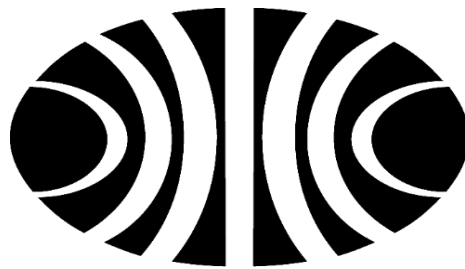


# Annual Sustainability Report



# AXYS

TECHNOLOGIES INC.

## AXYS Technologies

### 2016 & 2017 Report

|              |  |
|--------------|--|
| Completed By | Heidi Grantner, GHG-IQ, & Jay Cummins, GHG-IQ                                |
| Email        | <a href="mailto:heidi@synergyenterprises.ca">heidi@synergyenterprises.ca</a> |
| Completed    | 31/10/2017   |

synergy 

# Executive Summary

AXYS Technologies designs, manufactures and installs remote environmental monitoring systems that can measure and record a variety of climate data. Based in Sidney, BC, their products are shipped and used globally. While AXYS has a number of subsidiaries and offices worldwide, this report measures emissions from the Sidney headquarters only.

AXYS first measured their carbon footprint for the 2014 fiscal year and this second report includes emissions inventories for the 2016 and 2017 fiscal years. A carbon footprint report has not been completed for the 2015 fiscal year. The scope of this report includes Fuel, Electricity, Water, Waste, Paper, Shipping, Service Calls, Company Travel and Staff Commuting.

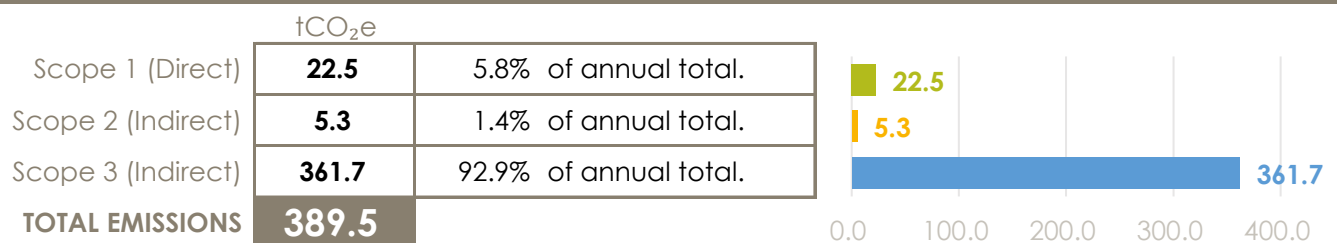
Compared to the baseline 2014 report, 2017 emissions have decreased 33.8 tCO<sub>2</sub>e (8%). This is due to reductions in shipments made, and improvements to waste diversion and staff commuting habits.

The 2014 carbon footprint report has been restated to correct an error in the water data, and to update travel data with more accurate emission factors. These changes reduced 2014 emissions from 549 to 423 tCO<sub>2</sub>e.

## Company Information

|                        |   |                 |              |
|------------------------|---|-----------------|--------------|
| Company Name           | AXYS Technologies   |                 |              |
| Contact Information    | Alberto Callo   | ACallo@axys.com | 250.655.5852 |
| Company Description    | Office and warehouse space spread across two company-owned buildings, located in Sidney, BC.  |                 |              |
| Reporting Period       | April 1st, 2015 - March 31st, 2016; and April 1st, 2016 - March 31st, 2017  |                 |              |
| Inventory Boundary     | <b>Scope 1 (Direct Emissions)</b><br>- Gasoline, Diesel, Propane  |                 |              |
|                        | <b>Scope 2 (Indirect Emissions from Purchased Electricity)</b><br>- Purchased Electricity (BC Hydro)  |                 |              |
|                        | <b>Scope 3 (Indirect Emissions from Other Sources)</b><br>- Water, Waste, Stationery, Paper Products, Company Travel, Shipping, Service Calls, Staff Commuting  |                 |              |
| Consolidation Approach | Operational Control: Accounting for 100% of emissions from operations over which the company has operational control.   |                 |              |
| Primary Measurement    | Carbon Dioxide Equivalent (CO <sub>2</sub> e)   |                 |              |
| Reporting Guidelines   | Aligned with those defined in <i>The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition (The GHG Protocol, www.ghgprotocol.org)</i> . Emissions factors reviewed & approved by Offsetters. |                 |              |

## Inventory Results (2017)



# Carbon Footprint (Summary)

AXYS Technologies

2016 and 2017 Report



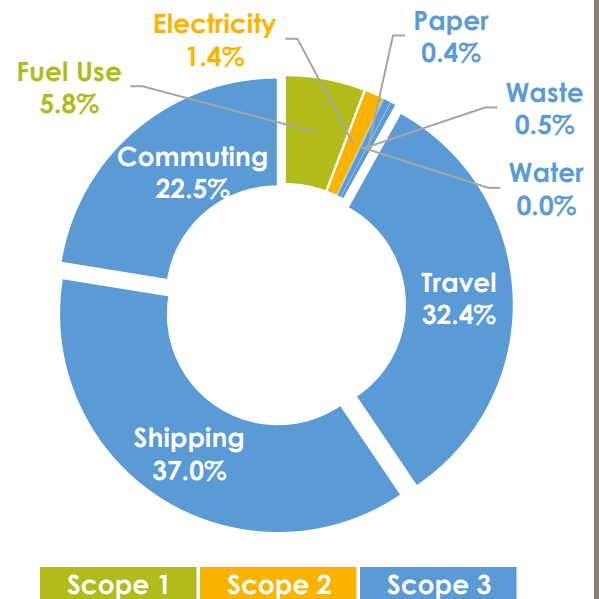
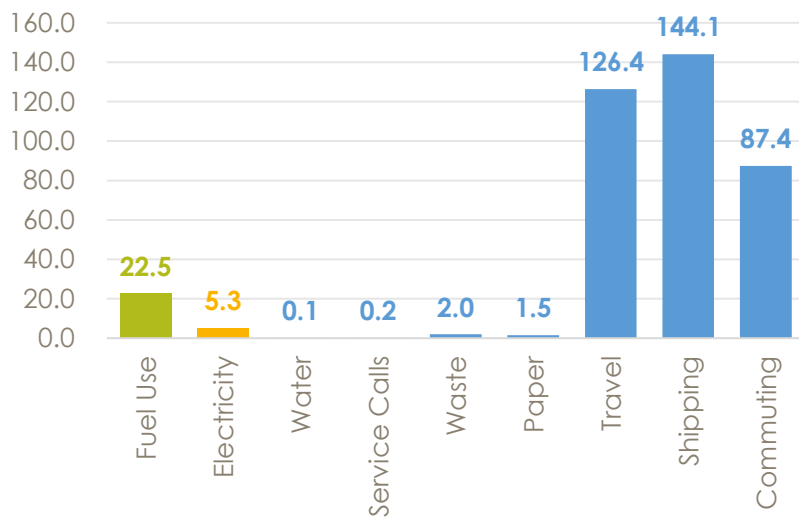
Total emissions: **389.5** tCO<sub>2</sub>e

Offset cost: **\$7,780**

Total emissions for AXYS Technologies came to 304.8 tCO<sub>2</sub>e in 2016 and 389.5 tCO<sub>2</sub>e in 2017. Emissions in 2017 represent an 8% decrease over the baseline 2014 emissions. This is largely due to a reduction in shipments made.

## Carbon Footprint (By Activity)

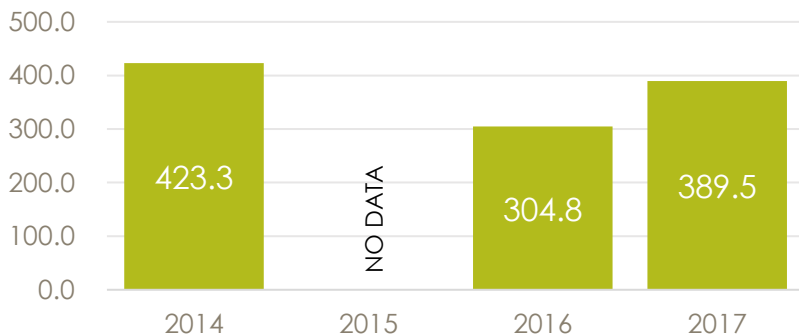
### Emissions by Activity (tCO<sub>2</sub>e)



Scope 1 | Scope 2 | Scope 3

## Carbon Footprint (Historical)

### Annual Emissions (tCO<sub>2</sub>e)



|      | tCO <sub>2</sub> e Per Year | Change since Baseline |         |
|------|-----------------------------|-----------------------|---------|
|      |                             | tCO <sub>2</sub> e    | Percent |
| 2014 | <b>423.3</b>                |                       |         |
| 2015 | <b>NO DATA AVAILABLE</b>    |                       |         |
| 2016 | <b>304.8</b>                | -118.5                | -28.0%  |
| 2016 | <b>389.5</b>                | -33.8                 | -8.0%   |



1,228.7

Barrels of Oil



103.5

Cars per Year



8.9

tCO<sub>2</sub>e/FTE

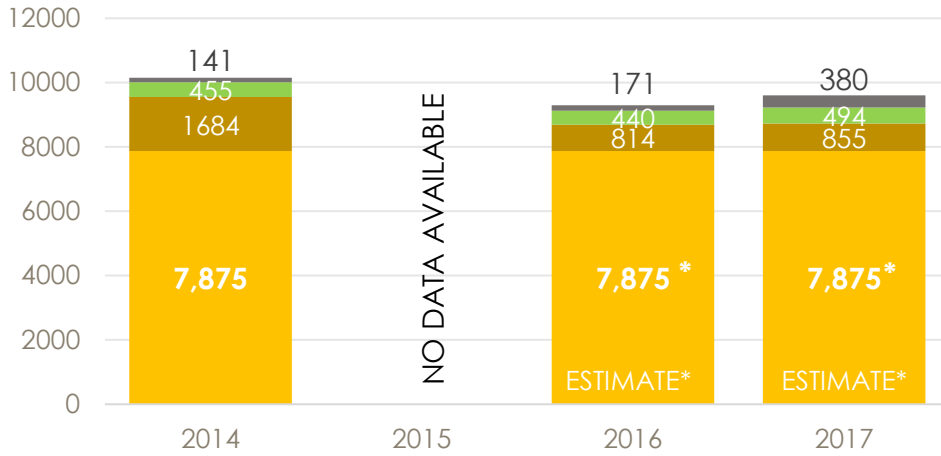
tCO<sub>2</sub>e (Total)

**389.5**

# Fuel Use

## Fuel (L)

- Diesel
- Propane
- Gasoline (Columbia)
- Gasoline (Expenses) \*



### Analysis

Fuel use accounts for 5.8% of AXYS's overall carbon footprint. Gasoline and Diesel were used for company vehicles, while propane was used for the forklift in the warehouse. Gasoline use includes fuel purchased from Columbia fuels, as well as employee expenses. Total fuel use has remained consistent, with litres used in 2017 just 5% lower than 2014.

Note: Diesel purchased from Columbia Fuels contains a 5% biodiesel mix.

\* In 2016 and 2017, the report detailing all employee fuel expenses was not available. Litres of fuel purchased by employees during these two periods were estimated based on 2014 expenses.

Litres / FTE

**218.3**

tCO<sub>2</sub>e

**22.5**

% of Total

**5.8%**

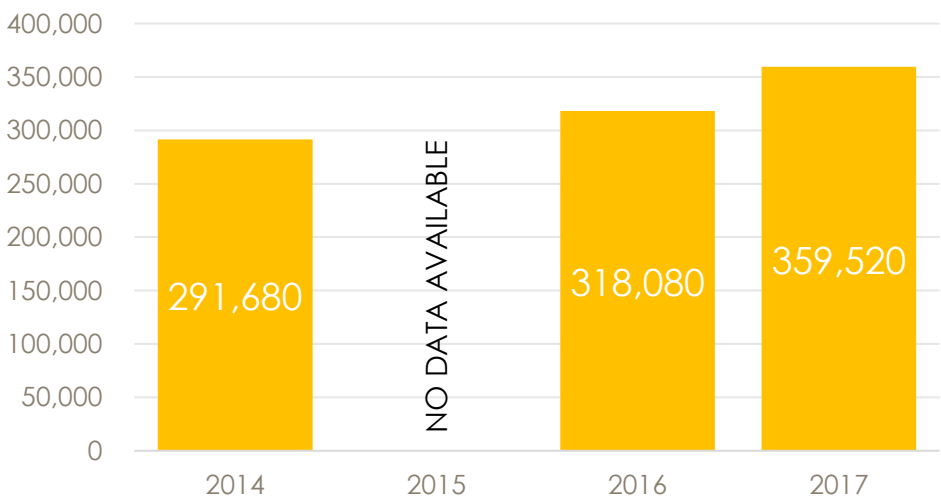


**6.0**

Cars / Year

# Electricity

## Electricity (kWh)



### Analysis

Electricity use accounts for 1.4% of AXYS's overall carbon footprint and is on an upward trend, increasing 23% since 2014. Due to the electrical heating and high use of equipment, electricity use per square foot is above average for a typical office space. It is recommended that AXYS encourage behavioural changes and make efficiency improvements to the space and water heating, and air conditioning systems.

kWh / ft<sup>2</sup>

**20**

tCO<sub>2</sub>e

**5.3**

% of Total

**1.4%**

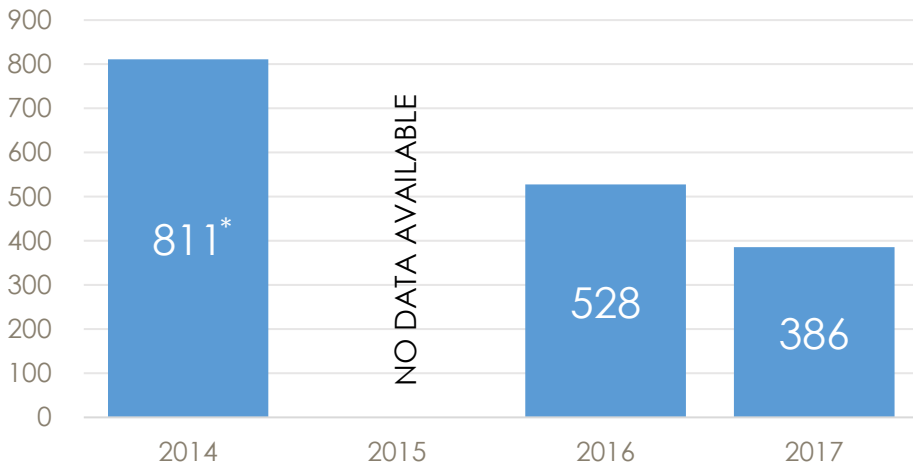


**32.7**

Houses

# Water

## Water (m<sup>3</sup>)



### Analysis

A water audit was completed by the CRD in 2015, which identified water saving opportunities. Since then, AXYS has reduced annual water usage by half. The main savings were due to the discontinuation of buoy testing, which previously used high amounts of water for cooling. A number of low-flow aerators were also installed on water fixtures.

\* Note: Water use in 2014 has been corrected due to an error in the 2014 report. This error did not have a significant effect on the total carbon footprint.

Litres / ft<sup>2</sup>

**22**

tCO<sub>2</sub>e

**0.1**

% of Total

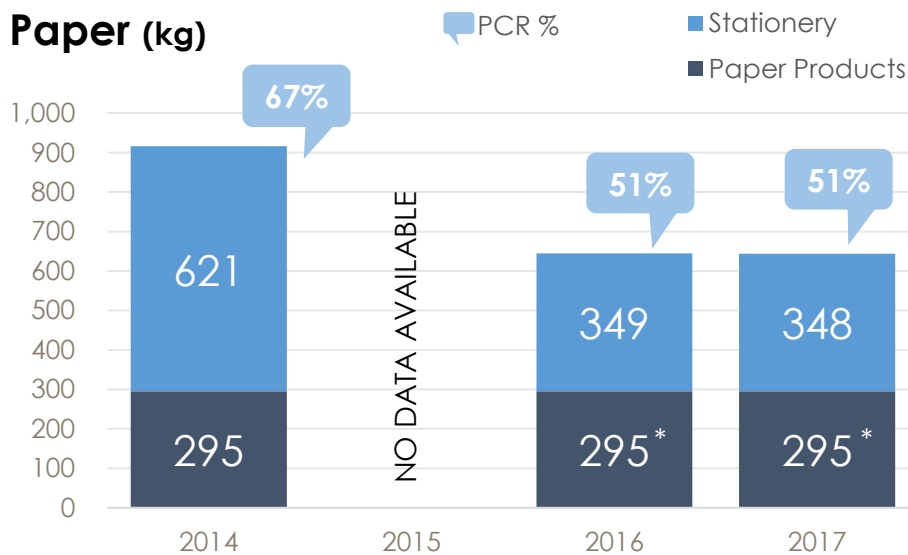
**0.0%**



**1,758**  
Baths (50gal)

# Paper

## Paper (kg)



### Analysis

Paper use at AXYS consists of stationery, such as office paper, and paper products\* such as paper towel. AXYS's % of Post-Consumer Recycled content (PCR) is high due to the purchase of Wheat Sheet copy paper. Only 147 reams of paper were purchased in 2017, compared to 270 in 2014, leading to 30% reduction in paper use and a saving of 0.5 tCO<sub>2</sub>e.

\* Note: Data for paper product purchases was not available, however building maintenance mentioned that paper use has not changed since 2014. 2014 data was used as an estimate.

Treeless Content

**51%**

tCO<sub>2</sub>e

**1.5**

% of Total

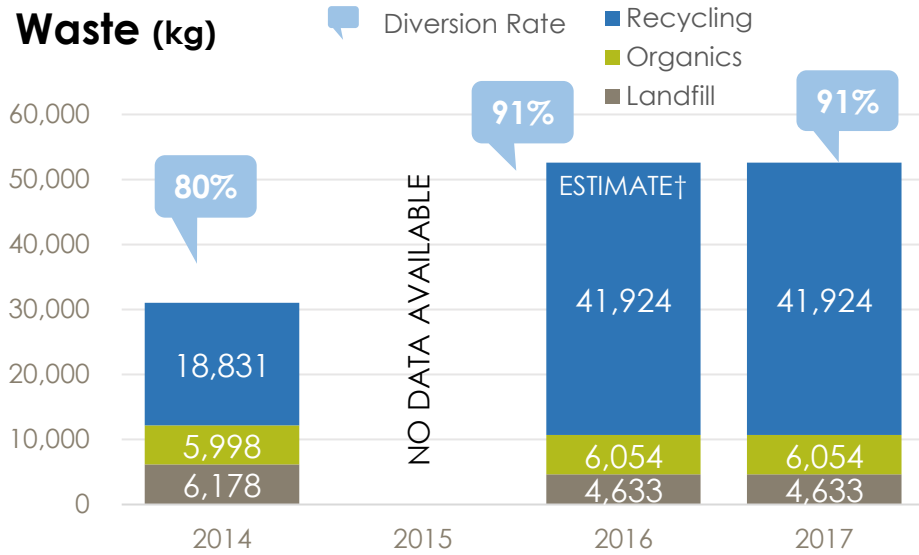
**0.4%**



**8.3**  
Trees / Year

# Waste

## Waste (kg)



## Analysis

Waste production at AYXS\* has increased 70% due to increased volumes of waste recycled, and the addition of a glass recycling stream. With volumes of waste going to landfill also decreasing, AXYS has achieved their goal of a >90% Diversion Rate. This reduction in landfilled waste has led to a savings of 5.8 tCO<sub>2</sub>e in annual emissions.

\*Note: AXYS Technologies shares their waste management program with AXYS Analytical; percentages have been calculated based on the number of employees in each company.

†Pickup schedule was not available for FY 2016, and was assumed to be same as FY 2017.

kg / Day

**144**

tCO<sub>2</sub>e

**2.0**

% of Total

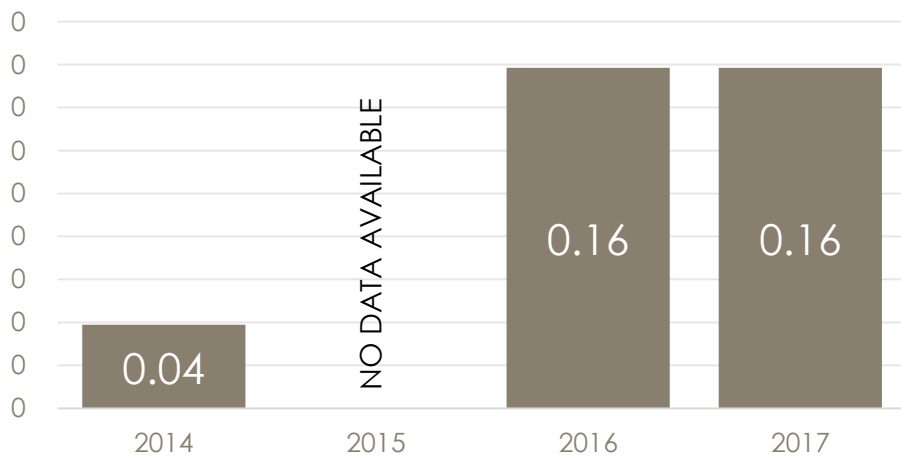
**0.5%**



**91.2%**  
Diversion Rate

# Service Calls

## Emissions (tCO<sub>2</sub>e)



## Analysis

AXYS receives an average of three deliveries per week. Most of these deliveries are from Monk Office. Deliveries and Service Calls account for less than 1% of AXYS's total carbon footprint, however limiting deliveries can lead to savings on staff time and administration costs. Emissions in 2016 and 2017 have increased due to changes in the delivery method.

Visits / Day

**2.7**

tCO<sub>2</sub>e

**0.2**

% of Total

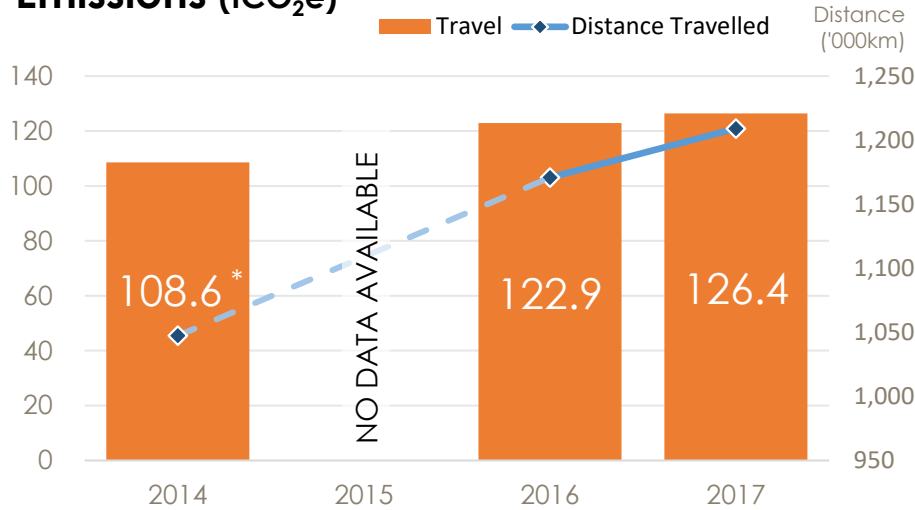
**0.04%**



**0.04**  
Cars / Year

# Travel

## Emissions (tCO<sub>2</sub>e)



## Analysis

Travel was the second largest source of emissions at AXYS, accounting for 32% of the total. Since 2014, the total distance travelled and total emissions have increased 15%. 299 flights were taken in 2016, and 228 flights were taken in 2017, however average distance per flight was greater in 2017. AXYS can limit their impact by increasing the use of teleconferencing.

\* Note: Travel emissions in 2014 have been restated due to updated flight emission factors.

tCO<sub>2</sub>e / FTE **2.87**

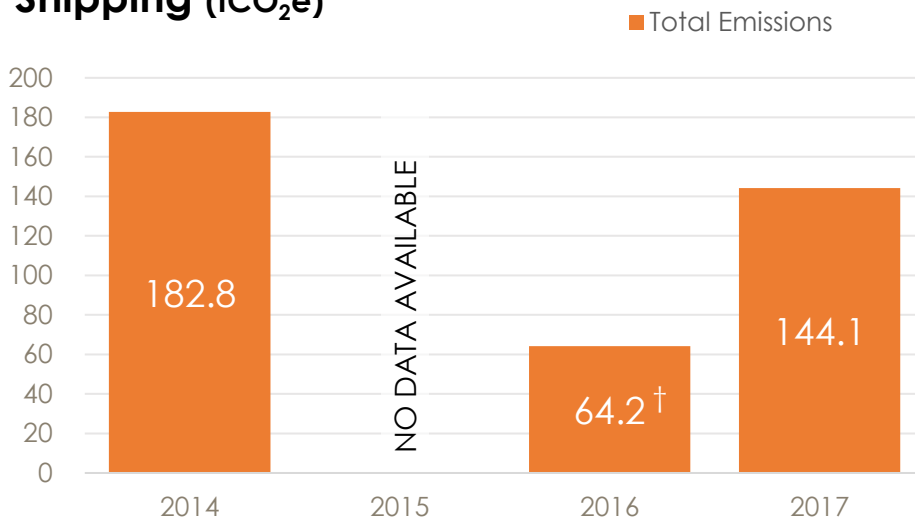
tCO<sub>2</sub>e **126.4**

% of Total **32.4%**

 **33.6**  
Cars / Year

# Shipping

## Shipping (tCO<sub>2</sub>e)



## Analysis

Shipping is the largest contributor to AXYS's carbon footprint, accounting for 37% of total emissions. Since AXYS clients are located internationally, shipping products is a necessary aspect of the company's operations. As AXYS is shifting to more of a data service business model, shipments have decreased 21% since 2014.

\* Shipping is handled by FedEx and Geodis Wilson for international and air shipments, and by Coastline for local and ground shipping.

† The majority of shipments in 2016 and 2017 were made by Geodis. Shipments made in 2015 were about half that of 2017.

Total tonne - km **32,199**

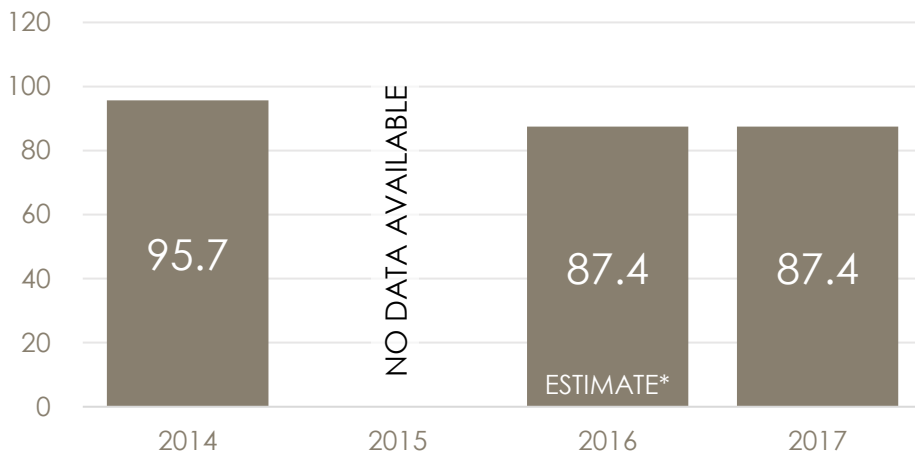
tCO<sub>2</sub>e **144.1**

% of Total **37.0%**

 **38.3**  
Cars / Year

# Commuting

## Emissions (tCO<sub>2</sub>e)

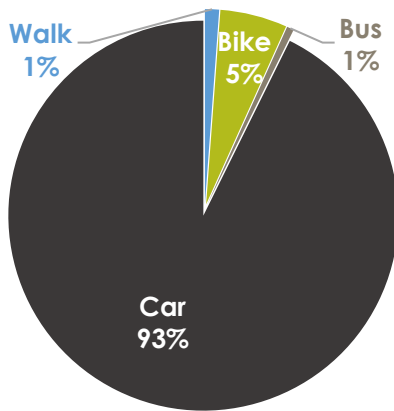


## Analysis

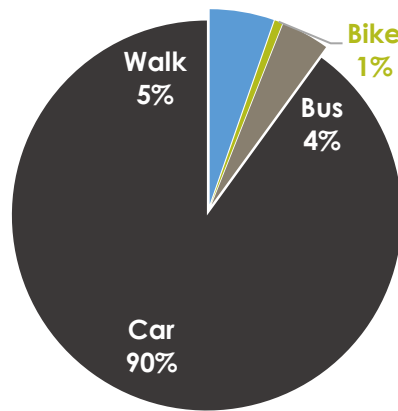
Staff commuting accounts for 22.5% of AXYS's overall carbon footprint and is equivalent to the emissions from nearly 23 cars per year. Emissions from commuting are high due to AXYS's location and the lack of transit infrastructure. Company incentives for carpooling, biking and busing to work have been introduced, with minimal uptake.

\* Note: Survey data was not collected in 2016, and data from 2017 was used as an estimate.

## Commuting Percentages by Method per Day



Baseline (FY 2014)



Current (FY 2016)

## Analysis (Breakdown)

As expected due to the location of AXYS's offices, the majority of staff drive to work. Since 2014, staff commuting by car has reduced from 93% to 90%. This small shift in habits has led to an annual decrease of 8 tCO<sub>2</sub>e in carbon emissions. Strategies to further reduce commuting emissions include subsidized bus passes, educating staff on biking options, and carpooling. Making staff aware of their own contribution to the carbon footprint is a good way to engage them in the sustainability program.

|                                |              |
|--------------------------------|--------------|
| Average kgCO <sub>2</sub> e/km | <b>0.215</b> |
| Low-Emission Commuting %       | <b>7%</b>    |

|                                |              |
|--------------------------------|--------------|
| Average kgCO <sub>2</sub> e/km | <b>0.203</b> |
| Low-Emission Commuting %       | <b>10.0%</b> |

\* Note: The response rate of the staff commuting survey was 70%. Totals have been extrapolated to account for the missing surveys.

tCO<sub>2</sub>e/  
FTE **2.0**

tCO<sub>2</sub>e **87.4**

% of  
Total **22.5%**

 **23.2**  
Cars / Year



# Carbon Reduction Strategy

By continuing to measure and reduce their carbon footprint, AXYS has demonstrated a commitment to environmental sustainability in their company. AXYS's total carbon footprint came to 389.5 tCO<sub>2</sub>e, with the largest sources of emissions being shipping, travel, staff commuting and fuel use.

Since first measuring their carbon footprint in 2014, AXYS has decreased emissions by 33.8 tCO<sub>2</sub>e (8%) due to a reduction in shipments made, improvements to waste sorting, and changes to staff commuting habits. The greatest reduction was in shipping, and this was expected as AXYS moves more towards a data service oriented model. After completing a CRD Water Audit in 2015, AXYS has reduced their water use by 50%. While water does not have a significant carbon footprint, saving water has environmental and cost benefits.

The greatest opportunities for reductions are in encouraging more staff to commute by sustainable means, and continuing to reduced shipments where possible.

## Achievements

- Achieved Green, the highest level from the Vancouver Island Green Business Certification, and Surfrider Approved Certification
- Completed a CRD water audit in 2015, and achieved a 50% reduction in water use
- Continuing recycling efforts have led to a diversion rate of over 90%
- Packing materials are saved and reused for outbound shipments
- Paper use has been reduced 30% due to less copy paper purchased

## Moving Forward

- Install air hand dryers
- Begin tracking employee fuel expenses separately from other travel expenses, to improve the accuracy of future reports
- Monitor electricity use more closely on site. Make efficiency improvements to the space and water heating, and air conditioning systems.

## Information on Inventory Uncertainty

\* Staff commuting was collected for the FY 2017 period. Data was not available for FY 2016. Staff commuting emissions in FY 2016 were assumed the same as FY 2017.

\* In 2016 and 2017, the report detailing employee fuel expenses was not available. This data was estimated based on 2014 expenses.

\* Printing by AXYS from Island Blue Print Co. was not included in the carbon footprint as sufficient data was not available and it was not a significant emission source.

# Emissions References

1. 2016/17 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions  
<http://www2.gov.bc.ca/gov/content/environment/climate-change/policy-legislation-programs/carbon-neutral-government/measure>
2. Environment Canada's National Inventory Report (1990-2014); Part 2 & 3.  
[http://unfccc.int/files/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/applications/zip/can-2016-nir-14apr16.zip](http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/applications/zip/can-2016-nir-14apr16.zip)
3. Department for Environment, Food & Rural Affairs (UK) Carbon Factors  
<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2016>
4. Intergovernmental Panel on Climate Change (Global Warming Potentials)  
[http://www.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/ch2s2-10-2.html](http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html)

All emissions factors are reviewed and approved by Offsetters ([www.offsetters.ca](http://www.offsetters.ca)) on an annual basis.

# Glossary of Terms

| Term               | Description   |
|--------------------|---|
| CFL                | <b>Compact Fluorescent Light</b>  |
| 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                 | <b>Gigajoule:</b> Unit of natural gas equal to 26.137 m <sup>3</sup> or 0.947 MMBtu   |
| HVAC               | <b>Heating, Ventilation &amp; Air Conditioning</b>  |
| KPI                | <b>Key Performance Indicators</b> (Highlights)  |
| kWh                | <b>Kilowatt-Hour:</b> Common unit for measuring electrical consumption  |
| LED                | <b>Light Emitting Diode:</b> A form of highly efficient lighting technology   |
| m <sup>3</sup>     | <b>Cubic Meter:</b> Unit of measurement equal to 1,000 Litres   |
| PCR%               | <b>Post-Consumer Recycled Content</b> (as a percentage)   |
| psg-km             | <b>Passenger-Kilometer:</b> Unit separating total emissions between passengers per km   |
| Ream               | Standard unit of paper measurement equal to 500 sheets (with 10 reams in one box)   |
| T12/T8/T5          | Models of common fluorescent tube lighting  |
| tCO <sub>2</sub> e | <b>Tonnes of Carbon Dioxide Equivalent:</b> GHGs have different warming potentials, measured collectively as CO <sub>2</sub> equivalent (hence "e")   |
| t-km               | <b>Tonne-kilometer:</b> A unit of measurement used in shipping  |

|              |   |
|--------------|---|
| Completed By | Heidi Grantner, GHG-IQ, & Jay Cummins, GHG-IQ |
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| Completed    | 31/10/2017                                    |



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