesel	9.44	1.4%
<b>TOTAL:</b>	<b>10.2</b>	<b>1.5%</b>

0.7%

Scope 2	tCO <sub>2</sub> e (market-based)	tCO <sub>2</sub> e (location-based)	% of total
Purchased Electricity	4.48	4.48	0.7%
<b>TOTAL:</b>	<b>Not Used</b>	<b>4.48</b>	<b>0.7%</b>

98%

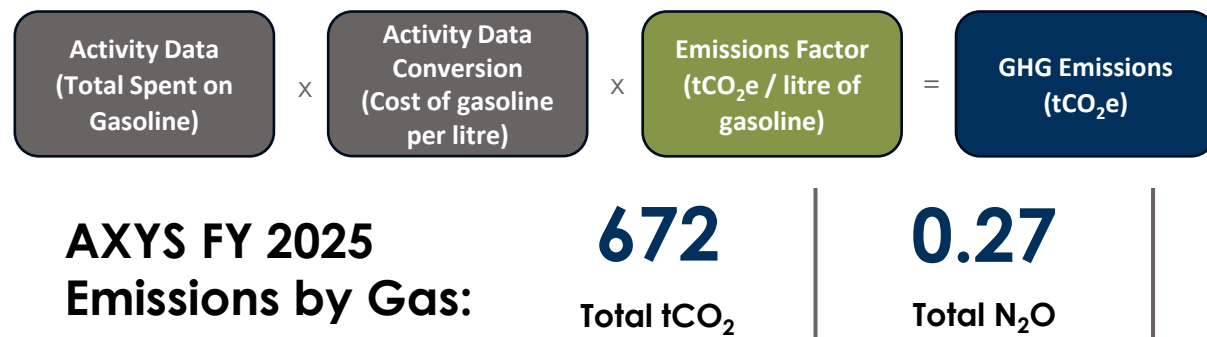
Scope 3	tCO <sub>2</sub> e	% of total
Purchased Goods & Services	234	35%
Fuel and Energy Activities (WTT and T&D)	2.71	<1%
Upstream Transportation & Distribution	211	31%
Waste (Landfill, recycling, compost)	0.82	<1%
Business Travel	123	18%
Employee Commuting	87.1	13%
End-of-Life Treatment	0.05	<1%
<b>TOTAL:</b>	<b>658</b>	<b>98%</b>

# Measurement Methodology

This report was put together as a collaborative effort by Synergy Enterprises and AXYS. Synergy Enterprises is responsible for managing the project, conducting a thorough scoping assessment of AXYS's emission sources, supporting data collection by flagging any issues or risks, calculating emissions and producing a GHG inventory report in accordance with the GHG protocol. AXYS is responsible for providing comprehensive understanding of the company's activity and providing accurate data on activity within the reporting period. As a collaboration it is the responsibility of both parties to set the inventory boundaries, scope the GHG inventory and validate the final report.

Greenhouse gas (GHG) emissions are measured in carbon dioxide equivalent (CO<sub>2</sub>e), which represents the amount of carbon dioxide (CO<sub>2</sub>) that would produce a similar level of global warming as other GHGs. This is calculated using Global Warming Potentials (GWPs) from the Intergovernmental Panel on Climate Change (IPCC) to convert emissions of non-CO<sub>2</sub> GHGs, such as methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), into a CO<sub>2</sub> equivalent. The inventory uses the latest 100-year GWPs from the IPCC's Sixth Assessment Report.

As recommended by the Protocol, companies should use the most accurate method available to them for reporting emissions. For AXYS, activity data is the most readily available data. As such, emissions factors support the measurement of all GHG emissions calculated in the report. Provided below are example calculations for the fuel emissions from the consumption of gasoline.



## Greenhouse gas global warming potentials (GWP)

Scientific Name	Molecular Formula	Global Warming Potential
Carbon Dioxide	CO <sub>2</sub>	1
Methane	CH <sub>4</sub>	27.9
Nitrous Oxide	N <sub>2</sub> O	273

This inventory uses publicly available emissions factors (EFs) to calculate GHG emissions. EFs convert activity data (e.g., fuel consumption, electricity usage) into a corresponding mass of CO<sub>2</sub>e emissions. All EFs are sourced from reputable, up-to-date publications. If an EF is not in CO<sub>2</sub>e, it is converted using Global Warming Potentials. A unit conversion may also be necessary to ensure the activity data and EF units are consistent.

Policy for Base Year Recalculation: Base year emissions, and other previous emissions, shall be retroactively recalculated if a change in organizational structure or data quality is expected to exceed a significance threshold of 10% of base year emissions. These changes may arise from structural changes such as mergers, acquisitions, divestments, outsourcing or insourcing, changes in calculation methodology and improvements in accuracy, or discovery of significant errors.

# Data Quality Assessment

Synergy assesses data risk based on three key categories. The data received for each emissions source measured is assessed and systematically allocated a risk category based on how it scores in each of the three variables.

**Data Quality:** Using the suggested structure from the GHG protocol we assess the quality of data based on technology, timeliness, geography, and reliability. Each of these categories are rated from poor to very good, the combination of these all result in the data quality ranking.

**Data Uncertainty:** This category measures the percentage of estimated emissions in the emissions category. This metric is reported independently to increase transparency, while other uncertainty factors such as data collection methods, reporting inconsistencies, sampling bias, and seasonal variation are assessed under the Data Quality category.

**Percentage of Footprint:** The percentage of this emissions category of the entire footprint is represented to show the scale of impact that the data quality ranking has on the emissions as a whole.

**Low Risk:** Data received is good and does not need to be improved in future years. This data type does not pose a notable risk to the accuracy of the total GHG emissions.

**Medium Risk:** Data received is adequate, it poses a likelihood of inaccuracy in the final GHG value of this category and could be improved in future years.

**High Risk:** Data received has flaws and poses a high likelihood of inaccuracy in the total GHG inventory presented. In future years, there should be a focus on improving this data.

Emissions Source	Data Quality	% of Footprint	Completeness	Risk Level
Gasoline	6.0	<1%	100%	Low Risk
Propane	6.1	<1%	100%	Low Risk
Marine Diesel	6.6	1.4%	0%	Low Risk
Electricity	6.0	0.7%	100%	Low Risk
Purchased Goods & Services	6.7	35%	91%	Low Risk
Fuel and Energy Activities	6.0	<1%	8%	Low Risk
Upstream Transportation and Distribution	6.5	31%	100%	Medium Risk
Waste Generation in Operations	6.2	<1%	90%	Low Risk
Travel	6.2	18%	99%	Low Risk
Employee Commuting	6.4	13%	95%	Low Risk
End-of-life Treatment	6.5	<1%	50%	Low Risk

# Inventory Uncertainty

This section details data gaps and estimates made that could affect the quality of the data and overall footprint. It is important to consider these notes when assessing the total footprint, as low data quality and estimates can change the outcome of the emissions totals. Each footnote is referenced by number in the emissions source it affects.

## Footnotes

#	Note
1	Buoy service emissions were calculated in accordance with the US EPA Port Emissions Inventory Guidance (reference 5), consistent with the approach used in FY22. This approach relies on aggregate data based on vessel type, which leads to results that are less accurate than those that would be achieved by measuring emissions from primary fuel consumption data.
2	A mix of data was provided for different shipping service providers, leading to different methodologies being applied to different datasets.

# Emission Factor References & Glossary

## 1. 2024 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions

[https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2021-best-practices-methodology\\_for\\_archive.pdf](https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2021-best-practices-methodology_for_archive.pdf)

## 2. Environment Canada's National Inventory Report (1990-2024); Part 2 & 3.

[https://publications.gc.ca/collections/collection\\_2023/eccc/En81-4-2021-2-eng.pdf](https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-2-eng.pdf)

[https://publications.gc.ca/collections/collection\\_2023/eccc/En81-4-2021-3-eng.pdf](https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-3-eng.pdf)

## 3. Department for Environment, Food & Rural Affairs (UK) Carbon Factors 2024

<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023>

## 4. Intergovernmental Panel on Climate Change (Global Warming Potentials)

[https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_Chapter07.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07.pdf)

## 5. US EPA Port Emissions Inventory Guidance (2020)

[Port Emissions Inventory Guidance | US EPA](#)

## 6. Supply Chain GHG Emission Factors for US Commodities and Industries v1.1

<https://catalog.data.gov/dataset/supply-chain-ghg-emission-factors-for-us-commodities-and-industries-v1-1>

Term	Description
Emissions Factor	The volume of emissions created by an emissions producing activity (i.e. fuel combustion), calculated based on the amount of the activity (volume, distance, etc.).
GHG	Greenhouse Gas (emissions): Atmospheric gasses contributing to the greenhouse effect, including Carbon Dioxide (CO <sub>2</sub> ), Methane (CH <sub>4</sub> ), Nitrous Oxide (N <sub>2</sub> O), etc.
GJ	Gigajoule: Unit of natural gas equal to 26.137 m <sup>3</sup> or 0.947 MMBtu
kWh	Kilowatt-Hour: Common unit for measuring electrical consumption
WTT	Well to Tank: Upstream emissions from extraction, processing and transport of fuel.
psg-km	Passenger-Kilometer: Unit separating total emissions between passengers per km
tCO <sub>2</sub> e	Tonnes of Carbon Dioxide Equivalent: a combined term capturing the emissions from various GHGs.
t-km	Tonne-kilometer: A unit of measurement used in shipping

synergy 

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**AXYS**  

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