

## Greenhouse Gas Calculator

Loyola University Chicago - Lakeside Campuses	Campus
FY2018	Year

Activity	Scope	Measure	Unit	CO2 EF (kg)
On-Campus Stationary Natural Gas	1	201,121	MMBTU	53.02
Direct Transportation - Gasoline	1	28,586	Gallons	8.591281111
Direct Transportation - Diesel	1	1,292	Gallons	10.16551992
Refrigerants & Chemicals	1		Pounds	
Agriculture - Synthetic Nitrogen	1	90	Pounds	0
Purchased Electricity	2	55,606,395	kWh	
Transmission and Distribution Losses (from Scope2)	3			
Faculty/Staff Commuting - Vehicle/Carpool	3	7,062,820	Miles	0.355057878
Faculty/Staff Commuting - Bus	3	1,135,736	Miles	0.318349987
Faculty/Staff Commuting - Light Rail	3	3,621,142	Miles	0.235255216
Faculty/Staff Commuting - Commuter Rail	3	-	Miles	0.190531974
Student Commuting - Vehicle/Carpool	3	11,147,365	Miles	0.355057878
Student Commuting - Bus	3	3,200,803	Miles	0.318349987
Student Commuting - Light Rail	3	6,735,272	Miles	0.235255216
Student Commuting - Commuter Rail	3	2,127,297	Miles	0.190531974
Faculty/Staff Air Travel	3	12,733,646	Miles	0.480666017
Study Abroad Travel	3	7,897,049	Miles	0.480666017
Recycled Waste - Mixed Recyclables	3		MT CO2e	
Waste - Mixed MSW to CH4 recovery electric generatic	3	(1,020)	MT CO2e	
Paper - % recycled content	3		Pounds	
Potable Water	3	105	MT CO2e	
Waste Water Treatment	3	155	MT CO2e	
On-campus composting	Offset	5	Tons	
On-campus trees	Offset	4	Tons	
Green Power Certificates	Offset	27,803,197	kWh	
	1			
	2			
	3			
	Gross			
	Offset			
	Net			

Boundary Data

Operating Budget	\$
Research Budget	\$
Energy Budget	2005 \$s
Full Time Students	#
Part Time	#
Summer School Students	#
Faculty	#
Staff	#
Total Building Space	sq. ft.
Total Research Space	sq. ft.
Gross Building Space	sq. ft.
Net Assignable Lab Space	sq. ft.
Net Assignable Health Care Space	sq. ft.
Net Assignable Residential Space	sq. ft.
Total Student Enrollment	#
Residential Students	#
Full Time Commuter Students	#
Part Time Commuter Students	#
Non-Credit Students	#
Full Time Faculty	#
Part Time Faculty	#
Full Time Staff	#
Part Time Staff	#
Endowment Size	\$
Heating Degree Days	#
Cooling Degree Days	#

NOTES:

1. On campus natural gas is in MMBTU used for heating, hot water, and cooking.
  2. Direct Transportation - Gasoline is vehicle fuel used for campus vehicles, both owned and leased, and equipment.
  3. Direct Transportation - Diesel is vehicle fuel used for campus vehicles and standby generators in Gallons
  4. Refrigerants and Chemicals are 'de minimus'.
  5. Agriculture - Synthetic Nitrogen is the Pounds of nitrogen applied as fertilizer.
  6. Purchased electricity is the kWh used by buildings and other activities with emissions calculated from PJM (2014).
  7. Transmission and Distribution Losses are 5% of Purchased Electricity as provided from 2014 eGRID.
  8. Faculty/Staff Commuting - Car and Carpool are from 2014 survey, with 60% of total emissions applied to LS
  9. Faculty/Staff Commuting - Bus are tracked by mile. (see tab for emissions factors estimated from National
  9. Faculty/Staff Commuting - Train are tracked by mile. (see tab for emissions factors estimated from National
- CONTINUE

SUMMARY:

	Scope
Energy - Natural Gas	1
Energy - Vehicle Fleet Fuel	1

Fertilizers	1
Energy - Electricity	2
Energy - Line Efficiency	3
Commuting - Faculty/Staff	3
Commuting - Students	3
Air Travel - Faculty/Staff	3
Air Travel - Students	3
Solid Waste	3
Water	3

Scope 1

Scope 2

Scope 3

**Emissions Factors**

**Emissions Measure**

kg / unit			MT / unit	kg / measure		
CH4 EF (kg)	N2O EF (kg)	eCO2 (Metric Ton	CO2 (kg)	CH4 (kg)	N2O (kg)	
0.004739085	9.47817E-05	0.053167	10,663,431	953.13	19.06	
0.001865675	0.000623797	0.008823814	245,590	53.33	17.83	
0.000567	0.000257	0.010256281	13,134	0.73	0.33	
0	1.407491	0.419432318	-	-	126.67	
		0.000418094	-	-	-	
			-	-	-	
7.71041E-05	2.57801E-05	0.000364668	2,507,709.89	544.57	182.08	
1.77565E-05	8.04838E-06	0.000321192	361,561.67	20.17	9.14	
4.0312E-06	5.90383E-06	0.000237115	851,892.48	14.60	21.38	
6.63158E-06	4.7977E-06	0.000192127	-	-	-	
7.71041E-05	2.57801E-05	0.000364668	3,957,959.75	859.51	287.38	
1.77565E-05	8.04838E-06	0.000321192	1,018,975.53	56.84	25.76	
4.0312E-06	5.90383E-06	0.000237115	1,584,507.79	27.15	39.76	
6.63158E-06	4.7977E-06	0.000192127	405,318.13	14.11	10.21	
4.76484E-06	5.47683E-06	0.000482417	6,120,631	60.67	69.74	
4.76484E-06	5.47683E-06	0.000482417	3,795,843	37.63	43.25	

10,922,155 1,007 164

20,604,399 1,635 689

0 0 0

kg kg kg

ment in Gallons.

emissions summary (see tab).

ic (see tab for emissions factors per Mile).

Transit Database for CTA).

I Transit Database for CTA).



S

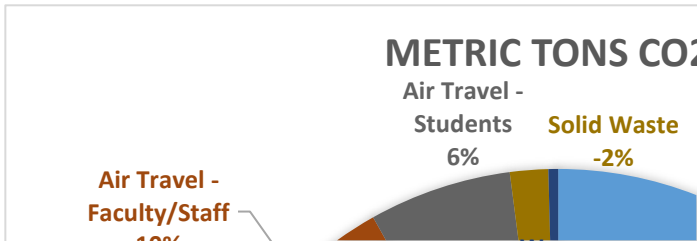
MT / measure

e CO2 (MT)

10,693.00		Source: PRI Natural Gas consumption (on beh
252.24	265.49	Source: <a href="https://www.epa.gov/ghgemissions/">https://www.epa.gov/ghgemissions/</a>
13.25		Source: LUC Facilities.
37.75		
23,248.69	34,873.04	From Constellation Energy
(522)		Assume 5% line loss
2,575.58	3,799.00	Source: LUC survey on commuting, DOT Annu
364.79		Source: LUC survey on commuting, CTA efficie
858.63		Source: LUC survey on commuting, CTA efficie
		Source: LUC survey on commuting, Analysis of
4,065.09	7,098.91	Source: LUC survey on commuting, DOT Annu
1,028.07		Source: LUC survey on commuting, CTA efficie
1,597.04		Source: LUC survey on commuting, CTA efficie
408.71		Source: LUC survey on commuting, CTA efficie
6,142.93		Source: LUC Finance Office, Cost per air mile f
3,809.67		Source: LUC Study Abroad Office, Roundtrip r
(1,020)		Source: EPA WARM
105	260	Source: LUC analysis of efficiency of potable w
155		Source: LUC analysis of efficiency of water tre
-		Source: LUC analysis of efficiency of waste hai
-5	-9	Source: LUC estimate of tons of organic waste
-4		Source: LUC inventory of LSC trees. Sequestra
(11,624)		
10,996	1	
23,249	2	
20,588	3	
54,833	Gross	
(12,654)	Offset	
67,487	Net	

MT CO2e

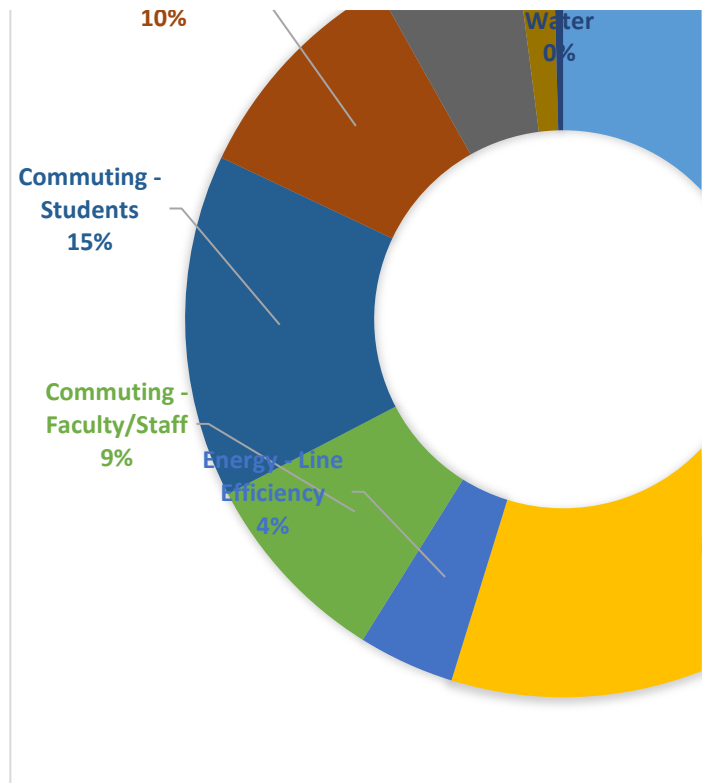
Metric Tons CO2e	Source
10,693	Energy - Natural Gas
265	Energy - Vehicle Fleet Fuel





38	Fertilizers
23,249	Energy - Electricity
2,576	Energy - Line Efficiency
5,289	Commuting - Faculty/Staff
9,177	Commuting - Students
6,143	Air Travel - Faculty/Staff
3,810	Air Travel - Students
(1,020)	Solid Waste
260	Water

10,996	Scope 1
23,249	Scope 2
26,233	Scope 3
-12653.51696	Offsets



alf of LUC).

Inventory-us-greenhouse-gas-emissions-and-sinks-1990-2015

al efficiency of light vehicles

ency data

ency data

f trends in commuter rail energy efficiency

al efficiency of light vehicles

ency data

ency data

ency data

rom airline.org.

mileage from SOURCE

water. Assumes .52 MWh per MG and .566 MT per MWh.

atment. Assumes 27 MG stormwater plus potable water (varies), .0000012 MT CO<sub>2</sub>e per gallon

uling. Assume 3 mpg, 90 mile / trip, trip of 8 tons X 2 (return), 18.7 lbs carbon per gallon.

composted at Lake Shore Campus

tion rate from SOURCE.

2E

