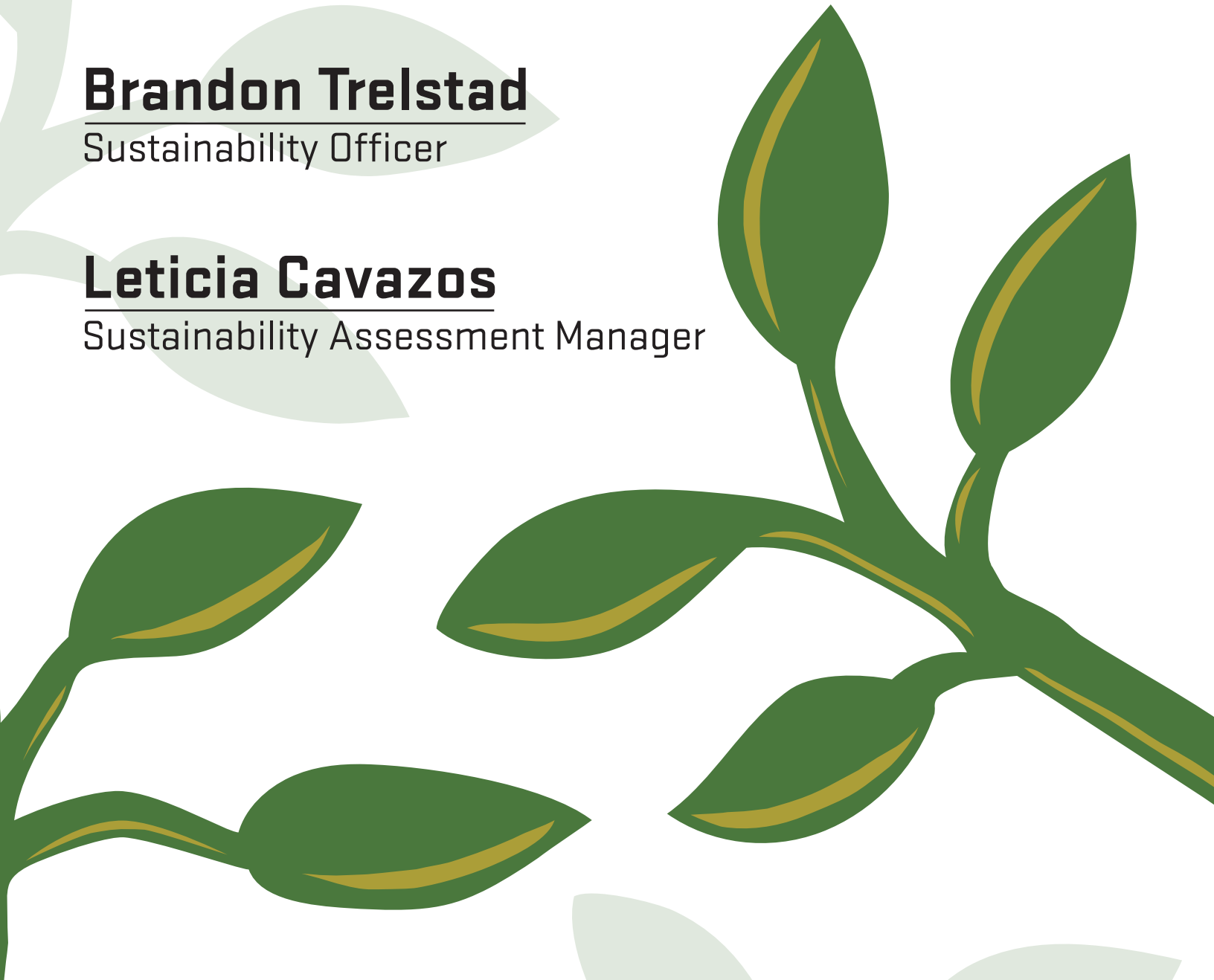
OREGON STATE UNIVERSITY
GREENHOUSE GAS INVENTORY
Fiscal Year 2023

Brandon Trelstad
Sustainability Officer

Leticia Cavazos
Sustainability Assessment Manager



Oregon State University
Sustainability Office

OSU SUSTAINABILITY OFFICE
December 2023

FY23 at a Glance

Gross Emissions (metric tonnes of CO2e)

- **Total:** 117,257.69 - ↓ 0.13% from FY22
- **Per FTE:** 4.10 - ↓ 3.65% from FY22
- **Per 1000 square feet:** 11.07 - ↓ 0.36% from FY22

Net Emissions (metric tonnes of CO2e)

- **Total:** 117,125.89 - ↑ 0.54% from FY22

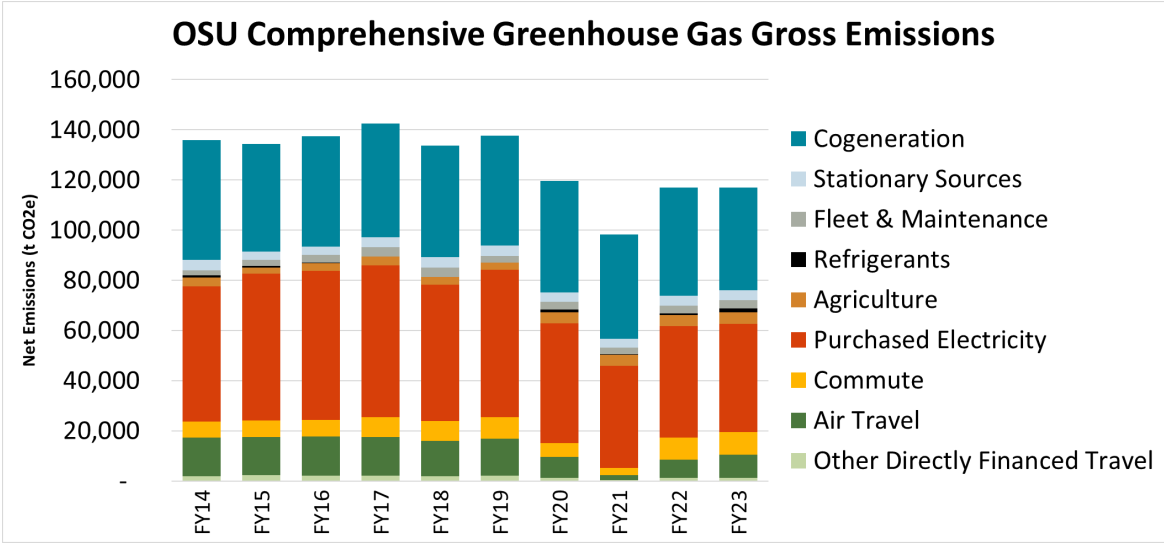
Executive Summary

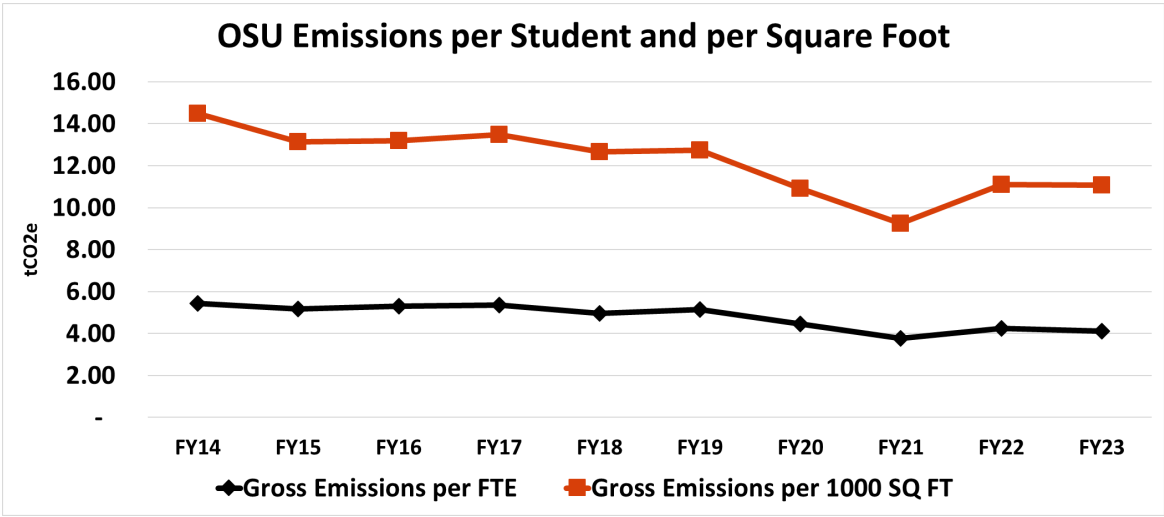
Oregon State University (OSU) aspires to be among the top 10 colleges and universities in the United States recognized for excellence in sustainability. This Fiscal Year 2023 (FY23) OSU Greenhouse Gas (GHG) Inventory helps track progress toward that goal.

This report is an update and expansion of the **FY07-FY22** OSU GHG inventories, which themselves are expansions of a CY04 inventory commissioned by the Oregon University System (OUS).

Findings in Brief

- FY23 **total gross emissions** were 117,257.69 metric tonnes (t) carbon dioxide equivalent (CO2e), a **0.13% decrease from FY22.** The decrease was mainly due to a lower carbon grid mix from purchased electricity.
- **Gross emissions per full-time equivalent (FTE) student** were 4.1 t CO2e, a **3.65% decrease** from FY22.
- **Gross emissions per 1000 square feet of building space** were 11.07 t CO2e, a **0.36% increase** from FY22.
- **Net emissions** were 117,125.89 t CO2e, a **0.54% increase** from FY22. This increase is due to OSU not purchasing renewable energy certificates or carbon offsets during FY22.





Methodology

Overview

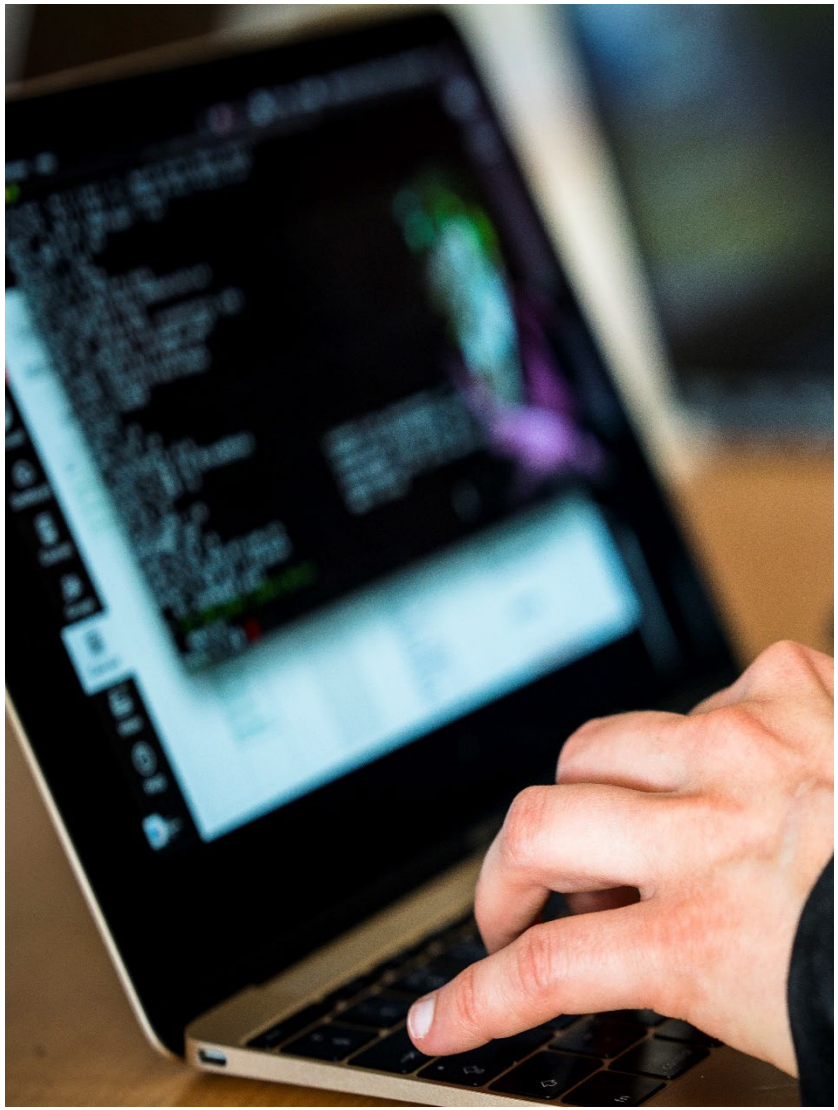
With operations as broad and far-reaching as Oregon State University's, the largest task in creating this FY23 inventory was data collection. Extensive data were gathered from central sources and from OSU entities across the state. Most large sources of GHG emissions are accounted in their entirety. Omissions are described in the Boundaries section of this document.

As in years past, the Sustainability Indicator Management and Analysis Platform (SIMAP) calculator created and maintained by the University of New Hampshire Sustainability Institute was chosen for FY23 due to its focus on university and college campuses, ease of comparison with past inventories and its endorsement by the Carbon Commitment, of which OSU is a charter signatory.

Scope and Boundaries

Identifying scope and boundary issues is a critical step in emissions reporting. While some connections to emissions sources like electrical consumption are direct, others – such as employee commuting or student air travel to and from the university – are not. In an effort to measure all emissions resulting from OSU activity, the boundaries were drawn to be fairly broad: any emissions from an entity over which OSU has financial and/or operational control were included, except emissions from purchased goods and services.

Unless otherwise noted, data comparing fiscal years and university-wide totals are drawn from the OSU Comprehensive inventory. Emissions sources like air travel and rental cars were attributed to OSU Corvallis unless otherwise noted.



Inventories

In order to account for and differentiate between emissions of **OSU's operations across the state**, this report is comprised of four different inventories: Corvallis Campus, OSU-Cascades, Hatfield Marine Science Center (HMSC), and the Statewide Public Services, or "Statewides".

OSU Corvallis
The Corvallis campus produces 94.14% of the university's emissions. At over 400-acres, OSU Corvallis hosted 34,292 students and 5,090 faculty and staff in FY23.

OSU Cascades
Located in Bend, Oregon, this 56-acre campus specializes in degrees like Accountancy, Natural Resources, Tourism and Outdoor Leadership, Hospitality Management, Energy Sciences Engineering and many other programs. 1,271 students enrolled at OSU Cascades in FY23.

Hatfield Marine Science Center (HMSC)
OSU's primary coastal operation and base for oceanographic research is located 50 miles west of Corvallis. Originally established as a marine laboratory for Oregon State University, HMSC currently hosts collaborative research and education programs from seven OSU colleges and six state and federal agencies on its 49-acre campus.

Statewides
As part of OSU's designation as the state's land, sea, space and sun grant institution, OSU's Statewide Public Service Programs identify emerging community issues, discover new research-based solutions, and apply new discoveries through engaged learning. The Statewides consist of three divisions, with operations in all 36 Oregon counties:

- The **OSU Extension Service** connects Oregonians to research-based knowledge for economic development, healthy and productive life choices, and sustainable ecosystems.
- The Oregon **Agricultural Experiment Station** is Oregon's principal research engine related to food, agriculture, and natural resources.
- The **Forest Research Laboratory** is a dynamic source of knowledge about the science and management of forests, the connections of people to forests, and the use of renewable materials to benefit businesses, communities, and quality of life in Oregon.

Data Gathering and Management

OSU facilities are spread throughout the state, requiring data from a large number of sources. Not all data were readily available or in a useable format. The need to balance timeliness with attaining trivial data resulted in some intentional omissions. Other emissions sources were omitted because of incomplete data and a limited ability to reliably extrapolate. Rationale for these omissions is discussed in further detail in the **FY08 report**.

Boundaries

The scope and boundaries of this greenhouse gas inventory aim to be comprehensive, expanding beyond what is typically required of organizational inventories. Using terminology common to greenhouse gas reporting, most inventories at minimum examine "Scope 1," which includes all direct emissions from sources owned or directly controlled by the subject organization. "Scope 2" sources, which cover GHG emissions that result from importing or buying electricity, steam, heated or chilled water, are also often included. "Scope 3" includes all other indirect sources of GHG emissions that result from organization activities from sources not owned or controlled by the organization. These scopes are defined by the World Business Council for Sustainable Development (WBCSD) and are used to ensure consistency and prevent double-counting or double-crediting.

Omitted Emissions Sources and Sinks

It was not possible to precisely inventory every emissions source or sink due to diverse university operations across the state and existing business practices and accounting methods not well suited for reporting the types of data needed. Those intentional omissions are discussed below. If emissions from a source or sink are expected to contribute more than 1% to total emissions it is considered significant; those that are expected to contribute less than 1% are considered negligible and not included in this analysis.

Omitted sources and sinks are shown below:

Omitted Sources and Sinks	
Omitted Source or Sink	**Expected Impact**
Water treatment and distribution (source)	Significant
Personally-financed student travel (travel abroad, to/from home) (source)	Significant
Additional biological sequestration (sink)	Significant
Lifecycle/embodied emissions (source)	Significant
Off-campus vehicle use (source)	Negligible
Solid waste and commuting for Statewides, HMSC and OSU Cascades (source)	Unknown
Recycled materials transportation and processing (source)	Unknown

Findings and Analysis

Total gross and net emissions for each scope are shown below.

OSU Comprehensive Emissions by Scope (t CO2e)					
	FY19	**FY20**	**FY21**	**FY22**	**FY23**
Scope 1					
Gross Emissions	53,353.6	56,829.0	52,335.4	55,369.4	54,230.6
Net Emissions	53,353.6	56,829.0	52,335.4	55,369.4	54,230.6
Scope 2					
Gross Emissions	56,130.1	45,567.4	38,956.4	42,076.5	41,012.2
Net Emissions	53,529.6	42,103.2	38,956.4	41,256.1	41,012.2
Scope 3					
Gross Emissions	28,096.5	17,234.4	7,301.1	19,959.5	22,014.9
Net Emissions	27,959.3	17,098.0	7,221.1	19,876.1	21,883.1
Total					
Gross Emissions	137,580.2	119,630.8	98,592.8	117,405.3	117,257.7
Net Emissions	134,842.4	116,030.2	98,512.8	116,500.2	117,125.9

- OSU is required to mitigate *net* emissions of 110,062.29 tCO2e, which includes scope 1 and 2 sources, as well as commute and air travel from Scope 3. This requirement was established when OSU signed the Carbon Commitment in 2007. The Carbon Commitment requires that signatories mitigate emissions only from Scope 1 and 2 sources, as well as commute and air travel from Scope 3.

- Gross emissions from operations in Corvallis represent 94.14% of total university emissions.

- Part of the difference between gross and net emissions is attributable to periodic purchases of renewable energy certificates (RECs) and carbon offsets in the Corvallis campus, partly from OSU's new travel offsets program. Most years since FY03, OSU Corvallis has purchased RECs in varying quantities. In FY20, the OSU Sustainability Office launched opt-in program to offset carbon emissions from travel. In its first year, 98 carbon offsets were purchased through the program. For FY23, no carbon offsets or RECs were purchased due to funding availability.

Offsets by Fiscal Year (t CO2e)						
Offset Type	**FY18**	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**
Renewable Energy Certificates (RECs)	711.0	2,600.5	4,400.0	0.0	1,200.0	0.0
Carbon Offsets		85.0	98.0	0.0	1.0	0.0

Total FY23 gross and net emissions by source category are displayed below.

FY23 OSU Comprehensive Emissions by Emissions Source			
	FY23 Emissions (t CO2e)	**% of Emissions**	**% Change in Emissions from FY22**
Emissions Sources	**Gross Emissions**		
Cogeneration	40,843.9	34.8%	-5.2%
Stationary Sources	4,035.7	3.4%	0.9%
Fleet & Maintenance	3,159.2	2.7%	3.2%
Refrigerants	1,588.4	1.4%	89.3%
Agriculture	4,603.5	3.9%	5.3%
Purchased Electricity	43,307.5	36.9%	-2.5%
Commute	8,974.7	7.7%	1.3%
Air Travel	9,191.9	7.8%	27.4%
Other Directly Financed Travel	1,222.8	1.0%	4.1%
Solid Waste	330.2	0.3%	-7.5%
Total Gross Emissions	**117,257.7**	**100.0%**	**-0.1%**
Offsets	**Net Emissions**		
Composting	-131.8	-0.1%	13.6%
Purchased Offsets	0.0	0.0%	-100.0%
Purchased RECs	0.0	0.0%	-100.0%
Total Net Emissions	**117,125.89**	**100.0%**	**0.5%**

Changes to the Purchased Electricity Grid Mix

The SIMAP calculator allows for a grid mix specific to the electric utility. Using information from Pacific Power the following utility grid mix was used for the OSU Corvallis and OSU-Cascades. The reduction of coal in the grid mix, as well as the increase in renewable fuels, reduced the emissions from purchased electricity, even though the actual consumption went up by 5.4 million kWh.

Pacific Power Grid Mix					
Fuel	**% total**				
	2019	**2020**	**2021**	**2022**	**2023**
Coal	63.0%	63.0%	56.57%	49.8%	40.8%
Natural Gas	14.7%	14.7%	18.49%	18.9%	21.2%
Hydro	8.3%	8.3%	4.45%	5.9%	2.7%
Renewable	3.6%	3.6%	6.49%	12.0%	16.6%
Geothermal	0.4%	0.4%	0.22%	0.22%	0.0%
Biomass	1.1%	1.1%	0.04%	0.11%	0.0%
Other	9.4%	9.4%	13.73%	12.9%	18.7%

Since Statewides use a more diverse electricity resources, the utility grid mix for Statewides was determined from EPA eGrid data for the Northwest Power Pool (NWPP) utility grid mix. Central Lincoln PUD reported the following utility grid mix for HMSC.

Central Lincoln PUD Grid Mix	
Fuel	**% of total**
Hydro	87.0%
Nuclear	9.0%
Other	4.0%

Comparative Analysis

The following comparative data are drawn from the Carbon Commitment Reporting System website. Several of OSU's comparable institutions have not published FY23 data as of December 2023.

Comparison of OSU Emissions Metrics with Peer Universities					
	23 OSU Comprehensive	**22 OSU Comprehensive**	22 Cornell University	20 The Ohio State University	22 Utah State
Gross emissions per FTE enrolled (t CO2e)	**4.1**	**4.3**	8.4	7.9	4.0
Gross emissions per 1000 sq ft (t CO2e)	**11.1**	**11.1**	12.4	19.5	10.2

Analysis of Data and Results

Due to varied data quality and completeness, assumptions and extrapolations were used for the following areas:

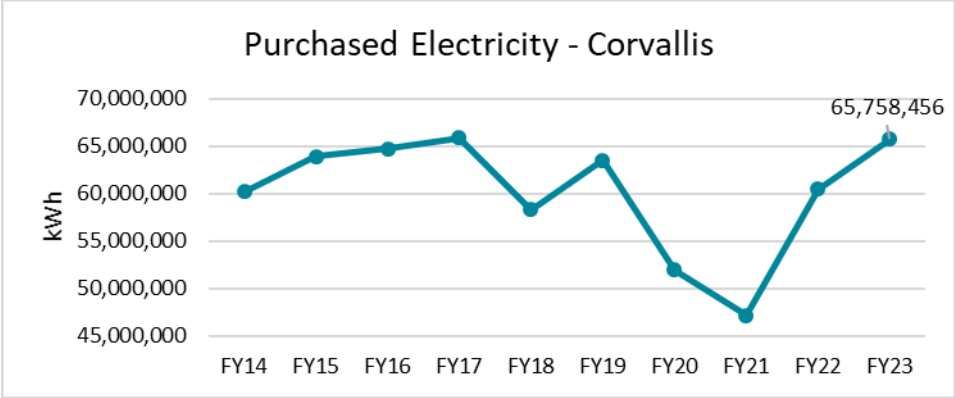
- mission-related air travel
- student and faculty/staff commuting for the Corvallis campus
- directly financed travel

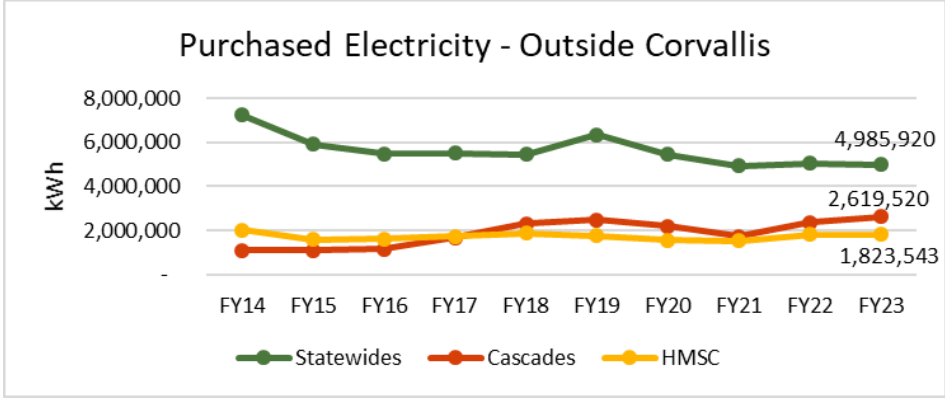
Areas requiring further investigation and enhanced recordkeeping include:

- backup generator fuel consumption
- propane use
- fertilizer use
- solid waste and composting.

Energy Consumption

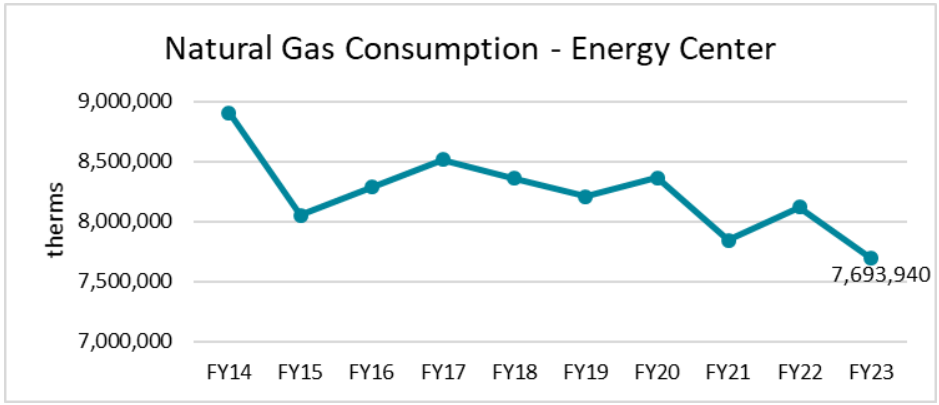
Purchased Electricity

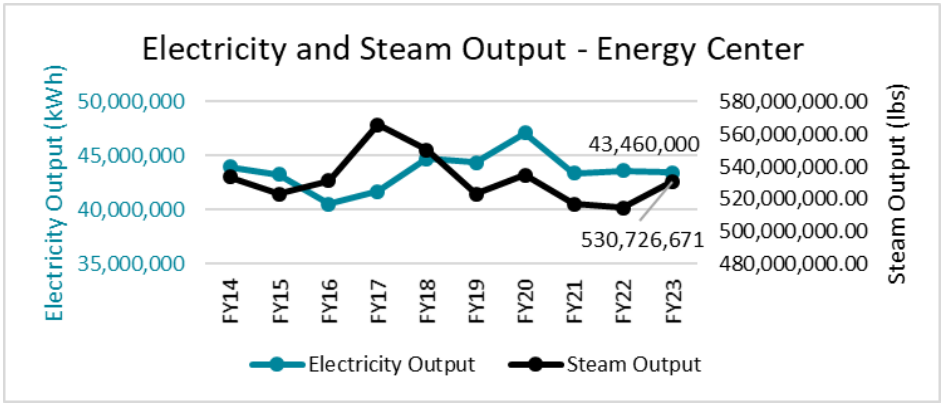




Natural Gas – Cogeneration

In July 2009, the $40 million Energy Center, a cogeneration facility, began producing steam from its two boilers. In June 2010, it began producing electricity under non-test conditions.

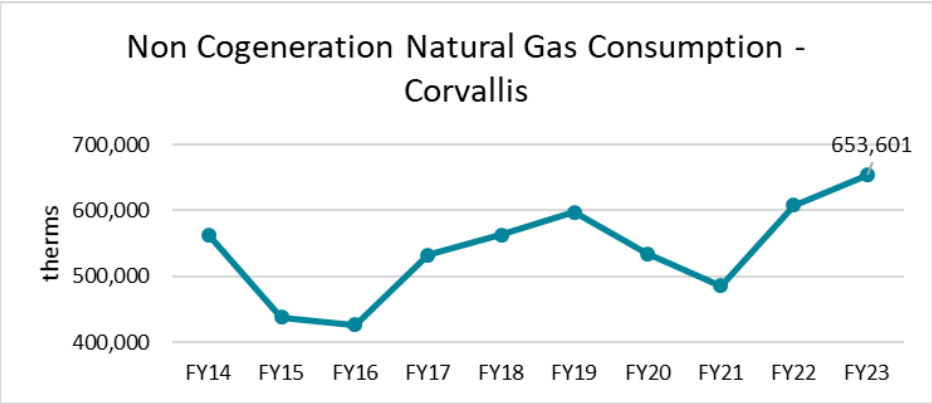


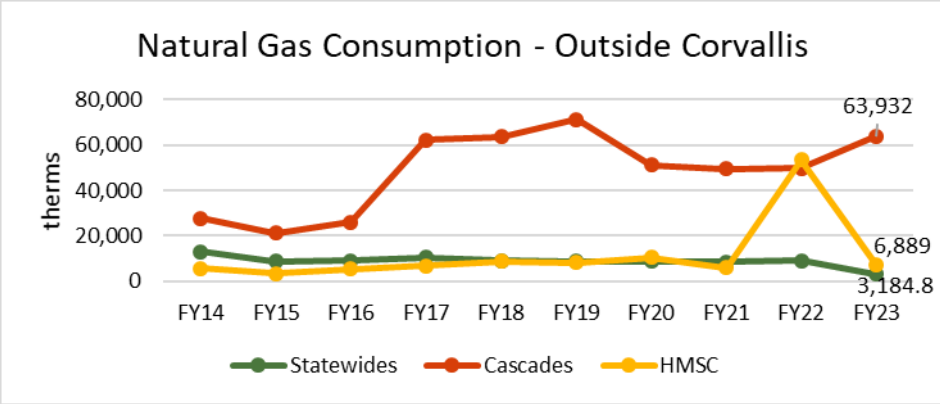


Energy Consumption

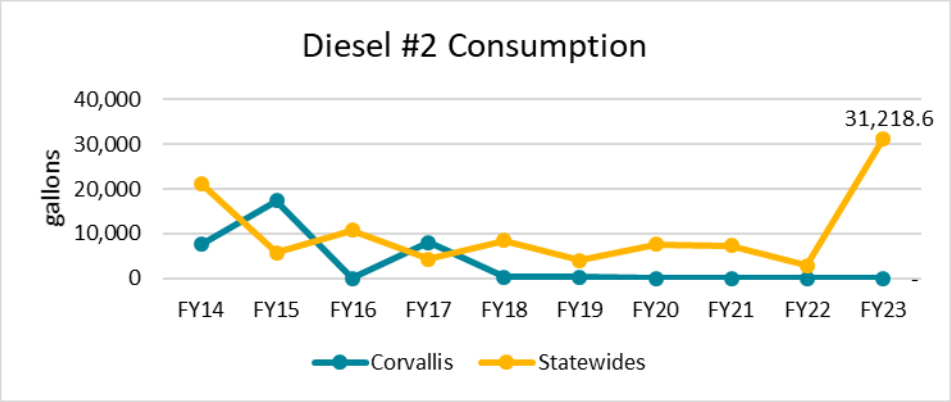
Natural Gas – Non-Cogeneration

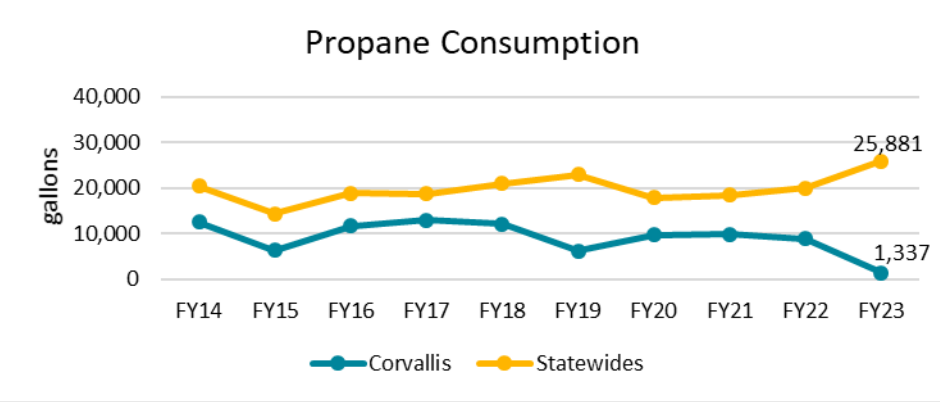
This category includes natural gas use not included OSU Energy Center for cogeneration. Most of this was used for space and water heating in buildings.





Diesel & Propane

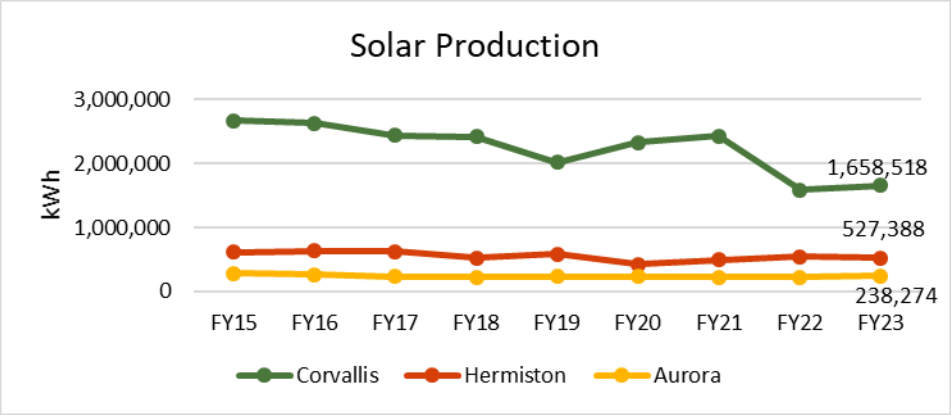




Energy Production

Solar Production

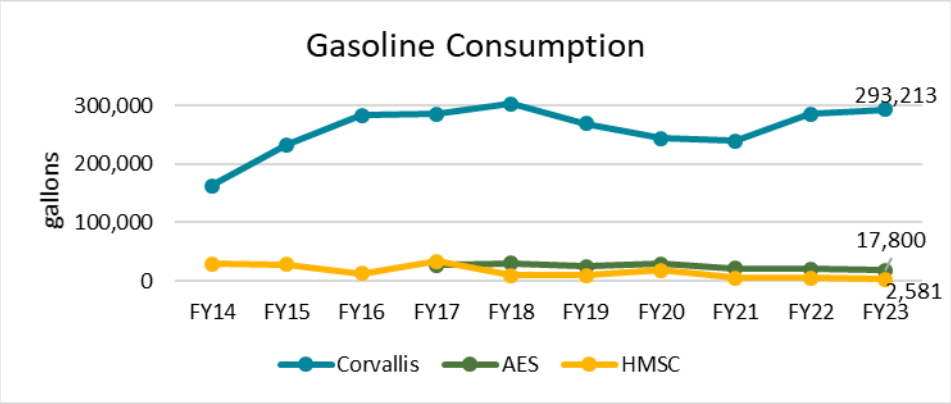
Photovoltaic (PV) solar systems that serve OSU operations.

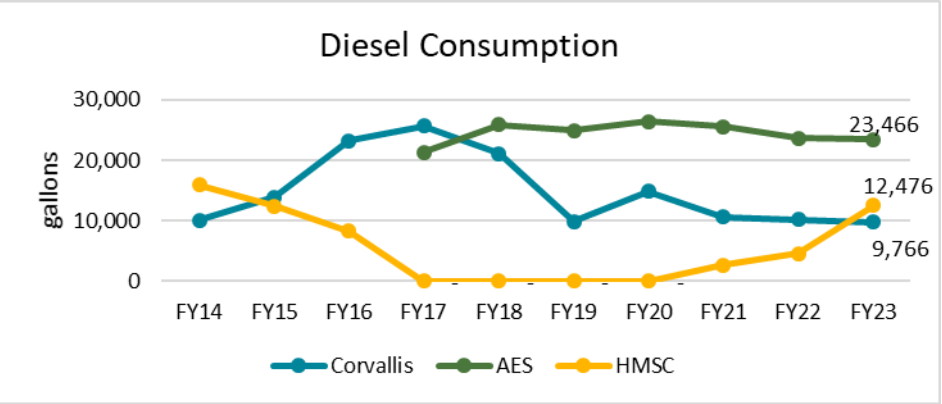


Transportation

Gasoline & Diesel Consumption

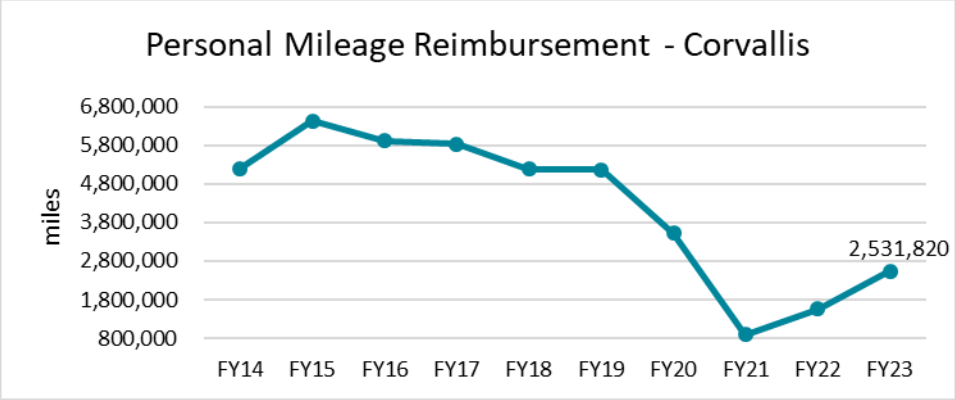
Fossil fuels used in transportation are reported separately from fuels used in stationary sources. OSU has a fuel pump located at the Motor Pool that fills maintenance and fleet vehicles. There is also a credit card system that allows individuals on business trips to fill fleet vehicles wherever needed.

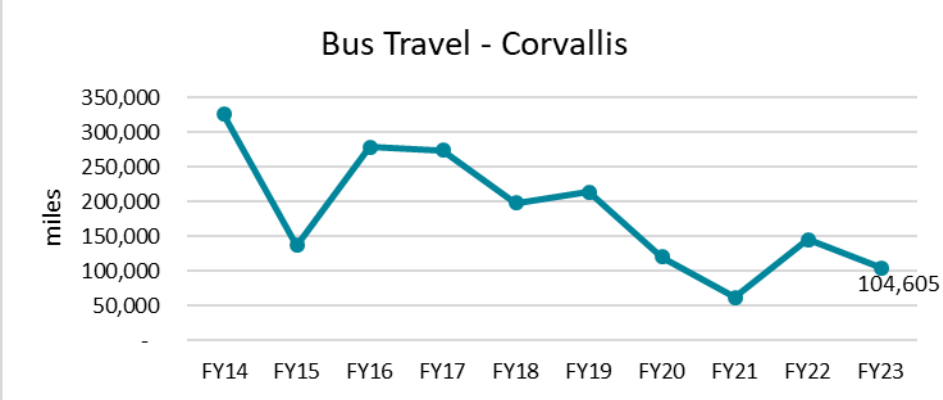




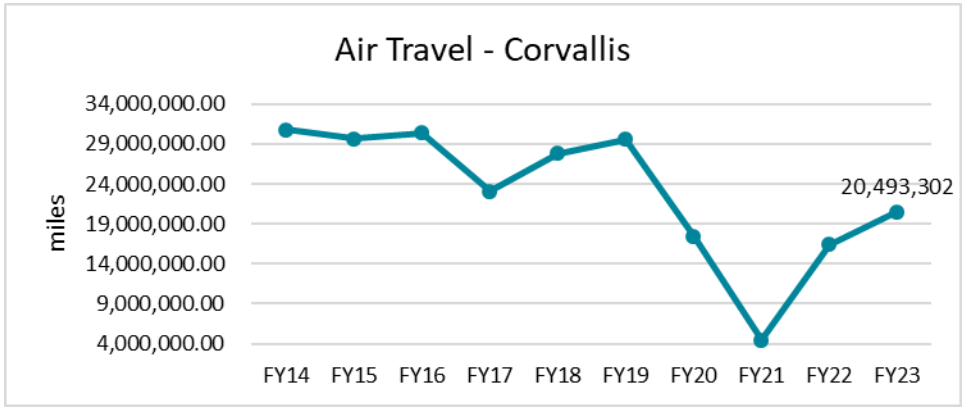
Directly-Financed Travel

Directly-financed travel includes emissions from transportation of employees for activities related to OSU.



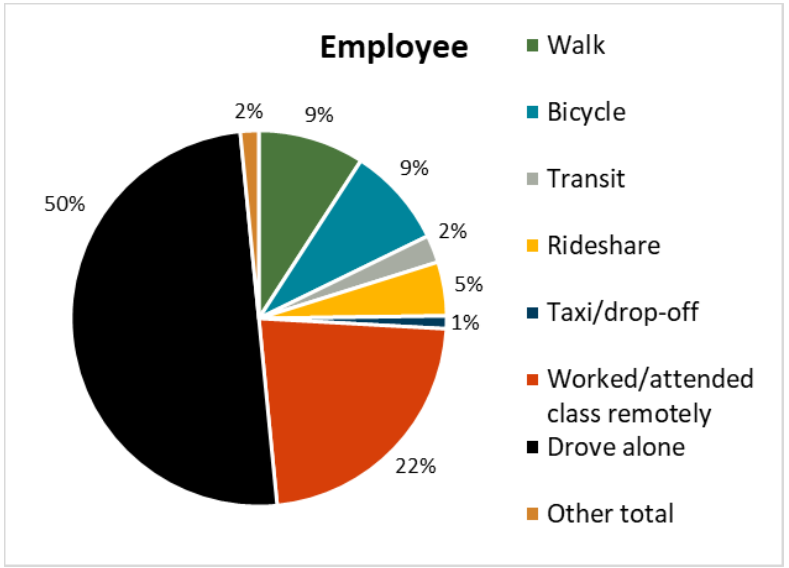


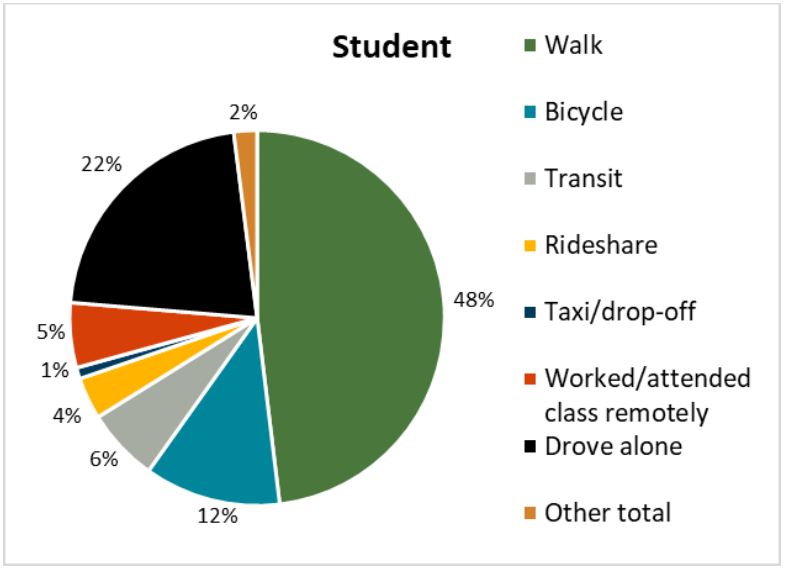
Transportation



Commute

Commuting includes emissions from regular transportation of students and employees to and from OSU.

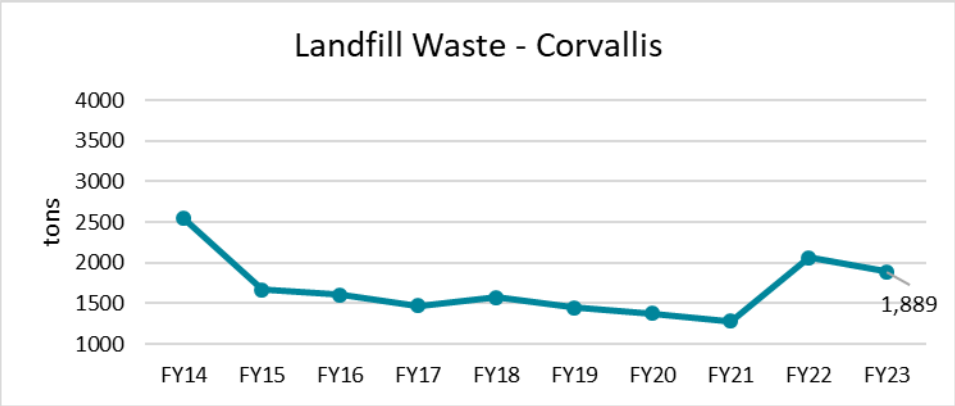




Other Sources

Solid Waste

Solid waste category includes the emissions associated with disposal of municipal solid waste from OSU.



Animal Husbandry

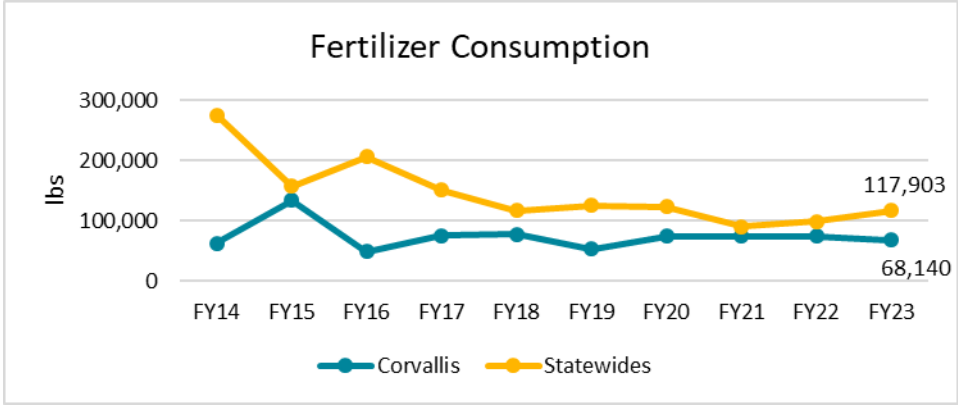
Animals are raised and cared for at several OSU facilities. Their totals are displayed in the table below.

Type	Animal Science	Union Station	Burns Station	Vet Med	Soap Creek	Total
Dairy Cows	225	-	-	1	-	226
Beef Cattle	10	452	615	1	145	1,223
Horses	13	-	3		1	17
Poultry	50	-	-	-	-	50
Sheep	250	-	-	-	-	250
Swine	15	-	-	-	-	15
Goats	20	-	-	-	-	20

Other Sources

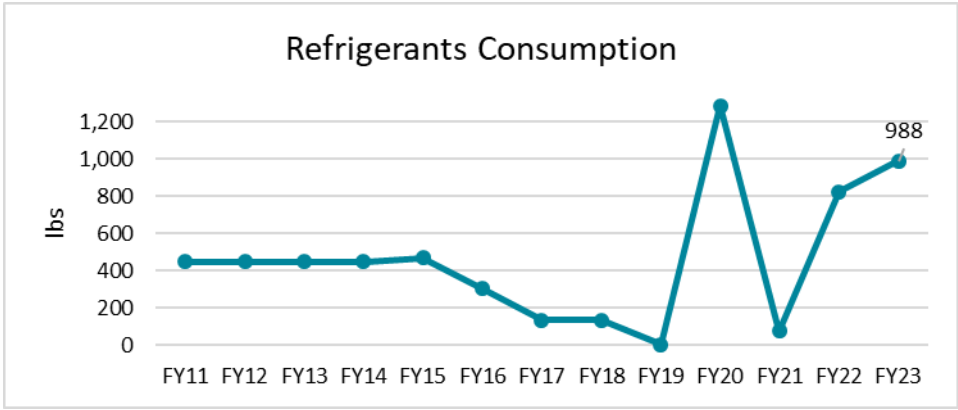
Fertilizer

Location	Weight (lbs)	% Nitrogen
Corvallis	75,200	44%
Ag. Exp. Stations	99,07	13%
Extension Service	204	27%
Total	175,007	28%



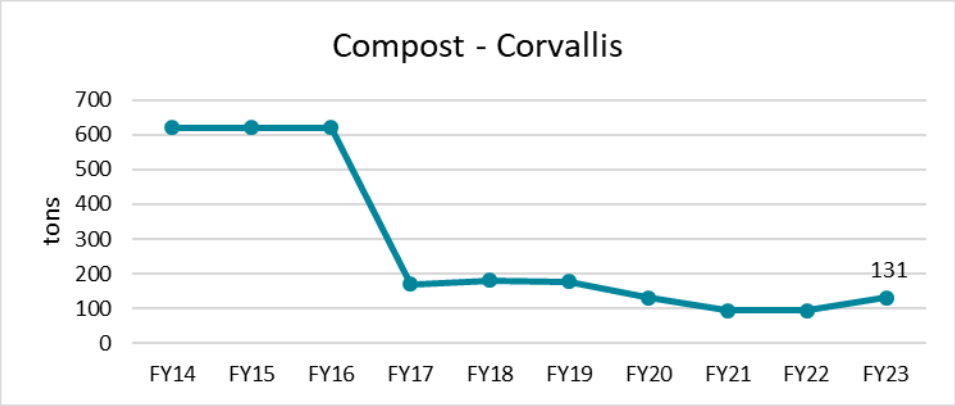
Refrigerant

Refrigerant	Weight (lbs)	GWP (100 year)
R-134A	150	1,300
R-404A	168	3,922
R-22	30	1,810
R-407C	25	1,774
R-410A	450	1,890
R-513A	30	573



Other Sources

Compost

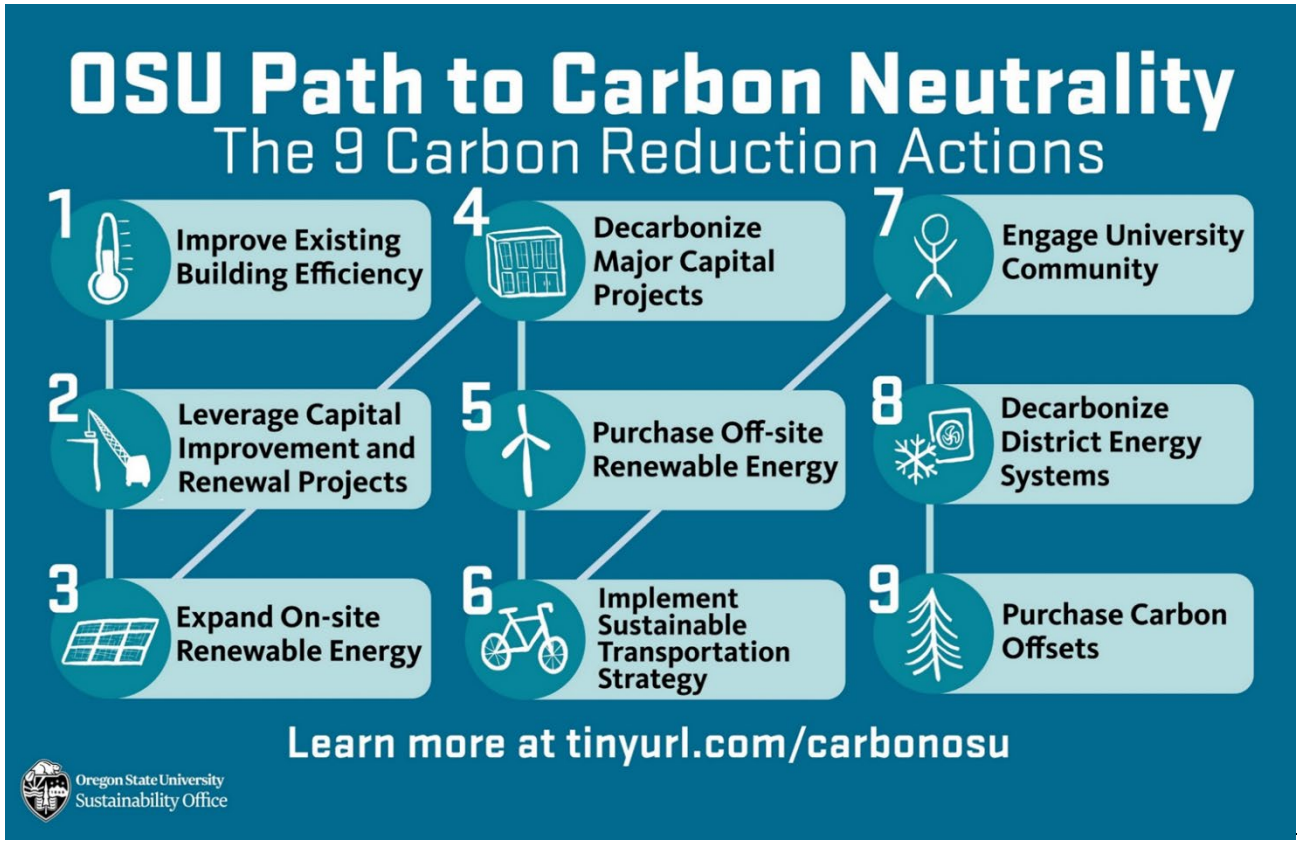


Future Action

OSU Climate Plan

As awareness and demand for action around the climate crisis continues to grow, requests and requirements have come from the campus community, the community at-large, and local and state government. In fall 2018, the OSU Faculty Senate formed the Ad Hoc Committee on the OSU Carbon Commitment, now a permanent standing committee known as the Carbon Commitment Committee (C3), to help promote actions OSU departments can take to reduce carbon emissions. As this group continues its work to broaden the dialogue around action, the Sustainability Office is emphasizing the importance of integrating climate conscience language into department strategic plans, fundraising, budgeting and other functional areas.

More recently in 2021, the Sustainability Office, C3 and university leadership created an updated framework for climate action known as the OSU Path to Carbon Neutrality. The Path outlines nine specific actions to achieve substantial decarbonization and includes funding sources, timelines, carbon impacts and cost estimates. The Path serves as an updated climate plan and implementation plan.



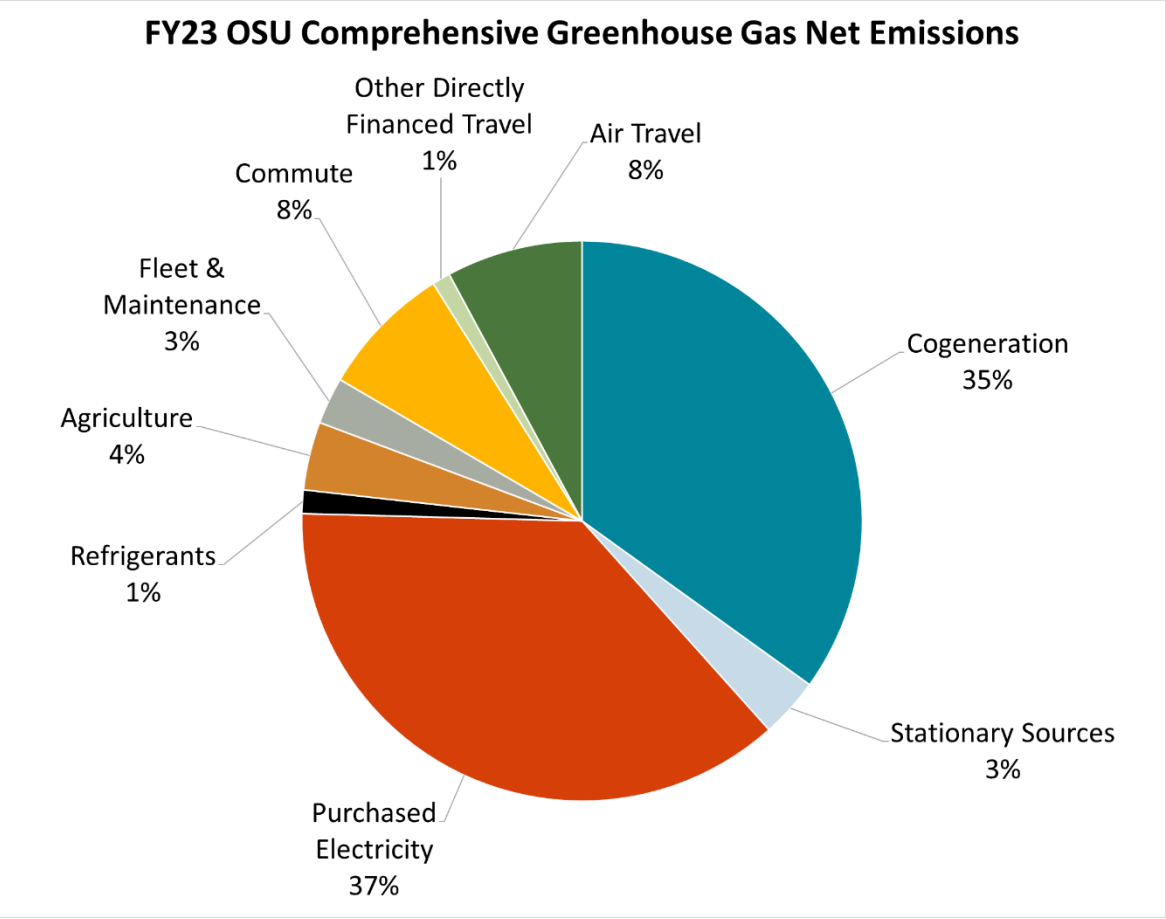
Data Tables and Graphs

Comprehensive FY23 Summary

Scope	Source	CO2 (MTCDE)	CH4 (MTCDE)	N2O (MTCDE)	GHG MTCDE	% change from FY22
1	Cogenerated Electricity	6,568.6	18.3	3.5	6,590.4	-66.2%
	Cogenerated Steam	34,140.1	95.3	18.1	34,253.5	45.0%
	Stationary Sources	4,021.8	11.5	2.4	4,035.7	0.9%
	Fleet & Maintenance	4,639.8	8.6	31.1	3,159.2	3.2%
	Refrigerants	-	-	-	1,588.4	100.0%
	Agriculture	-	4,167.2	436.2	4,603.5	5.3%
2	Purchased Electricity	40,737.1	122.0	153.1	41,012.2	-0.6%
3	Faculty Commuting	425.4	0.7	3.9	430.0	-2.2%
	Staff Commuting	1,963.2	3.1	17.9	1,984.2	5.6%
	Student Commuting	6,491.0	9.8	59.7	6,560.5	0.3%
	Air Travel	8,870.2	-	27.2	9,191.9	27.4%
	Other Directly Financed Travel	1,150.3	13.2	59.0	1,222.6	4.1%
	Solid Waste	-	330.2	-	330.2	-7.5%
	T&D Losses	2,279.9	6.8	8.6	2,295.3	-2.5%

Scope	GHG MTCDE
1	54,230.6
2	41,012.2
3	22,014.9

Gross MTCDE	Offsets (MTCDE)	Compost (MTCDE)	Non-Additional Sequestration (MTCDE)	Biogenic (MTCDE)	Net MTCDE
117,257.7	-	(131.8)	-	-	117,125.88

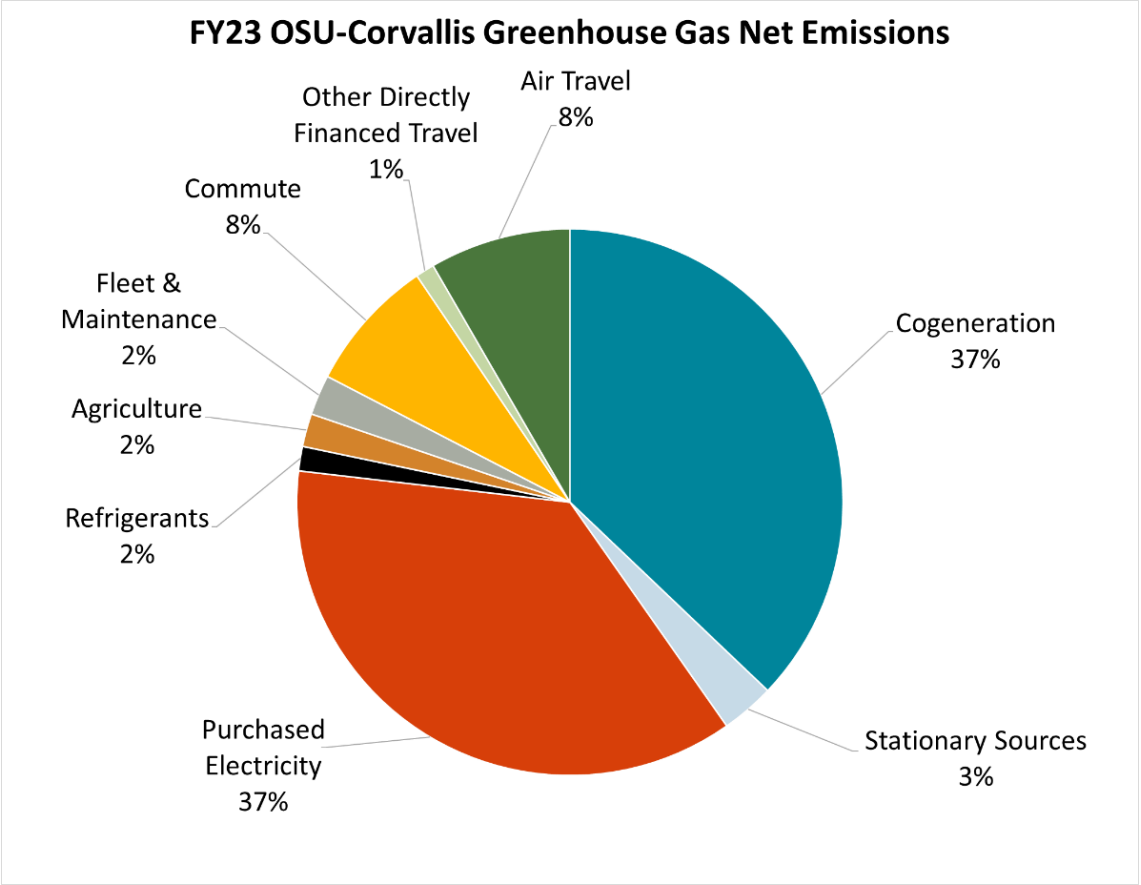

FY23 OSU Comprehensive Greenhouse Gas Net Emissions
Other Directly Financed Travel 1%
Air Travel 8%
Commute 8%
Fleet & Maintenance 3%
Cogeneration 35%
Agriculture 4%
Refrigerants 1%
Stationary Sources 3%
Purchased Electricity 37%

OSU-Corvallis FY23 Summary

Scope	Source	CO2 (MTCDE)	CH4 (MTCDE)	N2O (MTCDE)	GHG MTCDE	% change from FY22
1	Cogenerated Electricity	6,568.6	18.3	3.5	6,590.39	-66.2%
	Cogenerated Steam	34,140.1	95.3	18.1	34,253.50	45.0%
	Stationary Sources	3,465.0	9.7	1.9	3,476.55	6.2%
	Fleet & Maintenance	2,591.3	3.8	23.5	2,618.54	2.3%
	Refrigerants	0.0	0.0	0.0	1,588.36	100.0%
	Agriculture	0.0	1,936.8	216.4	2,153.18	11.0%
2	Purchased Electricity	37,855.3	113.8	142.6	38,111.71	-0.5%
3	Faculty Commuting	400.9	0.6	3.7	405.21	-1.8%
3	Staff Commuting	1,914.8	3.0	17.5	1,935.23	6.0%
3	Student Commuting	6,314.6	9.6	58.1	6,382.22	-0.2%
3	Air Travel	8,870.2	0.0	27.2	9,191.86	27.4%
3	Other Directly Financed Travel	1,150.3	13.2	59.0	1,222.57	4.1%
3	Solid Waste	0.0	330.2	0.0	330.22	-7.5%
3	T&D Losses	2,118.6	6.4	8.0	2,132.97	-2.6%

Scope	GHG MTCDE
1	50,680.5
2	38,111.7
3	21,600.3

Gross MTCDE	Offsets (MTCDE)	Compost (MTCDE)	Non-Additional Sequestration (MTCDE)	Biogenic (MTCDE)	Net MTCDE
110,392.5	-	(131.8)	-	-	110,260.7

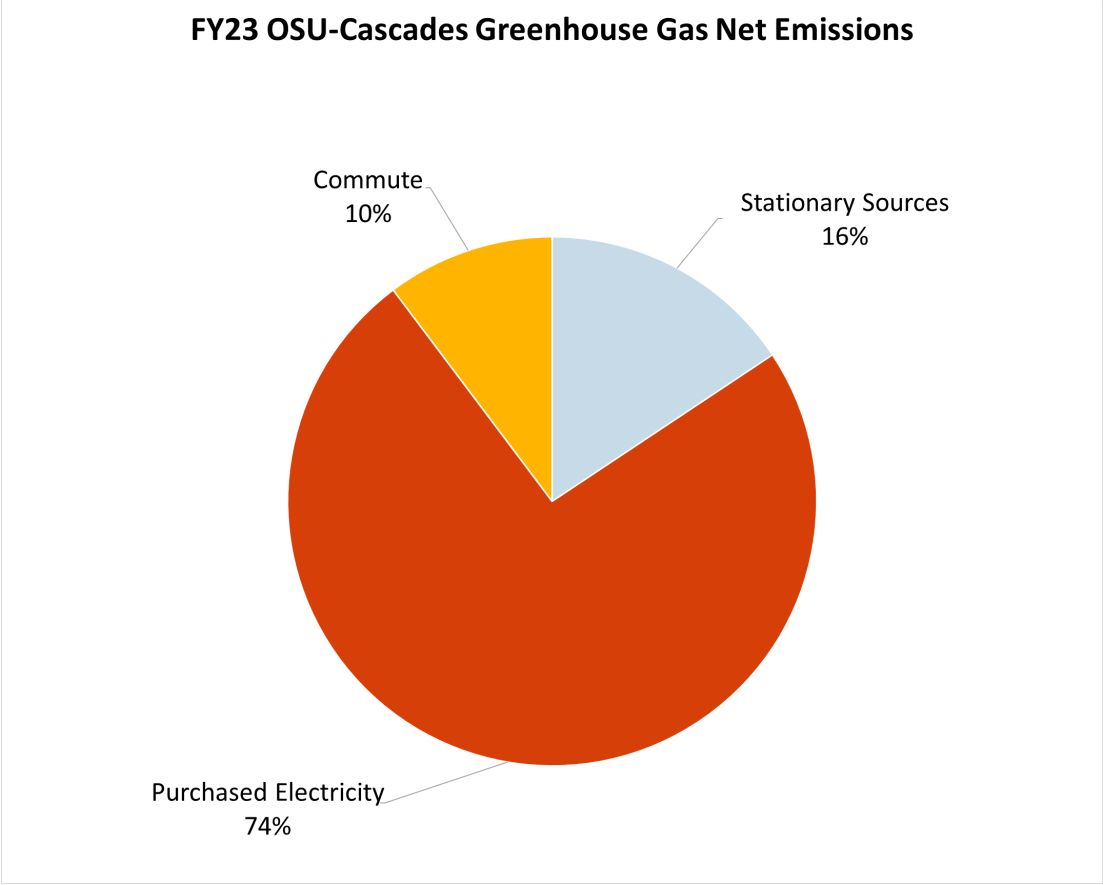

FY23 OSU-Corvallis Greenhouse Gas Net Emissions
Other Directly Financed Travel 1%
Air Travel 8%
Commute 8%
Fleet & Maintenance 2%
Agriculture 2%
Refrigerants 2%
Cogeneration 37%
Stationary Sources 3%
Purchased Electricity 37%

OSU-Cascades FY23 Summary

Scope	Source	CO2 (MTCDE)	CH4 (MTCDE)	N2O (MTCDE)	GHG MTCDE	% change from FY22
1	Stationary Sources	338.3	0.9	0.2	339.39	28.7%
2	Purchased Electricity	1,510.0	4.5	5.7	1,520.26	-1.2%
3	Faculty Commuting	20.0	0.0	0.2	20.20	-6.7%
	Staff Commuting	23.6	0.0	0.2	23.87	-4.4%
	Student Commuting	176.5	0.3	1.6	178.31	21.1%
	T&D Losses	84.5	0.3	0.3	85.08	-1.2%

Scope	GHG MTCDE
1	339.4
2	1,520.3
3	307.5

Gross MTCDE	Offsets (MTCDE)	Compost (MTCDE)	Non-Additional Sequestration (MTCDE)	Biogenic (MTCDE)	Net MTCDE
2,167.1	0	0	0	0	2,167.1

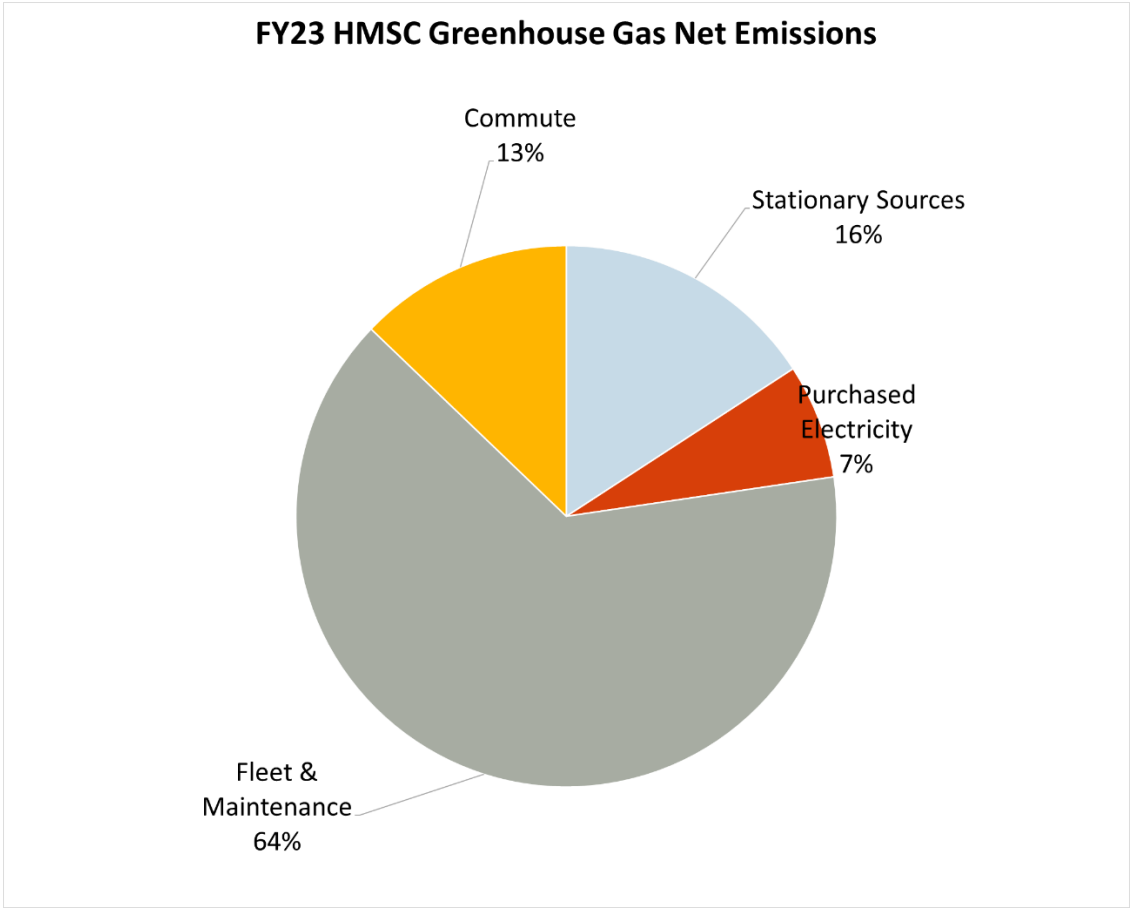

FY23 OSU-Cascades Greenhouse Gas Net Emissions
Commute
10%
Stationary Sources
16%
Purchased Electricity
74%

HMSC FY23 Summary

Scope	Source	CO2 (MTCDE)	CH4 (MTCDE)	N2O (MTCDE)	GHG MTCDE	% change from FY22
1	Stationary Sources	36.5	0.1	0.0	36.57	-87.1%
	Fleet & Maintenance	148.7	0.0	0.3	149.07	68.3%
2	Purchased Electricity	14.9	0.0	0.1	14.98	-1.2%
3	Faculty Commuting	4.5	0.0	0.0	4.58	-7.3%
	Staff Commuting	24.8	0.0	0.2	25.09	-7.4%
	Air Travel	0.0	0.0	0.0	0.00	0.0%
		0.3	0.0	0.0	0.27	0.0%
	T&D Losses	0.8	0.0	0.0	0.84	-1.2%

Scope	GHG MTCDE
1	185.6
2	15.0
3	30.8

Gross MTCDE	Offsets (MTCDE)	Compost (MTCDE)	Non-Additional Sequestration (MTCDE)	Biogenic (MTCDE)	Net MTCDE
231.4	0	0	0	0	231.4

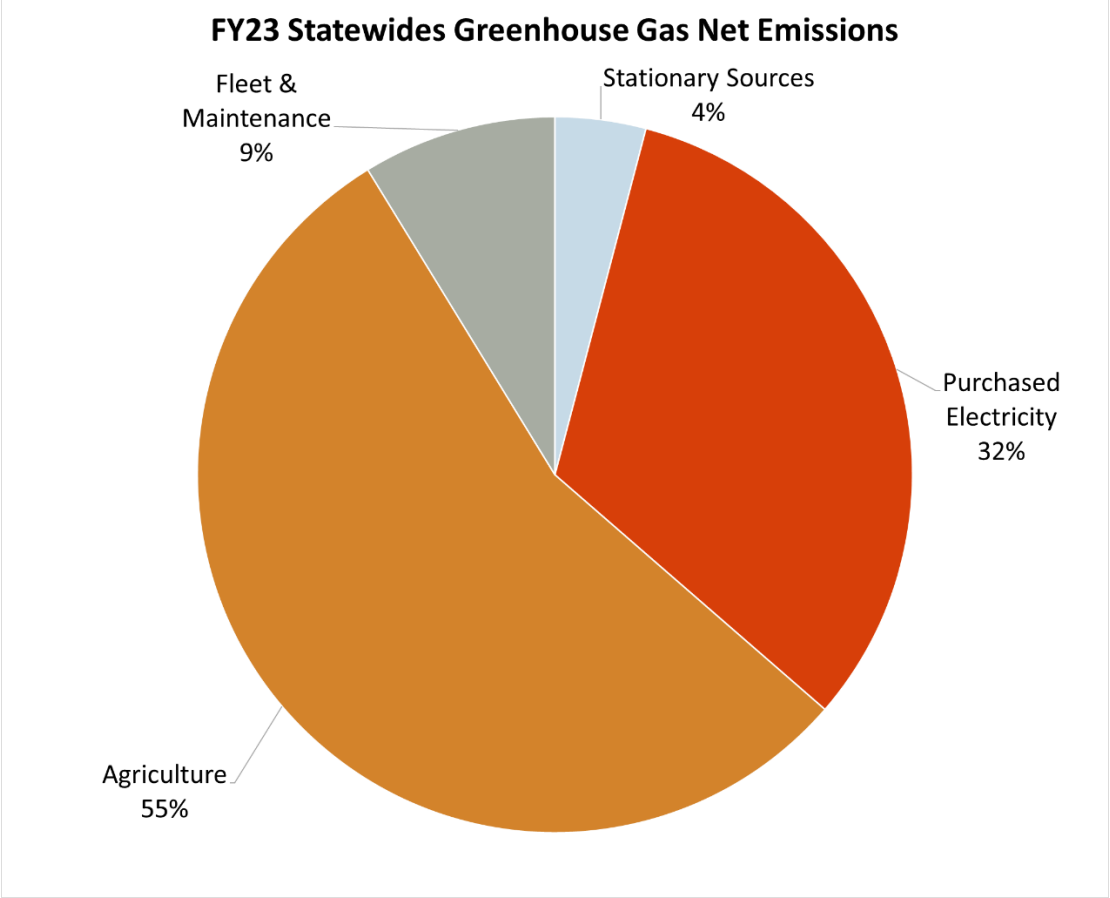

FY23 HMSC Greenhouse Gas Net Emissions
Commute
13%
Stationary Sources
16%
Purchased
Electricity
7%
Fleet &
Maintenance
64%

Statewides FY23 Summary

Scope	Source	CO2 (MTCDE)	CH4 (MTCDE)	N2O (MTCDE)	GHG MTCDE	% change from FY22
1	Stationary Sources	182.1	0.7	0.4	183.15	2.6%
	Fleet & Maintenance	389.8	0.3	1.6	391.61	100.0%
	Agriculture	-	2,230.4	219.9	2,450.27	0.8%
2	Purchased Electricity	1,356.9	3.6	4.8	1,365.23	-3.0%
3	T&D Losses	75.9	0.2	0.3	76.41	-3.0%

Scope	GHG MTCDE
1	3,025.0
2	1,365.2
3	76.4

Gross MTCDE	Offsets (MTCDE)	Compost (MTCDE)	Non-Additional Sequestration (MTCDE)	Biogenic (MTCDE)	Net MTCDE
4,466.7	0	0	0	0	4,466.7


FY23 Statewides Greenhouse Gas Net Emissions
Fleet & Maintenance 9%
Stationary Sources 4%
Purchased Electricity 32%
Agriculture 55%

Acknowledgements

Due to the broad scope of this inventory, a large number of people from many departments, businesses and organizations were involved. We would like to thank them here.

Oregon State University

- Athletics: Katie Landgren
- Agriculture Experiment Stations: Debbie Sutor, Sue Hansell, Holly Lyons, Sonia Voigt, Jan Jones, Petrina White, David Bohnert, Kim Reynolds, Misty Buckley.
- OSU-Cascades: Terri Libert
- Extension Service: Shawna Horner, Holly Lyons, Michele Webster, Bobbi Howell, Julie Baker, Shevon Hatcher, Jeannie Anderson, Tara Gallagher, Alisha Hutchinson, Kayla Sheets, Jill Huffman, Carolina Martins, Mark Chien, Chip Bubl, Kim McCullough, Kimberley Herber, Angela Robb, Sheryl McDonald, Emily Blume, Sherry Nantz, Bobbi Howell, Leah Sundquist, Denise Ashley.
- Finance and Administration: Bezunesh Abebe, Justin Fleming, Diane Johnson, John Deuel, Stephanie Smith, Les Walton, Eric Smith, Jonathan, Champney, Bill Coslow, Dan Kermoyan, Stewart Simmons, Sarah Bronstein.
- Hatfield Marine Science Center: Chelle Boswell
- Institutional Research: Salvador Castillo, Kellie Ann Walker

Businesses and Consultants

- ABM: Tammy Ross
- Amerigas: Jessi Wilson
- Carson Oil: Julia Liebe
- Pacific Power: Adam Kohler

Definitions of Key Terms

1. **"Carbon Commitment"** is an effort to encourage commitments from institutions of higher learning to neutralize greenhouse gas emissions and prioritize the research and education efforts aimed at stabilizing earth's climate.

2. **"Bonneville Environmental Foundation (BEF)"** is a Portland, Oregon based non-profit that specializes in carbon offsets, mainly renewable energy certificates (RECs). These credits increase the volume of clean, renewable energy that enters the electrical grid. OSU purchases RECs from BEF as part of the student renewable energy fee.

3. **"Carbon dioxide"** (CO2) means the chemical compound containing one atom of carbon and two atoms of oxygen.

4. **"Carbon dioxide equivalent"** (CO2e) represents the quantity of a greenhouse gas multiplied by a Global Warming Potential (GWP) factor, relative to CO2. This is the "standard unit" used to quantify various greenhouse gasses.

5. **"Global Warming Potential factor"** (GWP) means the radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time. For instance, methane (CH4) has a GWP of 23, meaning that every gram of methane will trap 23 times as much solar radiation as a gram of CO2.

6. **"Greenhouse gas"** (GHG) is any gas that contributes to anthropogenic global warming including, but not limited to, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

7. **"Greenhouse Gas Protocol (GHGP)"** is an internationally-used accounting tool that allows business and governmental leaders to understand, quantify and manage greenhouse gas emissions. It provides a framework for nearly every greenhouse gas standard and program in the world. The WBCSD was an original partner in drafting and creating the GHGP.

8. **"Intergovernmental Panel on Climate Change (IPCC)"** is a scientific body established to provide policymakers with an objective source of information on climate change. The IPCC performs no research nor does it monitor climate data; it instead offers analysis of research and climate data as an objective body with a broad range of views, expertise and wide geographical coverage.

9. **"Metric ton, tonne, or metric tonne"** (t) means one metric tonne (1000 kilograms) or 2204.62 pounds.

10. **"Net emissions"** is the calculated sum of GHGs emitted minus renewable energy certificates, composting activities and carbon offsets.

11. **"Radiative Forcing Index"** (RFI) is a multiplier designed to account for the effects on climate an emission source will cause in addition to the release of fossil carbon. The RFI is most commonly used for aviation emissions, where it accounts for the effects of releasing greenhouse gases at altitude. The Intergovernmental Panel on Climate Change (IPCC) has estimated the RFI multiplier for aviation at 2.0-4.0.

12. **"Renewable Energy Certificate"** (REC) is a tradable certificate that represents a unit of energy produced by renewable energy sources. The owner of a REC can claim that they are using renewable energy equal to the amount of RECs owned.

13. **“Renewable energy fee”** refers to the student-approved initiative that directs $8.50 per term per student towards the purchase of RECs. These RECs offset a large percent of OSU’s electrical consumption with additions of clean, renewable energy to the electrical grid.

14. **“Renewable energy source”** means any source of energy that is replenished rapidly by natural processes. Renewable sources may include, but are not limited to, wind, solar, hydroelectric, biomass, geothermal, tidal or sea currents etc.

15. **“Statewides”** refers to the inventory that analyzes emissions from statewide, legislatively-mandated OSU entities, specifically the Agricultural Experiment Stations (AES), Extension Services and the Forest Research Laboratories (FRL).

16. **“Sustainability Indicator Management and Analysis Platform”** (SIMAP) is a carbon calculator used by many campuses for calculating greenhouse gas emissions. Originally developed by the former non-profit Clean Air – Cool Planet and the Sustainability Institute at University of New Hampshire (UNH), it is now owned and managed by the Sustainability Institute at UNH.

17. **“Total emissions”** is the calculated sum of GHGs emitted due to OSU-related activities.

18. **“World Business Council for Sustainable Development (WBCSD)”** is a global association of business representatives that deals exclusively with business and sustainable development.

Definition Sources

Oregon Department of Environmental Quality: www.oregon.gov/deq/pages/index.aspx
Bonneville Environmental Foundation: www.b-e-f.org/
World Business Council for Sustainable Development: www.wbcsd.org
Greenhouse Gas Protocol: www.ghgprotocol.org
Intergovernmental Panel on Climate Change: www.ipcc.ch
SIMAP Calculator: https://unhsimap.org/home
Carbon Commitment: secondnature.org/climate-guidance/the-commitments/