

2015–2016 CARBON INVENTORY

During the 2016-2017 school year, a carbon inventory was completed for the 2015-2016 fiscal year using the web-based Campus Carbon Calculator (Carbon Management and Analysis Platform (CarbonMAP) powered by Sightlines.) The application breaks down emissions into three categories: Scope 1, Scope 2, and Scope 3.

SCOPE 1 EMISSIONS ARE DIRECT EMISSIONS THAT COME FROM SOURCES THAT ARE OWNED AND/OR CONTROLLED BY LEBANON VALLEY COLLEGE. SCOPE 1 EMISSIONS FOR LVC RESULT FROM FOSSIL FUEL AND FERTILIZER USAGE. THE CAMPUS USES NATURAL GAS AND DISTILLATE OIL FOR HEATING BUILDINGS WITH MOST BUILDINGS USING NATURAL GAS. DIESEL FUEL AND UNLEADED GASOLINE USED FOR RUNNING THE COLLEGE FLEET ALSO FALL INTO THE SCOPE 1 CATEGORY. REFRIGERANTS AND OTHER CHEMICALS WOULD BE ANOTHER SOURCE OF SCOPE 1 EMISSIONS, BUT THE COLLEGE ENSURES THAT THESE CHEMICALS ARE PROPERLY CARED FOR AND NOT RELEASED AS EMISSIONS.

SCOPE 2 EMISSIONS ARE INDIRECT EMISSIONS FROM SOURCES THAT ARE NOT OWNED OR OPERATED BY LEBANON VALLEY COLLEGE. HOWEVER, THESE SOURCES ARE DIRECTLY LINKED TO THE ENERGY USED BY THE CAMPUS. WHILE THE COLLEGE IS NOT DIRECTLY RESPONSIBLE FOR THESE EMISSIONS, THE COLLEGE REQUIRES THIS ENERGY TO OPERATE AND IS RESPONSIBLE FOR THE DEMAND. FOR LEBANON VALLEY COLLEGE, PURCHASED ELECTRICITY IS THE ONLY SOURCE OF SCOPE 2 EMISSIONS.

SCOPE 3 EMISSIONS ARE ALL OTHER EMISSIONS. THESE EMISSIONS ARE TYPICALLY CONSIDERED AS “OPTIONAL” AND ARE HARDER TO CLASSIFY. EITHER THESE EMISSIONS ARE THE RESULT OF DIRECT FINANCING OR ENCOURAGEMENT OF THE COLLEGE, BUT ARE NOT FROM SOURCES OWNED OR OPERATED BY LVC. SOME EXAMPLES OF THIS WOULD BE STUDY ABROAD TRAVEL AND FACULTY, STAFF AND STUDENT COMMUTING. THE RESPONSIBILITY OF THESE EMISSIONS IS UNCLEAR BUT MUST BE CAREFULLY MONITORED IN ORDER TO ENSURE THE EMISSIONS ARE NOT COUNTED TWICE. DURING THIS REPORTING YEAR, WE HAVE DECIDED TO ACCOUNT FOR SPORTS TRAVEL VIA BUS AND VAN. THIS HAS RESULTED IN A SLIGHT INCREASE IN SCOPE 3 EMISSIONS AS WELL AS A MORE ACCURATE CARBON FOOTPRINT.

Carbon Inventory Results Summary:

BEFORE ANY MITIGATION STRATEGIES, TOTAL EMISSIONS FROM ALL THREE SCOPES WERE 4,742 MTECO₂, OR METRIC TONS OF CARBON DIOXIDE EQUIVALENTS.

FIGURE 1, BELOW, SHOWS THE BREAKDOWN OF TOTAL EMISSIONS BY SCOPE.

FIGURE 2 PROVIDES A MORE DETAILED BREAKDOWN OF EMISSIONS BY SOURCES.

DUE TO THE COLLEGE PURCHASING 100% WIND-GENERATED ELECTRICITY, SCOPE 2 EMISSIONS HAVE BEEN COMPLETELY ELIMINATED.

Figure 1: 2015-2016 Gross GHG Emissions by Scope

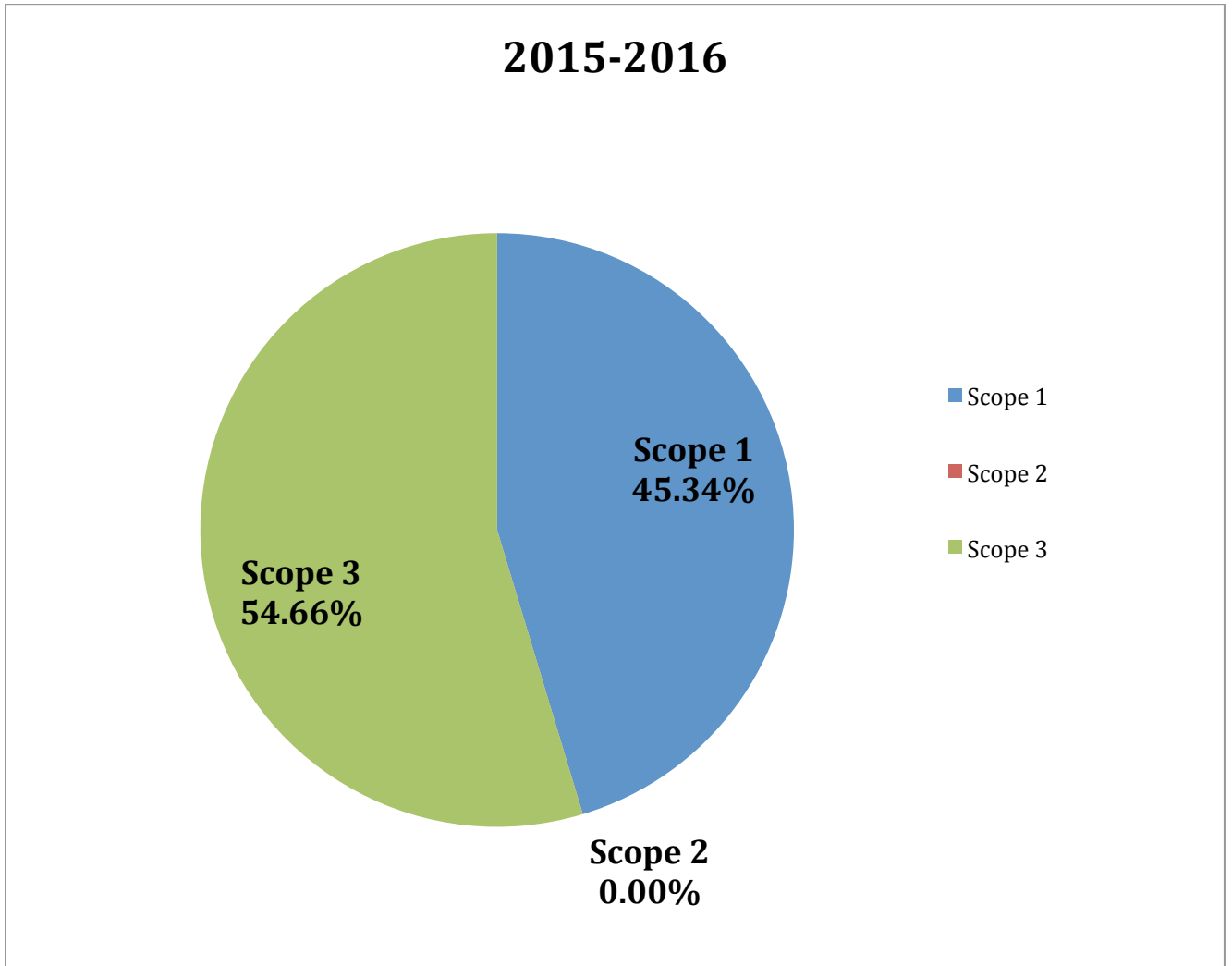
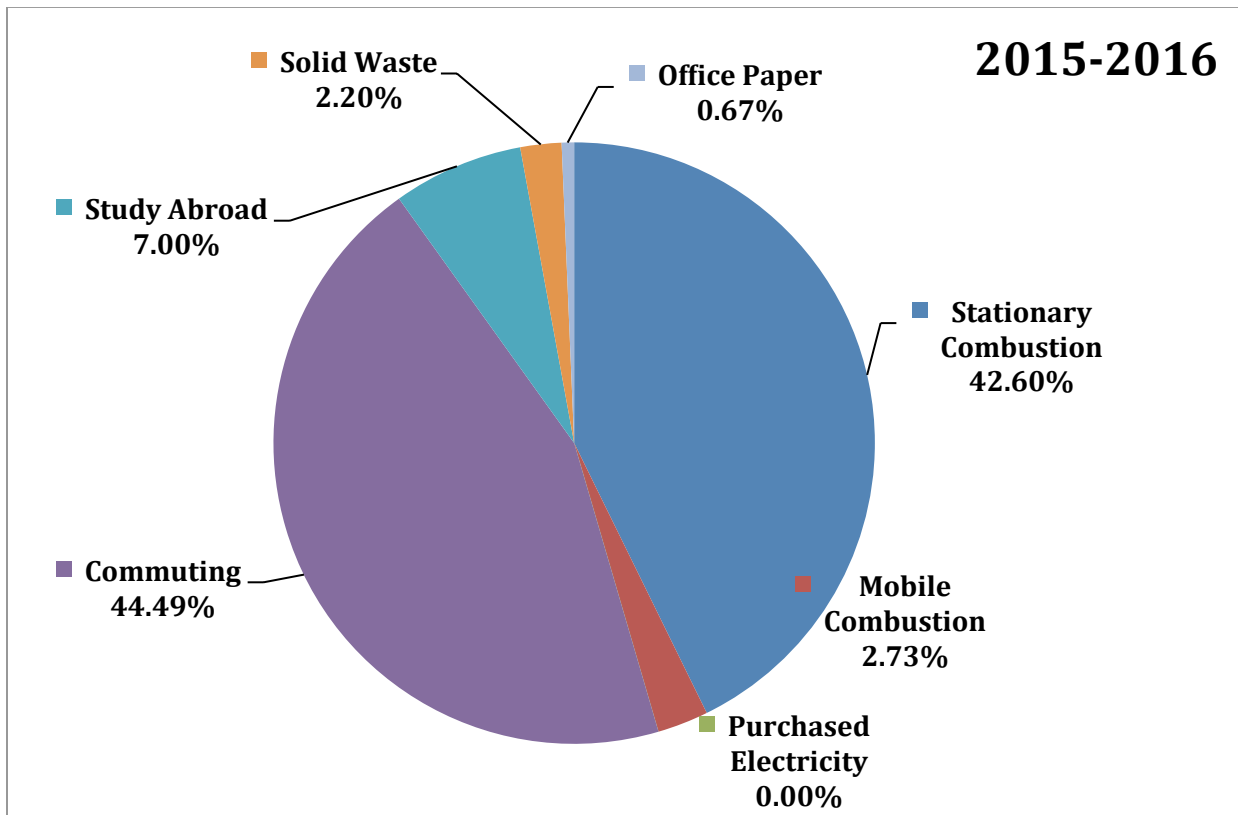


Figure 2: 2015-2016 Emissions by Source



THE MOST SIGNIFICANT SCOPE 1 EMISSIONS, PRODUCING 2,020.26 MTECO₂, COME FROM STATIONARY COMBUSTION, WHICH INCLUDES DISTILLATE OIL AND NATURAL GAS MAINLY USED FOR HEATING CAMPUS BUILDINGS; THIS NUMBER IS SLIGHTLY LOWER COMPARED TO LAST YEAR, BUT THERE IS NO SIGNIFICANT CHANGE. APPROXIMATELY 93.67% OF SCOPE 1 EMISSIONS IS ATTRIBUTED TO STATIONARY COMBUSTION AND ALSO MAKES UP 42.60% OF TOTAL EMISSIONS. OVERALL SCOPE 1 EMISSIONS MADE UP 45.34% OF OVERALL EMISSIONS AND ARE EQUIVALENT TO 2,149.94 MTECO₂, SLIGHTLY LOWER THAN LAST YEAR BUT ACTUALLY HIGHER RELATIVE TO OVERALL EMISSIONS.

SCOPE 2 EMISSIONS CONSIST SOLELY OF PURCHASED ELECTRICITY, WHICH MAKES UP 0 % OF TOTAL EMISSIONS. IN THE PAST, THE MAJORITY OF OUR MITIGATION STRATEGIES WERE

AIMED AT DECREASING THE ELECTRICITY EMISSIONS SINCE IT WAS SUCH A SIGNIFICANT PART OF LVC'S CARBON FOOTPRINT AND THE COLLEGE WAS EXTREMELY SUCCESSFUL.

SCOPE 3 EMISSIONS CONTRIBUTE 54.66% OF TOTAL EMISSIONS OR 2,592.36 MTeCO₂. THE MAIN CONTRIBUTOR TO SCOPE 3 EMISSIONS IS STUDENT, FACULTY, AND STAFF COMMUTING MAKING UP 81.39% OF SCOPE 3 EMISSIONS, WITH 2,109.79 MTeCO₂, AND 44.49% OF TOTAL EMISSIONS, LOWER THAN LAST YEAR SIGNIFICANTLY.

Figure 3: Total Emissions Reductions from 2008-2016

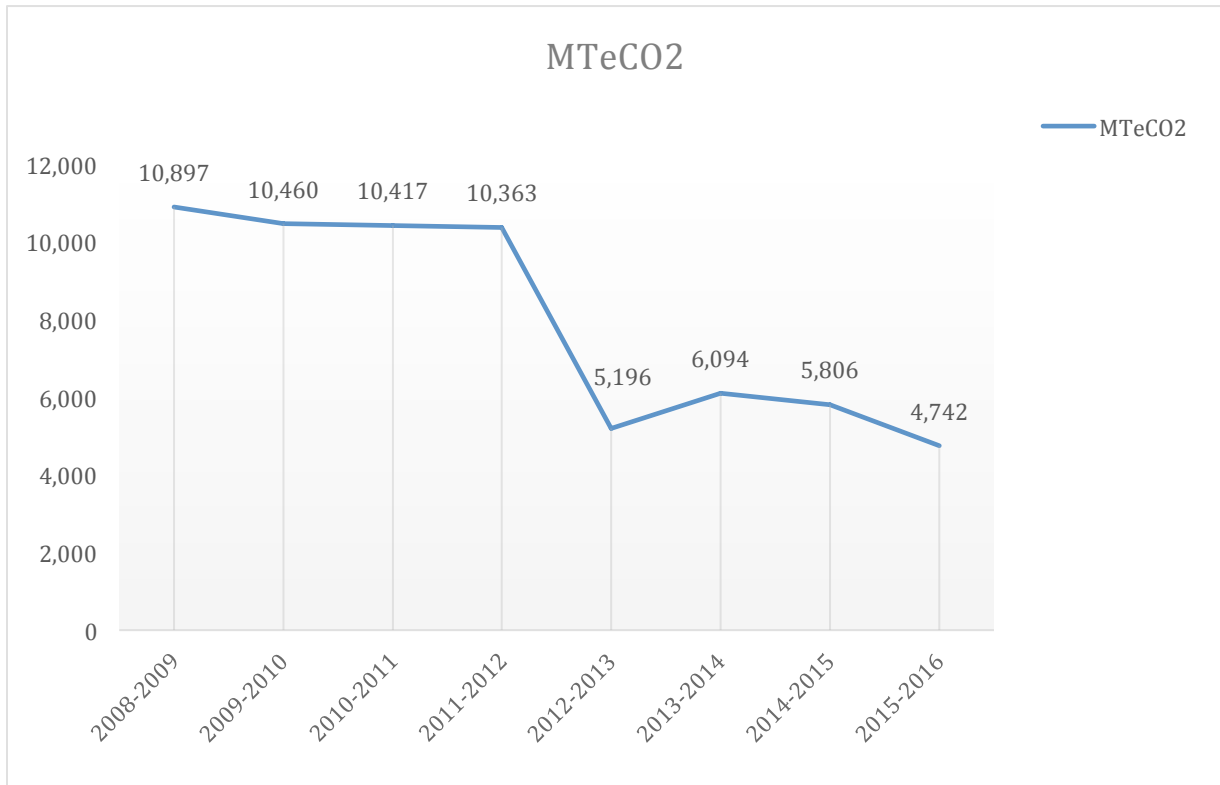


Table 1: Reduction Percentages from 2008-2014 by Scope/Source

Source		2014-2015 Fiscal Year	2015-2016 Fiscal Year	Increase/Decrease
Scope 1	Other On-Campus Stationary	2,032.36	2,020.26	-0.60%

	Direct Transportation	138.66	129.69	-6.47%
Scope 2	Purchased Electricity	0	0	0.00%
Scope 3	Employee/Student Commuting	2,896.83	2,109.79	-27.17%
	Study Abroad Air Travel	368.98	332	-10.02%
	Paper	26.63	31.54	18.44%
Totals	Scope 1	2,171.03	2,149.94	-0.97%
	Scope 2	0	0	0.00%
	Scope 3	3,635.89	2,592.36	-28.70%
	All Scopes/Total	5,806.91	4,742.30	-18.33%

Conclusion:

Total emissions decreased by 1,064.61 MTeCO₂ from the previous fiscal year, an 18.33% decrease, and spread around all categories of emissions. The largest contributing changes were in commuting. We made changes to our calculations for these to increase accuracy over the last two years, which may explain the decrease. Other than commuting, all categories are near their previous levels, showing accuracy in reporting methods. Overall, there is a significant difference in overall carbon emissions compared to the 2014-2015 fiscal year. This difference is a noticeable decrease, which is favorable.

