Greenhouse Gas Inventory Calculator v4.0
Calculation, Summary, and Analysis Workbook

www.cleanair-coolplanet.org

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Update
Move data from CACP Calculator v3.0

Instructions

Welcome to Clean Air-Cool Planet's Greenhouse Gas Inventory Calculator. These spreadsheets will assist you in calculating the greenhouse gas emissions (CO_2, CH_4, N_2O, HFC and PFC, SF_6, and others) for your campus. It calculates emissions for each year 1990-2020 and provides summary information regarding the institution's emissions.

The directions below are designed to supplement the text component of the Clean Air-Cool Planet Emissions Inventory Toolkit. While the directions below are adequate to use the spreadsheets, we recommend that you read the toolkit to build an understanding of how they work.

Before making any changes or entering data, make a copy of this file (unless you have it on a CD) to use and save the original to refer to in the event that the copy is altered. If you are upgrading from v3.0, click the "Update" button above to move your data from the old sheets to this one. Next, fill in the name of your Institution and contact information in the box above. This will automatically update all of the sheets with your information. Cells in **GREEN** are input cells, enter your data here. Cells in **BLUE** are emissions factors, change these only if you understand what you are changing and have more accurate emissions factors for your school. White and Yellow cells should not be changed.

Navigation
The spreadsheet was designed for ease of use and transparency of calculation. The worksheet titled **Spreadsheet Map** contains a diagram of all the sheets in the calculator. Clicking on a sheet there will link you directly to the worksheet. Likewise, each worksheet has a link to the **Spreadsheet Map** located in the upper left corner. Thus although there are many sheets in this toolkit, each can be reached with only two clicks (the first to the spreadsheet map and the second to the sheet of choice). You can also enable the "Web" toolbar in Excel (View -> Toolbars -> Web) and use the forward and back arrows. Throughout the Calculator, there are small red triangles in certain cells. These cells contain notes that assist you in understanding the function of that particular cell or worksheet. To view these notes, place the mouse over the cell and the note will appear. At the bottom of every column is a gray row that explains the source of the data in that column. In some cases the source will be a government report, while in other cases it will be a formula explaining how the numbers were generated. If the source is another sheet, the cell will be a link to that sheet.

Emissions Calculator
There are five modules to the calculator:

1) ***Inputs Module.*** This module has two related worksheets: Inputs and the associated Commuter Inputs. Emissions-related data (i.e. fuel and electricity use, transportation) for your campus will be entered in the Inputs and Commuter Inputs Worksheets ONLY. All of the summary sheets will be updated when you enter data on the inputs sheets.

2) ***Summary Module***. This module takes the data from the Inputs & Commuter Inputs Worksheets and calculates emissions and generates graphs.

3) ***Project Module*** This module will assist you in developing an emissions estimate for a project or event. For example, if you wanted to estimate the emissions reduction associated with an increase in carpooling, the project module facilitates those calculations.

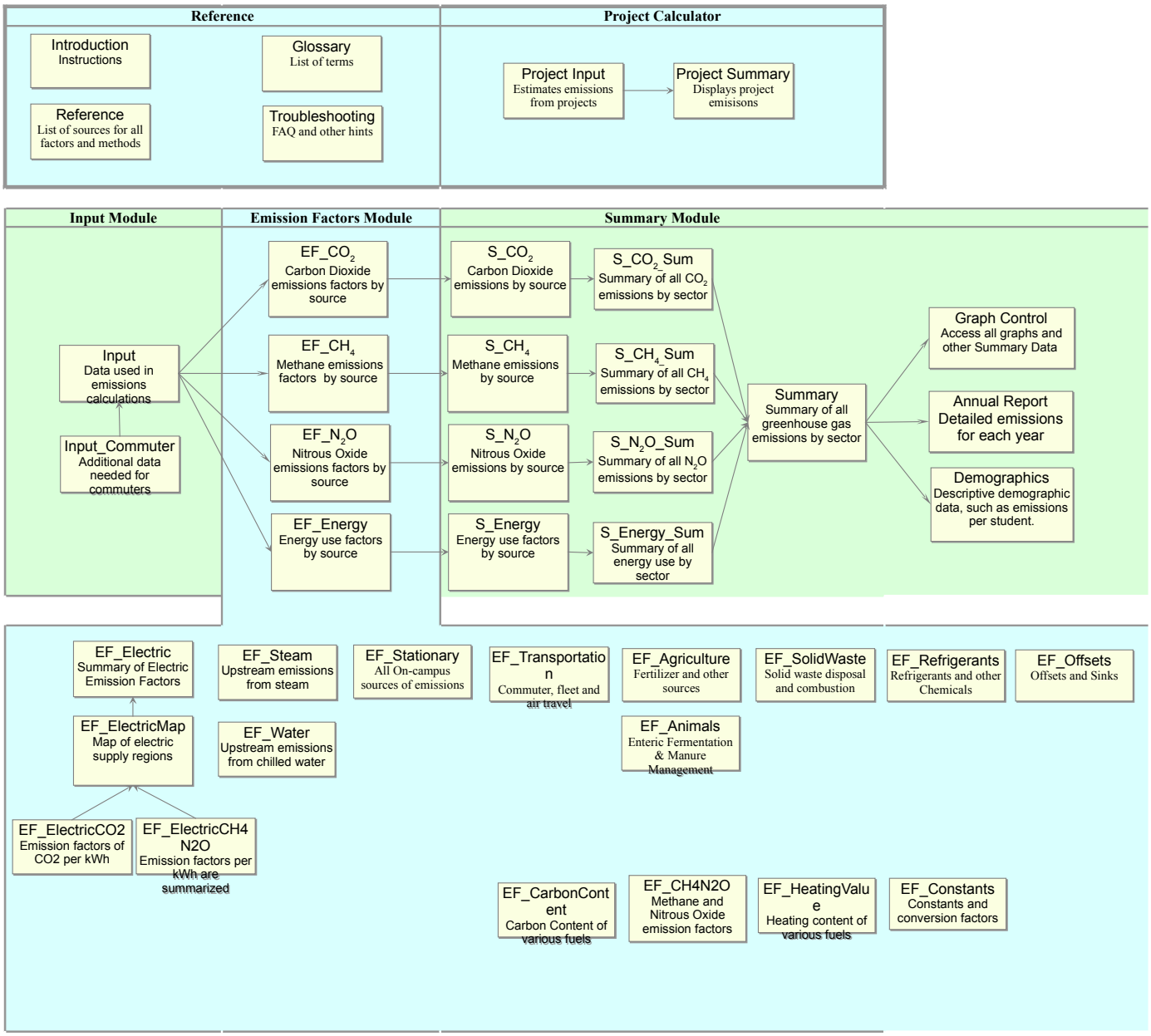
4) ***Emission factors Module.*** This module is where most of the number crunching takes place. These sheets develop emission factors using data from various government sources. If you want to know where the emission factors come from, explore the emission factors sheet for that sector.

5) ***Reference Module.*** This module includes this introduction sheet, a reference sheet that lists all the sources of emissions factors and methodologies, a glossary of terms, and a troubleshooting guide.

Use the spreadsheet map to explore!

Spreadsheet Map

This page lists all of the worksheets in the Clean Air - Cool Planet Greenhouse Gas Emissions Calculator. To visit a page, click on it or scroll through the tabs at the bottom of the excel window. Each worksheet has a link to this page in the top left corner, so any sheet can be accessed from any other sheet in two clicks (one to this sheet, the second to the desired sheet). There are three modules to this calculator: data from the institution are entered in the two "Inputs" sheets, the results are displayed and analyzed in the "Summary" sheets, and the calculations and emission factors are visible in the "Emission Factors" sheets. Arrows show the flow of data between sheets.



MODULE	INPUTS
WORKSHEET	Commuter Traffic
UNIVERSITY	University of Missouri - Saint Louis

	Students									Summer School Students								Total Students	
Fiscal Year	On-Campus FTE	Student fuel efficiency	Percent Drive alone	Percent Carpool	Trips / Day	Days / Year	Miles / Trip	Total Distance	Fuel Consumption	Summer School Students	Percent Drive alone	Percent Carpool	Trips / Day	Days / Year	Miles / Trip	Total Distance	Fuel Consumption	Total Distance	Fuel Consumption
	#	mpg	%	%				Miles	Gallons		%	%				Miles	Gallons	Miles	Gallons
1990	8,205	19.9	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1991	8,062	20.6	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1992	7,249	20.5	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1993	7,288	20.1	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1994	7,532	20.2	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1995	7,600	20.4	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1996	7,602	20.4	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1997	7,422	20.6	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1998	7,690	20.6	100%	0%	0.00	160	30	-	-	-						-	-	-	-
1999	7,775	20.4	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2000	7,840	20.8	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2001	7,978	21.1	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2002	8,007	20.9	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2003	7,968	21.2	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2004	7,874	22.1	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2005	8,194	22.1	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2006	9,932	22.1	100%	0%	0.00	160	30	-	-	-						-	-	-	-
2007	-	22.1						-	-	-						-	-	-	-
2008	-	22.1						-	-	-						-	-	-	-
2009	-	22.1						-	-	-						-	-	-	-
2010	-	22.1						-	-	-						-	-	-	-
2011	-	22.1						-	-	-						-	-	-	-
2012	-	22.1						-	-	-						-	-	-	-
2013	-	22.1						-	-	-						-	-	-	-
2014	-	22.1						-	-	-						-	-	-	-
2015	-	22.1						-	-	-						-	-	-	-
2016	-	22.1						-	-	-						-	-	-	-
2017	-	22.1						-	-	-						-	-	-	-
2018	-	22.1						-	-	-						-	-	-	-
2019	-	22.1						-	-	-						-	-	-	-
2020	-	22.1						-	-	-						-	-	-	-
	Input	3						Total Distance = ((Total Students x % Drive Alone) + (Total Students x % Carpool)/2) x Trips/Day x Days/Year x Miles/Trip	Fuel Consumption = mpg / Total Distance	Input							Total Distance = ((Total Students x % Drive Alone) + (Total Students x % Carpool)/2) x Trips/Day x Days/Year x Miles/Trip	Fuel Consumption = mpg / Total Distance		

Faculty/Executive									Staff									Total Faculty/Staff	
Faculty and Executive	Faculty fuel efficiency	Percent Drive alone	Percent Carpool	Trips / Day	Days / Year	Miles / Trip	Total Distance	Fuel Consumption	Staff	Staff fuel efficiency	Percent Drive alone	Percent Carpool	Trips / Day	Days / Year	Miles / Trip	Total Distance	Fuel Consumption	Total Distance	Fuel Consumption
	mpg	%	%							mpg	%	%						Miles	Gallons
892	19.9	100%	0%	0.00	200	30	-	-	744	19.9	100%	0%	0.00	240	40	-	-	-	-
921	20.6	100%	0%	0.00	200	30	-	-	775	20.6	100%	0%	0.00	240	40	-	-	-	-
889	20.5	100%	0%	0.00	200	30	-	-	725	20.5	100%	0%	0.00	240	40	-	-	-	-
915	20.1	100%	0%	0.00	200	30	-	-	704	20.1	100%	0%	0.00	240	40	-	-	-	-
941	20.2	100%	0%	0.00	200	30	-	-	686	20.2	100%	0%	0.00	240	40	-	-	-	-
947	20.4	100%	0%	0.00	200	30	-	-	718	20.4	100%	0%	0.00	240	40	-	-	-	-
974	20.4	100%	0%	0.00	200	30	-	-	774	20.4	100%	0%	0.00	240	40	-	-	-	-
997	20.6	100%	0%	0.00	200	30	-	-	804	20.6	100%	0%	0.00	240	40	-	-	-	-
1,005	20.6	100%	0%	0.00	200	30	-	-	830	20.6	100%	0%	0.00	240	40	-	-	-	-
995	20.4	100%	0%	0.00	200	30	-	-	840	20.4	100%	0%	0.00	240	40	-	-	-	-
1,058	20.8	100%	0%	0.00	200	30	-	-	817	20.8	100%	0%	0.00	240	40	-	-	-	-
1,101	21.1	100%	0%	0.00	200	30	-	-	825	21.1	100%	0%	0.00	240	40	-	-	-	-
1,115	20.9	100%	0%	0.00	200	30	-	-	841	20.9	100%	0%	0.00	240	40	-	-	-	-
1,084	21.2	100%	0%	0.00	200	30	-	-	864	21.2	100%	0%	0.00	240	40	-	-	-	-
1,108	22.1	100%	0%	0.00	200	30	-	-	882	22.1	100%	0%	0.00	240	40	-	-	-	-
1,097	22.1	100%	0%	0.00	200	30	-	-	882	22.1	100%	0%	0.00	240	40	-	-	-	-
1,029	22.1						-	-	893	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
-	22.1						-	-	-	22.1						-	-	-	-
Input	3						Total Distance = ((Total Students x % Drive Alone) + (Total Students x % Carpool)/2) x Trips/Day x Days/Year x Miles/Trip	Fuel Consumption = mpg / Total Distance	Input	3						Total Distance = ((Total Students x % Drive Alone) + (Total Students x % Carpool)/2) x Trips/Day x Days/Year x Miles/Trip	Fuel Consumption = mpg / Total Distance	Total Faculty + Total Staff Miles	Total Faculty + Total Staff Consumption

On this Worksheet: Enter data related to emissions. If a column does not apply or the data is unavailable, leave it blank.

MODULE	**Input**
WORKSHEET	**Data**
UNIVERSITY	**University of Missouri - Saint Louis**

Institutional Data

Fiscal Year	FAR Budget Info			Population - Institutional Research Factbook												Physical Size	
	Facilities Annual Report Operating Budget	Research Dollars	Facilities Annual Report Total Purchased Energy	ON Campus FTE	OFF Campus FTE	ON Campus Headcount	OFF Campus Headcount	ON campus Residents	Summer School Students	Part Time Executive	Full Time Executive	Part Time Faculty	Full Time Faculty	Part Time Staff	Full Time Staff	FAR Total Building Space (Utilities)	Total Research Building Space
	$	$	$	#			#		#	#			#		#	Square feet	Square feet
1990	$6,479,082.00		$-	8,205	649	13,161	2,236			7	97	652	465	308	590	0	
1991	$5,933,781.00		$-	8,062	792	12,941	2,679			8	108	625	496	323	613	0	
1992	$5,946,457.00		$-	7,249	978	11,774	3,152			23	103	629	460	328	561	0	
1993	$6,268,417.00		$-	7,288	1,124	11,868	3,543			2	113	647	477	312	548	0	
1994	$6,623,248.00		$-	7,532	1,182	12,045	3,543			3	118	631	506	260	556	0	
1995	$6,261,013.00		$-	7,600	1,249	12,223	3,749			7	115	665	496	272	582	0	
1996	$6,146,428.00		$-	7,602	1,316	12,197	3,897			7	122	672	512	280	634	0	
1997	$6,766,262.00		$-	7,422	1,267	11,858	3,718			8	129	702	513	292	658	0	
1998	$6,004,451.00		$-	7,690	1,275	12,140	3,740			9	145	709	501	316	672	0	
1999	$7,662,144.00		$-	7,775	1,219	12,069	3,525			7	153	672	502	327	676	0	
2000	$7,650,062.00		$-	7,840	1,146	12,134	3,263			13	148	796	505	300	667	0	
2001	$8,503,987.00		$-	7,978	980	12,242	2,751			12	155	888	496	242	704	0	
2002	$8,528,473.00		$-	8,007	1,205	12,250	3,408			6	158	917	495	260	711	0	
2003	$7,642,300.00		$-	7,968	1,256	12,074	3,531			12	166	828	498	285	721	0	
2004	$8,540,313.00		$-	7,874	1,284	11,881	3,631			12	159	907	489	293	735	0	
2005	$9,203,308.00		$-	8,194	1,239	12,142	3,419			8	166	829	512	286	739	0	
2006	$9,510,739.00		$3,263,268.00	8,181	1,282	12,039	3,501			6	144	946	556	259	763	2,901,429	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
2015																	
2016																	
2017																	
2018																	
2019																	
2020																	

Purchased Electricity	On Campus Stationary Sources									
Electric produced off-campus	This category includes all stationary sources of emissions on campus (heating, cooling, cooking, laboratories, etc)									
Click here to select you	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas (space, water heat, steam, etc.)	Propane	Incinerated Waste	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
MAIN South										
kWh	Gallons	Gallons	MMBtu	Gallons	MMBtu	Short Ton	MMBtu	MMBtu	MMBtu	MMBtu
0			0							
0			0							
0			0							
0			0							
0			0							
0			0							
0			0							
0			100,000							
0			100,000							
0			100,000							
0			100,000							
0			100,000							
0			100,000							
0			89,156							
0			78,123							
39,523,871			95,721							
39,523,871			127,926							

Transportation									Agriculture			
University Fleet					Air Travel		Commuters		ll agriculture and animal husbandry run by the u			
									Fertilizer Application			
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline	Synthetic	% Nitrogen	Organic	% Nitrogen
Gallons	Gallons	MMBtu	kWh	MMBtu	Miles	Miles	Gallons	Gallons	Pounds	%	Pounds	%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-		10%	25,000	3%
32,123	5,305						-	-	18,730	10%		
32,123	5,305						-	-	20,950	10%		
25,300	5,200						-	-	2,475	10%		
							-	-				
							-	-				
							-	-				
							-	-				
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							-	-				

Solid Waste

Includes all solid waste produced by campus except waste composted or burned on campus for power

Incinerated Waste (waste to energy plant) not used for school power		Landfilled Waste with no CH_4 Recovery	Landfilled Waste with CH_4 Recovery and Flaring	Landfilled Waste with CH_4 Recovery and Electric Generation
Mass Burn Incinerator	Refuse Derived Fuel (RDF) Incinerator			
Short Tons	Short Tons	Short Tons	Short Tons	Short Tons
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
		0	1,400	
			1,400	

MODULE	Summary
WORKSHEET	Graph Data Access Page
UNIVERSITY	University of Missouri - Saint Louis

CO2

Fiscal Year	Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary	Transportation	Agriculture	Solid Waste	Refrigerants and other Chemicals	On-campus Stationary			Transportation			
								Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1990	-	-	-	336,095	-	-	-	-	-	-	336,095	-	-	-
1991	-	-	-	336,095	-	-	-	-	-	-	336,095	-	-	-
1992	-	-	-	336,241	-	-	-	-	-	-	336,241	-	-	-
1993	-	-	-	336,387	-	-	-	-	-	-	336,387	-	-	-
1994	-	-	-	335,436	-	-	-	-	-	-	335,436	-	-	-
1995	-	-	-	333,613	-	-	-	-	-	-	333,613	-	-	-
1996	-	-	-	333,377	-	-	-	-	-	-	333,377	-	-	-
1997	-	-	5,279,138	333,071	-	-	-	5,279,138	-	-	333,071	-	-	-
1998	-	-	5,279,138	332,728	-	-	-	5,279,138	-	-	332,728	-	-	-
1999	-	-	5,279,138	332,674	-	-	-	5,279,138	-	-	332,674	-	-	-
2000	-	-	5,279,138	332,765	-	-	-	5,279,138	-	-	332,765	-	-	-
2001	-	-	5,279,138	332,765	-	-	-	5,279,138	-	-	332,765	-	-	-
2002	-	-	5,279,138	332,658	-	-	-	5,279,138	-	-	332,658	-	-	-
2003	-	-	4,706,669	332,658	-	-	-	4,706,669	-	-	332,658	-	-	-
2004	-	-	4,124,221	332,658	-	-	-	4,124,221	-	-	332,658	-	-	-
2005	22,201,349	-	5,053,244	332,658	-	-	-	5,053,244	-	-	332,658	-	-	-
2006	22,201,349	-	6,753,391	272,212	-	-	-	6,753,391	-	-	272,212	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CH4													
Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary	Transportation	Agricultur e	Solid Waste	Refrigerants and other Chemicals	On-campus Stationary			Transportation			
							Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel
15	16	17	18	19	20	21	22	23	24	25	26	27	28
-	-	-	60	-	(4,464)	-	-	-	-	60	-	-	-
-	-	-	60	-	(4,464)	-	-	-	-	60	-	-	-
-	-	-	60	-	(4,464)	-	-	-	-	60	-	-	-
-	-	-	59	-	(4,464)	-	-	-	-	59	-	-	-
-	-	-	59	-	(4,464)	-	-	-	-	59	-	-	-
-	-	-	59	-	(4,464)	-	-	-	-	59	-	-	-
-	-	-	59	-	(4,464)	-	-	-	-	59	-	-	-
-	-	527	59	-	(4,464)	-	527	-	-	59	-	-	-
-	-	527	59	-	(4,464)	-	527	-	-	59	-	-	-
-	-	527	59	-	(4,464)	-	527	-	-	59	-	-	-
-	-	527	59	-	(4,464)	-	527	-	-	59	-	-	-
-	-	527	59	-	(4,464)	-	527	-	-	59	-	-	-
-	-	527	59	-	(4,464)	-	527	-	-	59	-	-	-
-	-	470	59	-	(4,464)	-	470	-	-	59	-	-	-
-	-	412	59	-	(4,464)	-	412	-	-	59	-	-	-
226	-	504	59	-	(4,464)	-	504	-	-	59	-	-	-
226	-	674	47	-	(4,464)	-	674	-	-	47	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

N2O													
Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary	Transportation	Agriculture	Solid Waste	Refrigerants and other Chemicals	On-campus Stationary			Transportation			
							Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel
29	30	31	32	33	34	35	36	37	38	39	40	41	42
-	-	-	21	10	-	-	-	-	-	21	-	-	-
-	-	-	21	10	-	-	-	-	-	21	-	-	-
-	-	-	21	10	-	-	-	-	-	21	-	-	-
-	-	-	21	10	-	-	-	-	-	21	-	-	-
-	-	-	21	10	-	-	-	-	-	21	-	-	-
-	-	-	21	10	-	-	-	-	-	21	-	-	-
-	-	-	21	10	-	-	-	-	-	21	-	-	-
-	-	11	21	10	-	-	11	-	-	21	-	-	-
-	-	11	21	10	-	-	11	-	-	21	-	-	-
-	-	11	21	10	-	-	11	-	-	21	-	-	-
-	-	11	21	10	-	-	11	-	-	21	-	-	-
-	-	11	21	10	-	-	11	-	-	21	-	-	-
-	-	11	21	10	-	-	11	-	-	21	-	-	-
-	-	9	21	10	-	-	9	-	-	21	-	-	-
-	-	8	21	25	-	-	8	-	-	21	-	-	-
516	-	10	21	28	-	-	10	-	-	21	-	-	-
516	-	13	17	3	-	-	13	-	-	17	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

eCO2														
Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary	Transportation	Agriculture	Solid Waste	Refrigerants and other Chemicals	On-campus Stationary			Transportation				Total
							Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel	
43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
-	-	-	344	3	(103)	-	-	-	-	344	-	-	-	244
-	-	-	344	3	(103)	-	-	-	-	344	-	-	-	244
-	-	-	344	3	(103)	-	-	-	-	344	-	-	-	244
-	-	-	344	3	(103)	-	-	-	-	344	-	-	-	244
-	-	-	343	3	(103)	-	-	-	-	343	-	-	-	243
-	-	-	341	3	(103)	-	-	-	-	341	-	-	-	241
-	-	-	341	3	(103)	-	-	-	-	341	-	-	-	241
-	-	5,294	341	3	(103)	-	5,294	-	-	341	-	-	-	5,535
-	-	5,294	340	3	(103)	-	5,294	-	-	340	-	-	-	5,535
-	-	5,294	340	3	(103)	-	5,294	-	-	340	-	-	-	5,535
-	-	5,294	340	3	(103)	-	5,294	-	-	340	-	-	-	5,535
-	-	5,294	340	3	(103)	-	5,294	-	-	340	-	-	-	5,535
-	-	5,294	340	3	(103)	-	5,294	-	-	340	-	-	-	5,535
-	-	4,720	340	3	(103)	-	4,720	-	-	340	-	-	-	4,961
-	-	4,136	340	7	(103)	-	4,136	-	-	340	-	-	-	4,381
22,359	-	5,068	340	8	(103)	-	5,068	-	-	340	-	-	-	27,673
22,359	-	6,773	278	1	(103)	-	6,773	-	-	278	-	-	-	29,309
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Energy														Offsets					
Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary	Transportation	Agriculture	Solid Waste	Refrigerants and other Chemicals	On-campus Stationary			Transportation				Greenhouse gas sinks and offsets					
							Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel	'Green' Electric Certificates	Composting	Forest Preservation	Other	Total Offsets	Net Emissions
58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
-	-	-	4,750	-	-	-	-	-	-	4,750	-	-	-	-	-	-	-	-	244
-	-	-	4,750	-	-	-	-	-	-	4,750	-	-	-	-	-	-	-	-	244
-	-	-	4,750	-	-	-	-	-	-	4,750	-	-	-	-	-	-	-	-	244
-	-	-	4,750	-	-	-	-	-	-	4,750	-	-	-	-	-	-	-	-	244
-	-	-	4,732	-	-	-	-	-	-	4,732	-	-	-	-	-	-	-	-	243
-	-	-	4,721	-	-	-	-	-	-	4,721	-	-	-	-	-	-	-	-	241
-	-	-	4,721	-	-	-	-	-	-	4,721	-	-	-	-	-	-	-	-	241
-	-	100,000	4,719	-	-	-	100,000	-	-	4,719	-	-	-	-	-	-	-	-	5,535
-	-	100,000	4,718	-	-	-	100,000	-	-	4,718	-	-	-	-	-	-	-	-	5,535
-	-	100,000	4,718	-	-	-	100,000	-	-	4,718	-	-	-	-	-	-	-	-	5,535
-	-	100,000	4,717	-	-	-	100,000	-	-	4,717	-	-	-	-	-	-	-	-	5,535
-	-	100,000	4,717	-	-	-	100,000	-	-	4,717	-	-	-	-	-	-	-	-	5,535
-	-	100,000	4,715	-	-	-	100,000	-	-	4,715	-	-	-	-	-	-	-	-	5,535
-	-	89,156	4,715	-	-	-	89,156	-	-	4,715	-	-	-	-	-	-	-	-	4,961
-	-	78,123	4,715	-	-	-	78,123	-	-	4,715	-	-	-	-	-	-	-	-	4,381
244,815	-	95,721	4,715	-	-	-	95,721	-	-	4,715	-	-	-	-	-	-	-	-	27,673
244,815	-	127,926	3,855	-	-	-	127,926	-	-	3,855	-	-	-	-	-	-	-	-	29,309
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																			Net Emissions = Total Emissions - Total Offets

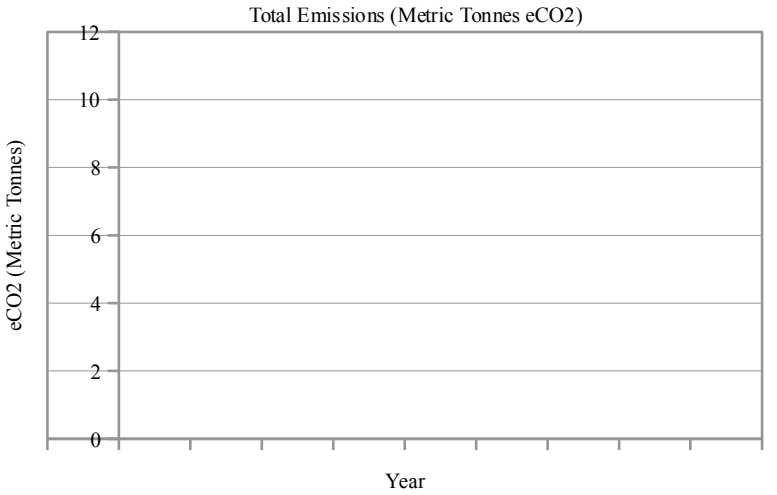
Spreadsheet Map

On this Worksheet: Graph control sheet. Set years you would like displayed. All graphs can be accessed from this sheet. For summaries of "Emission Demographics" or "Energy Use Demographics," click on the Group Summary name.

MODULE	Summary
WORKSHEET	Graph Control
UNIVERSITY	University of Missouri - Saint Louis

Select Years for your graphs	Start Year 1990 / End Year 2006

Group Summary	Individual Graphs
Emissions Summary	Total emissions eCO2
	CO2 emissions
	CH4 emissions
	N2O emissions
	Offsets
Energy Use	Total energy use
Emission Demogr	eCO2 / Operating $
	eCO2 / Research $
	eCO2 / Energy $
	eCO2 / Student
	eCO2 / Community
	eCO2 / Total Building Space
	eCO2 / Research Building Space
Energy Use Demo	Energy Use / Operating $
	Energy Use / Research $
	Energy Use / Energy $
	Energy Use / Student
	Energy Use / Community
	Energy Use / Total Building Space
	Energy Use / Research Building Space

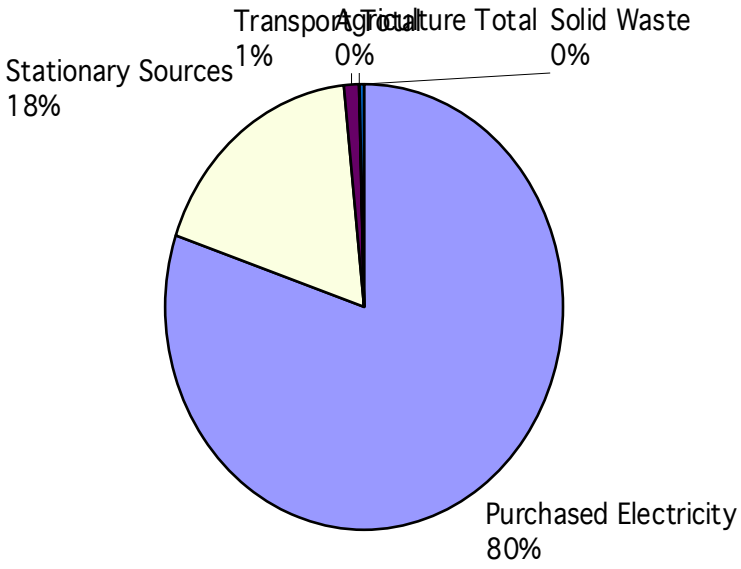


This graph is an example of your data to assist in choosing which years to display

On this worksheet: Summary information from an inventoried year, a pie chart showing a breakdown of sources, and a graph displaying the amounts of each gas emitted.

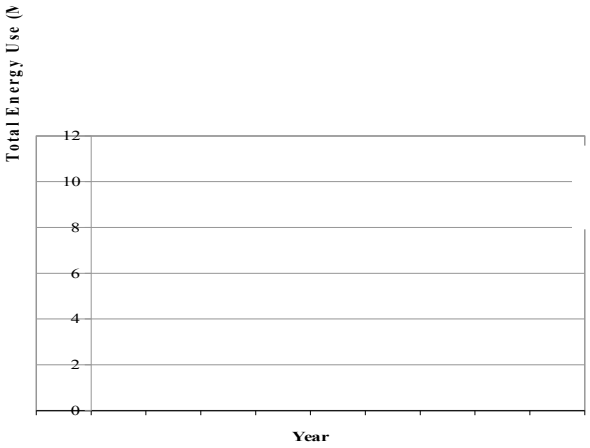
MODULE	Summary
WORKSHEET	Overview of Annual Emissions
UNIVERSITY	University of Missouri - Saint Louis

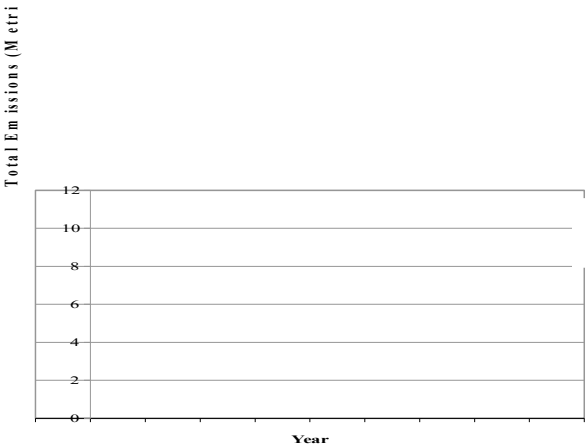
Select Year -->	2005	Energy Consumption	CO_2	CH_4	N_2O	Other Chemicals	eCO_2	eCO_2
		MMBtu	kg	kg	kg	kg	Short Tons	Metric Tonnes
Purchased Electricity		244,815	22,201,349	226	516		24,646	**22,359**
Purchased Steam/Chilled Water		-	-	-	-		-	**-**
Stationary Sources		95,721	5,053,244	504	10		5,586	**5,068**
	Non Co-Gen	95,721	5,053,244	504	10		5,586	**5,068**
	Co-Gen Electric	-	-	-	-		-	**-**
	Co-Gen Steam	-	-	-	-		-	**-**
Transport Total		4,715	332,658	59	21		375	**340**
	University Fleet	4,715	332,658	59	21		375	**340**
	Student Commuters	-	-	-	-		-	**-**
	Faculty/Staff Commuters	-	-	-	-		-	**-**
	Air Travel	-	-	-	-		-	**-**
Agriculture Total		-	-	-	28		9	**8**
Solid Waste		-	-	(4,464)	-		(113)	**(103)**
Refrigeration						1,400	-	**-**
Total		**345,251**	**27,587,251**	**(3,675)**	**575**	**1,400**	**30,504**	**27,673**
Offsets							-	**-**
	'Green' Electric Credits						-	**-**
	Composting						-	**-**
	Forest Preservation						-	**-**
	Other						-	**-**
Net Emissions							**30,504**	**27,673**

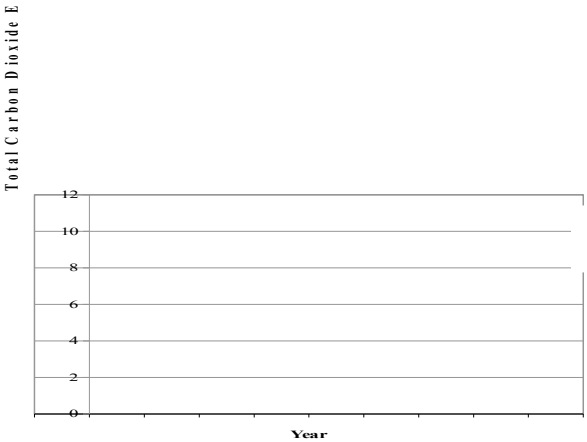


MODULE Summary
WORKSHEET Emission Demographics
UNIVERSITY University of Missouri - Saint Louis

	Emissions							Energy Use						
Year	Metric Tonnes eCO_2 / Operating budget	Metric Tonnes eCO_2 / Research budget	Metric Tonnes eCO_2 / Energy budget	Metric Tonnes eCO_2 / Student	Metric Tonnes eCO_2 / Community	Metric Tonnes eCO_2 / Total Building Space	Metric Tonnes eCO_2 / Research Building Space	MMBtu / Operating budget	MMBtu / Research budget	MMBtu / Energy budget	MMBtu / Student	MMBtu / Community	MMBtu / Total Building Space	MMBtu / Research Building Space
1990	0.000	-	-	0.0	0.0	-	-	0.00	-	-	0.54	0.27	-	-
1991	0.000	-	-	0.0	0.0	-	-	0.00	-	-	0.54	0.27	-	-
1992	0.000	-	-	0.0	0.0	-	-	0.00	-	-	0.58	0.28	-	-
1993	0.000	-	-	0.0	0.0	-	-	0.00	-	-	0.56	0.27	-	-
1994	0.000	-	-	0.0	0.0	-	-	0.00	-	-	0.54	0.27	-	-
1995	0.000	-	-	0.0	0.0	-	-	0.00	-	-	0.53	0.26	-	-
1996	0.000	-	-	0.0	0.0	-	-	0.00	-	-	0.53	0.26	-	-
1997	0.001	-	-	0.6	0.3	-	-	0.02	-	-	12.05	5.86	-	-
1998	0.001	-	-	0.6	0.3	-	-	0.02	-	-	11.68	5.74	-	-
1999	0.001	-	-	0.6	0.3	-	-	0.01	-	-	11.64	5.84	-	-
2000	0.001	-	-	0.6	0.3	-	-	0.01	-	-	11.65	5.87	-	-
2001	0.001	-	-	0.6	0.3	-	-	0.01	-	-	11.69	5.99	-	-
2002	0.001	-	-	0.6	0.3	-	-	0.01	-	-	11.37	5.75	-	-
2003	0.001	-	-	0.5	0.3	-	-	0.01	-	-	10.18	5.18	-	-
2004	0.001	-	-	0.5	0.2	-	-	0.01	-	-	9.05	4.57	-	-
2005	0.003	-	-	2.9	1.5	-	-	0.04	-	-	36.60	19.07	-	-
2006	0.003	-	0.002	3.0	2.6	0.0	-	0.04	-	0.12	39.80	20.68	0.13	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-

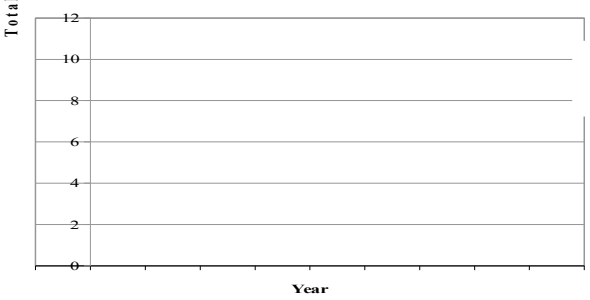

Total Energy Use (M
12
10
8
6
4
2
0
Year


Total Emissions (Metri
12
10
8
6
4
2
0
Year


Total Carbon Dioxide E
12
10
8
6
4
2
0
Year

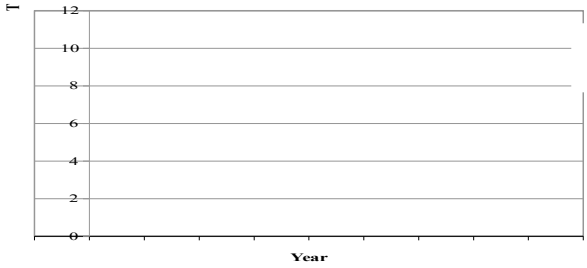
Spreadsheet Map
Graph Control Page

On this worksheet: Total Methane emissions by sector (kg CH_4). As some forms of waste management result in a net sink of carbon, this graph may have negative values.



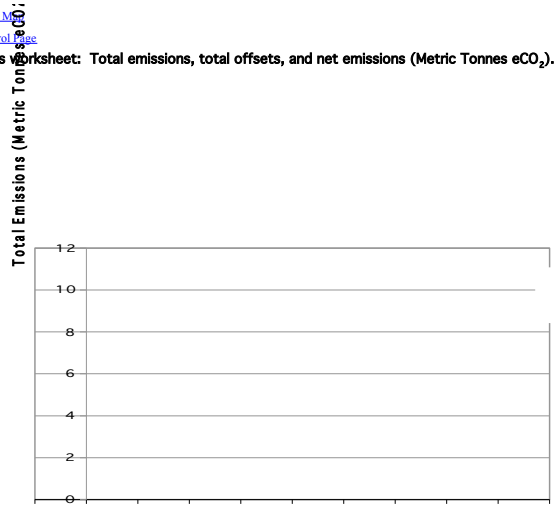
Spreadsheet Map
Graph Control Page

On this worksheet: Total Nitrous Oxide emissions by sector (kg N_2O)

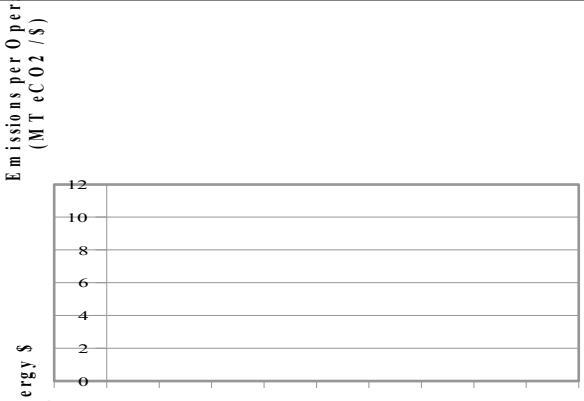


Spreadsheet Menu
Graph Control Page

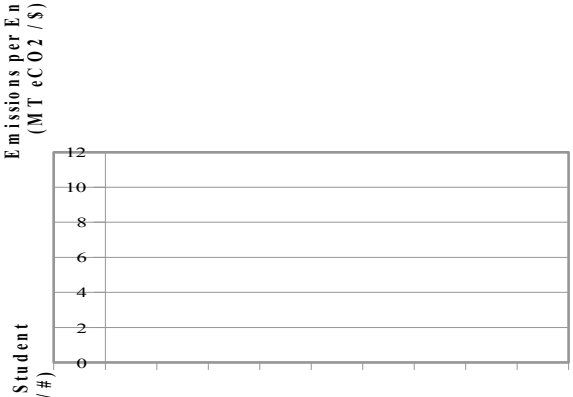
On this worksheet: Total emissions, total offsets, and net emissions (Metric Tonnes eCO_2). Net emissions are the total emissions minus the offsets



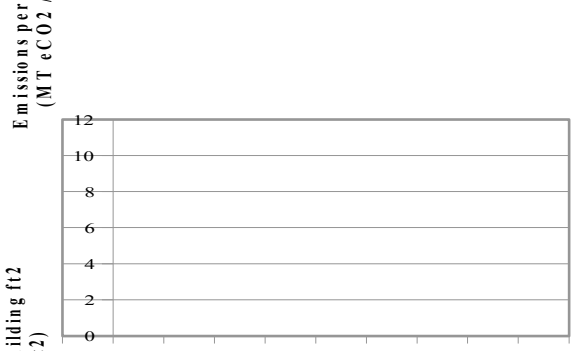
MODULE	Summary						
WORKSHEET	Demographic Emissions Summary (Metric tonnes eCO^2 per unit)						
UNIVERSITY	University of Missouri - Saint Louis						
Years	1990 - 2006						
	Budget			Community Size		Building Space	
Group	$ Operating budget	$ Research budget	$ Energy budget	Student	Community Member	Ft^2 Total Building Space	Ft^2 Research Building Space
Average	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509
Min	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509
Max	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509
Standard Deviation	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509



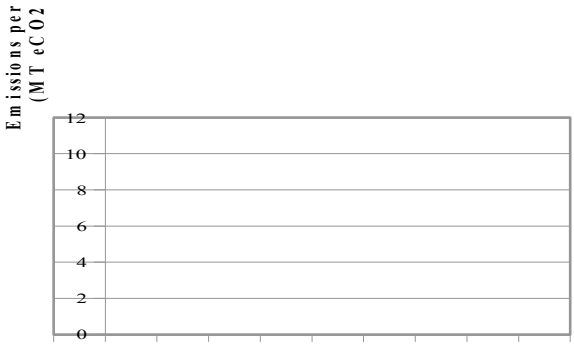
Emissions per operating dollar estimates the overall emissions efficiency of the institution. For every dollar that is spent, a certain amount of emissions are released.



Emissions per energy dollar estimates the overall emissions efficiency of the institution's energy production. For every dollar that is spent on energy, a certain amount of emissions are released.



Emissions per student normalizes the total emissions estimates by the size of the student body.

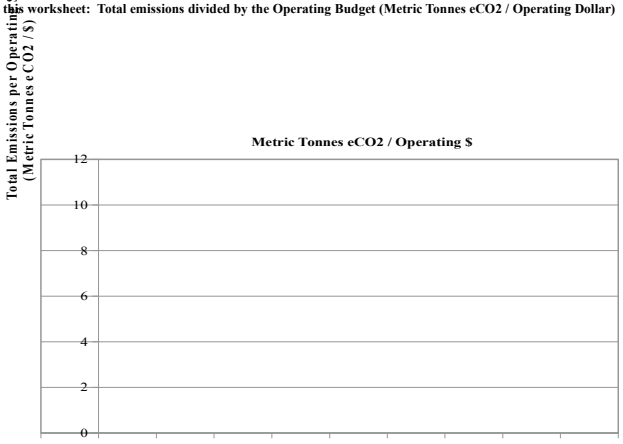


Emissions per square foot of building space is another estimate of the overall emissions efficiency of the institution.

Spreadsheet Map

Graph Control Page

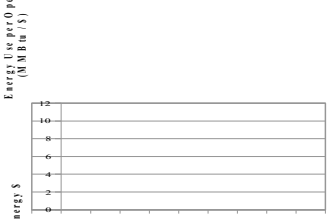
On this worksheet: Total emissions divided by the Operating Budget (Metric Tonnes eCO2 / Operating Dollar)



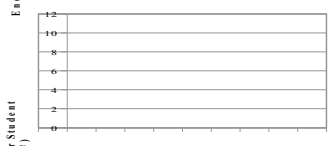
Spreadsheet Map
Graph Control Page

On this worksheet: Summary of Total Energy Use divided by various demographics (MMBtu / Unit). To see enlarged versions of these graphs, go to the Graph Control Page.

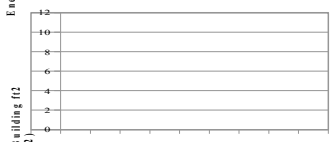
MODULE	Summary						
WORKSHEET	Demographic Energy Use Summary (MMBtu per unit)						
UNIVERSITY	University of Missouri - Saint Louis						
Years	1990 - 2006						
	Budget			Community Size		Building Space	
Group	$ Operating budget	$ Research budget	$ Energy budget	Student	Community Member	Ft² Total Building Space	Ft² Research Building Space
Average	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509
Min	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509
Max	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509
Standard Deviation	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509	Err:509



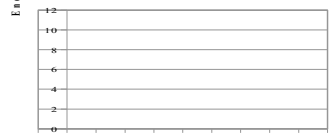
Energy use per operating dollar estimates the overall energy efficiency of the institution. For every dollar that is spent, a certain amount of energy is used. This plot tracks how that use has changed over time.



Energy use per energy dollar estimates the overall economic efficiency of the institution's energy production. Cheaper power will result in more energy per dollar spent.



Energy Use per student normalizes the total energy use estimates by the size of the student body.

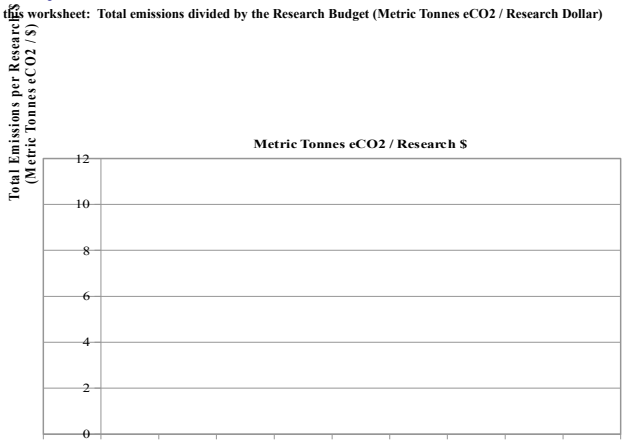


Energy use per square foot of building space is another estimate of the overall energy efficiency of the institution.

Spreadsheet Map

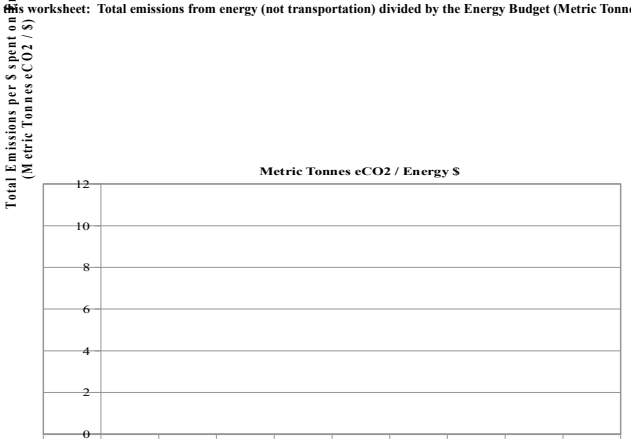
Graph Control Page

On this worksheet: Total emissions divided by the Research Budget (Metric Tonnes eCO2 / Research Dollar)



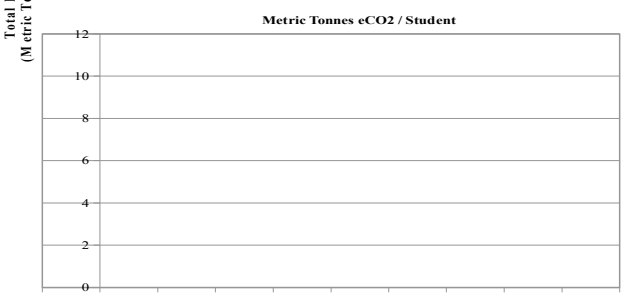
Spreadsheet Map
Graph Control Page

On this worksheet: Total emissions from energy (not transportation) divided by the Energy Budget (Metric Tonnes eCO2 / Dollar Spent on Energy)



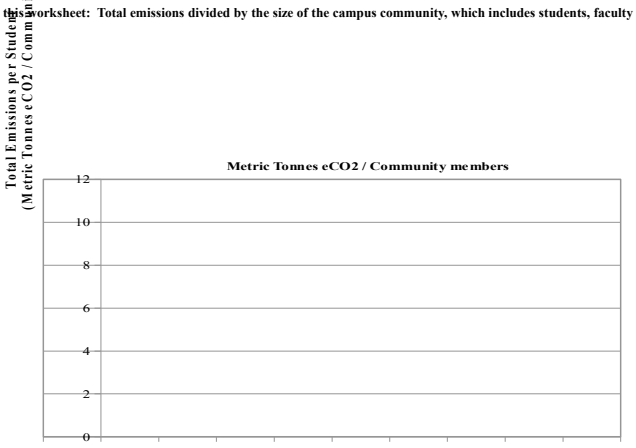
Spreadsheet Map
Graph Control Page

On this worksheet: Total emissions divided by the number of students (Metric Tonnes eCO2 / Student full-time equivalent)



Spreadsheet Map
Graph Control Page

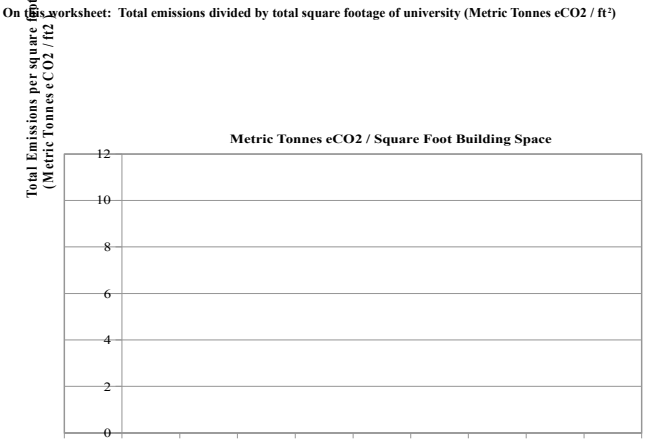
On this worksheet: Total emissions divided by the size of the campus community, which includes students, faculty and staff (Metric Tonnes eCO2 / Community members)



Spreadsheet Map

Graph Control Page

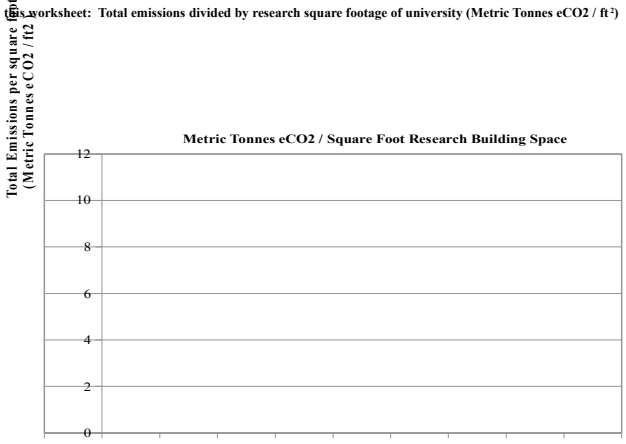
On this worksheet: Total emissions divided by total square footage of university (Metric Tonnes eCO2 / ft²)



Spreadsheet Map

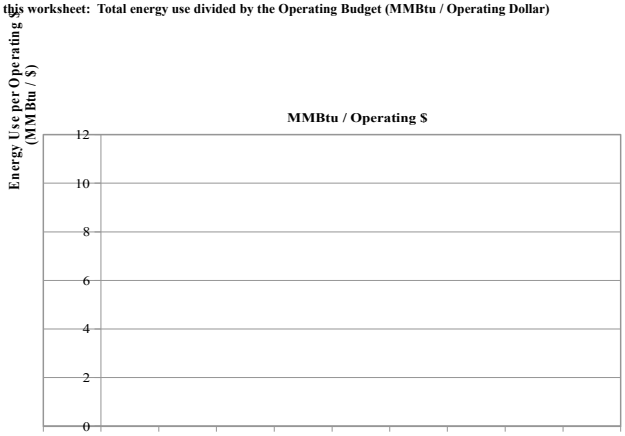
Graph Control Page

On this worksheet: Total emissions divided by research square footage of university (Metric Tonnes eCO2 / ft²)



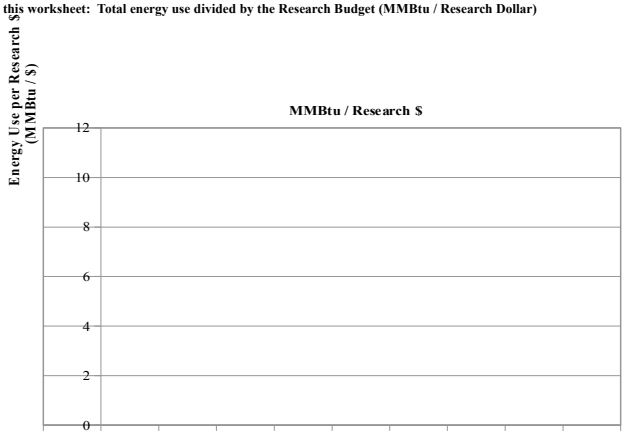
Spreadsheet Map
Graph Control Page

On this worksheet: Total energy use divided by the Operating Budget (MMBtu / Operating Dollar)



Spreadsheet Map
Graph Control Page

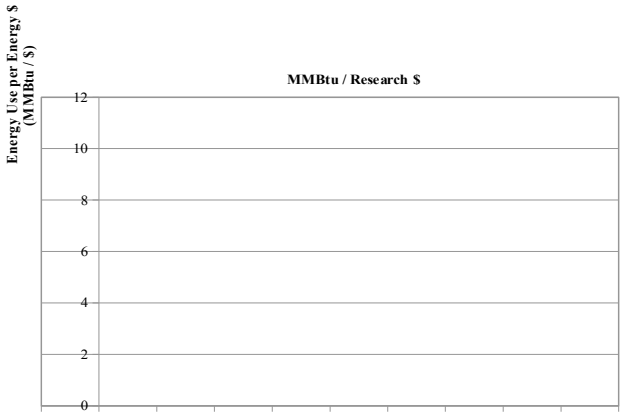
On this worksheet: Total energy use divided by the Research Budget (MMBtu / Research Dollar)



Spreadsheet Map

Graph Control Page

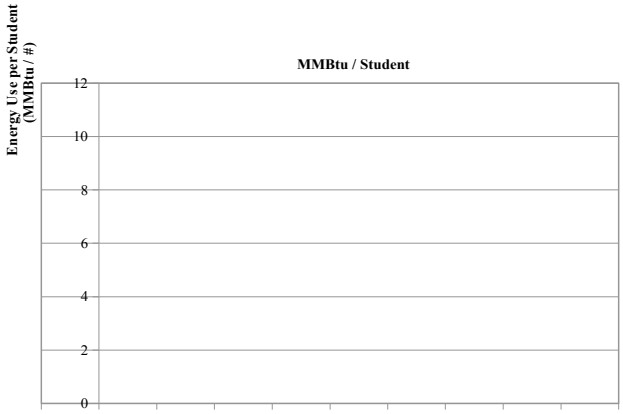
On this worksheet: Total energy use divided by the Energy Budget (MMBtu / Energy Dollar)



Spreadsheet Map

Graph Control Page

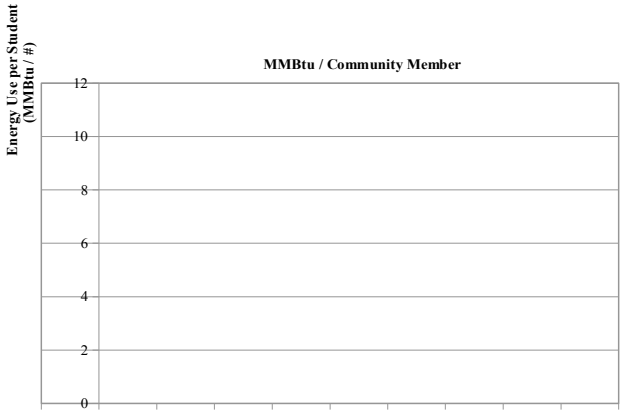
On this worksheet: Total energy use divided by the size of the student body (full time equivalent) (MMBtu / Community members)



Spreadsheet Map

Graph Control Page

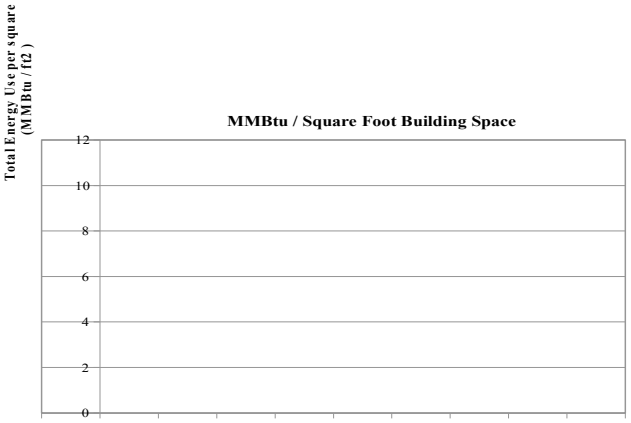
On this worksheet: Total energy use divided by the size of the campus community, which includes students, faculty and staff (MMBtu / Community members)



Spreadsheet Map

Graph Control Page

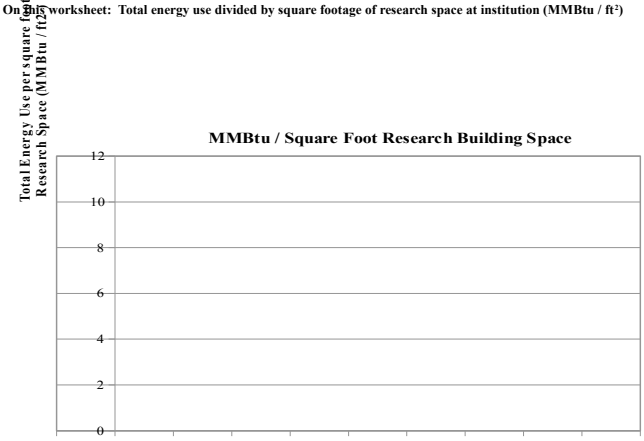
On this worksheet: Total energy use divided by total square footage of university (MMBtu / ft²)



Spreadsheet Map

Graph Control Page

On this worksheet: Total energy use divided by square footage of research space at institution (MMBtu / ft²)



Spreadsheet Map

On this Worksheet: This spreadsheet facilitates estimation of emissions from a single 'event' or project. Enter data into the green input cells. For example, if you wanted to estimate the impact of a project that reduced electric use by 1000 kWh, simply enter 1000 in the green "Purchased Electricity" input box. Summary data will be provided on the Project_Summary sheet.

Go to Project Summary

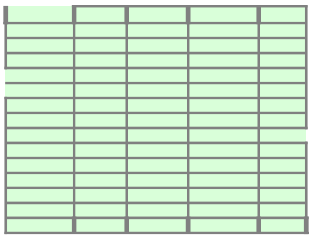
MODULE	**Summary**							
WORKSHEET	**Projects/Events**							
UNIVERSITY	**University of Missouri - Saint Louis**							
Name	Chilled Water Loop		Text					
Year	Year of Event		Year	**2000**	**2000**	**2000**	**2000**	**2000**
Purchased Electricity	Electric purchased from off-campus		kWh					
Purchased Steam / Chilled Water	Steam and Chilled water produced off-campus	Purchased Steam	MMBtu					
		Purchased Chilled Water	MMBtu					
On campus stationary sources	On-Campus Combined Heat and Power Plant	Residual Oil	Gallons					
		Distillate Oil	Gallons					
		Natural Gas	MMBtu					
		Propane	Gallons					
		Coal	Short Tons					
	This category includes all stationary sources of emissions on campus (heating, cooling, cooking, laboratories, etc)	Residual Oil	Gallons					
		Distillate Oil	Gallons					
		Natural Gas	MMBtu					
		Propane	Gallons					
		Incinerated Waste	Short Tons					
		Coal	Short Ton					
		Other A	MMBtu					
		Other B	MMBtu					
		Other C	MMBtu					
		Solar / Wind / Biomass	MMBtu					
Transportation	University Fleet	Gasoline Fleet	Gallons					
		Diesel Fleet	Gallons					
		Natural Gas Fleet	MMBtu					
		Electric Fleet	kWh					
		Other Fleet	MMBtu					
	Commuters	Commuting Faculty/Staff	Gallons					
		Commuting Students	Gallons					
Agriculture	Application of fertilizer	Synthetic	Pounds					
		Organic	Pounds					
	Includes all animal agriculture run by the university	Dairy Cows	#					
		Beef Cows	#					
		Swine	#					
		Goats	#					
		Sheep	#					
		Horses	#					
		Poultry	#					
		Other	#					
Solid Waste	Includes all solid waste produced by campus except waste composted or burned on campus for power	Incinerated Waste (not used for school power)	Mass Burn Short Ton					
			Refuse Derived Fuel Short Ton					
		Landfilled Waste with no CH_4 Recovery	Short Ton					
		Landfilled Waste with CH_4 Recovery and Flaring	Short Ton					
		Landfilled Waste with CH_4 Recovery and Electric Generation	Short Ton					
Refrigeration and other Chemicals (PFCs, HFCs, SF6)	All other emitted greenhouse gases	HFC-23	Pounds					
		HFC-32	Pounds					
		HFE-143a	Pounds					
		HCFE-235da2	Pounds					
		Others	Pounds					
		HG-10	Pounds					
Offsets	Actions taken to offset emissions	'Green' Electric Certificates	kWh					
		Forest Preservation	MTCDE					
		Composting	Short Tons Compost					
		Other	MTCDE					

Spreadsheet Map

On this Worksheet: Emission Factors for the projects

Go to Project Summary

MODULE	**Summary**							
WORKSHEET	**Projects/Events Emission Factors. All factors are in Metric Tonnes eCO $_2$ per unit displayed.**							
UNIVERSITY	**University of Missouri - Saint Louis**							
Name	Name of Event/Project		Text	**Light Bulbs**	**No Light Bulbs**			
Year	Year of Event		Year	**2000**	**2000**	**2000**	**2000**	**2000**
Purchased Electricity	Electric purchased from off-campus		kWh	0.00057	0.00057	0.00057	0.00057	0.00057
Purchased Steam / Chilled Water	Steam and Chilled water produced off-campus	Purchased Steam	MMBtu	0.080	0.080	0.080	0.080	0.080
		Purchased Chilled Water	MMBtu	0.080	0.080	0.080	0.080	0.080
On campus stationary sources	On-Campus Combined Heat and Power Plant	Residual Oil	Gallons	0.002	0.002	0.002	0.002	0.002
		Distillate Oil	Gallons	0.001	0.001	0.001	0.001	0.001
		Natural Gas	MMBtu	0.005	0.005	0.005	0.005	0.005
		Propane	Gallons	0.001	0.001	0.001	0.001	0.001
		Coal	Short Tons	1.983	1.983	1.983	1.983	1.983
	This category includes all stationary sources of emissions on campus (heating, cooling, cooking, laboratories, etc)	Residual Oil	Gallons	0.002	0.002	0.002	0.002	0.002
		Distillate Oil	Gallons	0.001	0.001	0.001	0.001	0.001
		Natural Gas	MMBtu	0.005	0.005	0.005	0.005	0.005
		Propane	Gallons	0.001	0.001	0.001	0.001	0.001
		Incinerated Waste	Short Tons	0.009	0.009	0.009	0.009	0.009
		Coal	Short Ton	1.983	1.983	1.983	1.983	1.983
		Other A	MMBtu					
		Other B	MMBtu					
		Other C	MMBtu					
		Solar / Wind / Biomass	MMBtu	0.000	0.000	0.000	0.000	0.000
Transportation	University Fleet	Gasoline Fleet	Gallons	0.00893	0.00893	0.00893	0.00893	0.00893
		Diesel Fleet	Gallons	0.01008	0.01008	0.01008	0.01008	0.01008
		Natural Gas Fleet	MMBtu	0.05324	0.05324	0.05324	0.05324	0.05324
		Electric Fleet	kWh	0.00057	0.00057	0.00057	0.00057	0.00057
		Other Fleet	MMBtu	0.00000	0.00000	0.00000	0.00000	0.00000
	Commuters	Commuting Faculty/Staff	Gallons	0.00893	0.00893	0.00893	0.00893	0.00893
		Commuting Students	Gallons	0.00893	0.00893	0.00893	0.00893	0.00893
Agriculture	Application of fertilizer	Synthetic	Pounds Applied	0.0000	0.0000	0.0000	0.0000	0.0000
		Organic	Pounds Applied	0.0000	0.0000	0.0000	0.0000	0.0000
	Includes all animal agriculture run by the university	Dairy Cows	#	3.8	3.8	3.8	3.8	3.8
		Beef Cows	#	1.13	1.13	1.13	1.13	1.13
		Swine	#	0.36	0.36	0.36	0.36	0.36
		Goats	#	0.14	0.14	0.14	0.14	0.14
		Sheep	#	0.19	0.19	0.19	0.19	0.19
		Horses	#	0.58	0.58	0.58	0.58	0.58
		Poultry	#	0.00	0.00	0.00	0.00	0.00
		Other	#	0.00	0.00	0.00	0.00	0.00
Solid Waste	Includes all solid waste produced by campus except waste composted or burned on campus for power	Incinerated Waste (not used for school power)	Mass Burn Short Ton	-0.11	-0.11	-0.11	-0.11	-0.11
			Refuse Derived Fuel Short Ton	-0.04	-0.04	-0.04	-0.04	-0.04
		Landfilled Waste with no CH_4 Recovery	Short Ton	0.62	0.62	0.62	0.62	0.62
		Landfilled Waste with CH_4 Recovery and Flaring	Short Ton	-0.07	-0.07	-0.07	-0.07	-0.07
		Landfilled Waste with CH_4 Recovery and Electric Generation	Short Ton	-0.22	-0.22	-0.22	-0.22	-0.22
Refrigeration and other Chemicals (PFCs, HFCs, SF6)	All other emitted greenhouse gases	HFC-23	Pounds	26.4	26.4	26.4	26.4	26.4
		HFC-32	Pounds	1.2	1.2	1.2	1.2	1.2
		HFE-143a	Pounds	1.7	1.7	1.7	1.7	1.7
		HCFE-235da2	Pounds	0.7	0.7	0.7	0.7	0.7
		Others	Pounds	0.0	0.0	0.0	0.0	0.0
		HG-10	Pounds	5.94	5.94	5.94	5.94	5.94
Offsets	Actions taken to offset emissions	'Green' Electric Certificates	kWh	-0.00057	-0.00057	-0.00057	-0.00057	-0.00057
		Forest Preservation	MTCDE	-1	-1	-1	-1	-1
		Composting	Short Tons Compost	-0.18	-0.18	-0.18	-0.18	-0.18
		Other	MTCDE	-1	-1	-1	-1	-1



Spreadsheet Map

Go to Project Inputs

On this Worksheet: This spreadsheet summarizes emissions from the project/event entered on the Project_Input sheet

MODULE	Summary				
WORKSHEET	Projects/Events Emission Summary MT eCO_2				
UNIVERSITY	University of Missouri - Saint Louis				
Source					
Project Name	Please enter project name on Project_Input	Please enter project name on Project_Input	Please enter project name on Project_Input	Please enter project name on Project_Input	Please enter project name on Project_Input
Year	2000	2000	2000	2000	2000
Purchased Electricity	0	0	0	0	0
Puchased Steam / Chilled Water	0	0	0	0	0
On-Campus Cogeneration Plant	0	0	0	0	0
On Campus Stationary Sources	0	0	0	0	0
Transportation	0	0	0	0	0
Agriculture	0	0	0	0	0
Solid Waste	0	0	0	0	0
Refrigeration and other Chemicals	0	0	0	0	0
Total Emissions	**0**	**0**	**0**	**0**	**0**
Offsets	0	0	0	0	0
Net Emissions	**0**	**0**	**0**	**0**	**0**

To the top

MODULE	Summary																		
WORKSHEET	CO_2																		
UNIVERSITY	University of Missouri - Saint Louis																		
	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources															
Fiscal Year	Electricity	Steam and Chilled water produced off-campus		On-Campus Combined Heat and Power Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories, etc)										
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Incinerated Waste	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2
1990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	5,279,138	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-	-	-	5,279,138	-	-	-	-	-	-	-
1999	-	-	-	-	-	-	-	-	-	-	-	5,279,138	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	5,279,138	-	-	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	-	-	-	5,279,138	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	-	-	-	5,279,138	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	-	-	-	-	-	4,706,669	-	-	-	-	-	-	-
2004	-	-	-	-	-	-	-	-	-	-	-	4,124,221	-	-	-	-	-	-	-
2005	22,201,349	-	-	-	-	-	-	-	-	-	-	5,053,244	-	-	-	-	-	-	-
2006	22,201,349	-	-	-	-	-	-	-	-	-	-	6,753,391	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Source:	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source

Transportation									Solid Waste	
University Fleet					Air Travel		Commuters			
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline	Incinerated Waste	
									Mass Burn Incinerator	Refuse Derived Fuel (RDF) Incinerator
kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2	kg CO_2
283,078	53,017	-	-	-	-	-	-	-	-	-
283,078	53,017	-	-	-	-	-	-	-	-	-
283,224	53,017	-	-	-	-	-	-	-	-	-
283,370	53,017	-	-	-	-	-	-	-	-	-
282,420	53,017	-	-	-	-	-	-	-	-	-
280,596	53,017	-	-	-	-	-	-	-	-	-
280,360	53,017	-	-	-	-	-	-	-	-	-
280,054	53,017	-	-	-	-	-	-	-	-	-
279,711	53,017	-	-	-	-	-	-	-	-	-
279,657	53,017	-	-	-	-	-	-	-	-	-
279,748	53,017	-	-	-	-	-	-	-	-	-
279,748	53,017	-	-	-	-	-	-	-	-	-
279,641	53,017	-	-	-	-	-	-	-	-	-
279,641	53,017	-	-	-	-	-	-	-	-	-
279,641	53,017	-	-	-	-	-	-	-	-	-
279,641	53,017	-	-	-	-	-	-	-	-	-
220,245	51,968	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source	kg CO_2 = kg CO_2 / Source x Source

Spreadsheet Map

On this Worksheet: CH4 Emission factors for all inputs. Some input categories are not visible here (such as refrigerants) as they do not have associated CH4 emissions.

MODULE	Emission Factor															
WORKSHEET	CH_4															
UNIVERSITY	University of Missouri - Saint Louis															
	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources												
Fiscal Year	Electricity	Steam and Chilled water produced off-campus		On-Campus Cogeneration Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories,							
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Other A	Other B	Other C
	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4
1990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	527	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-	-	527	-	-	-	-	-
1999	-	-	-	-	-	-	-	-	-	-	527	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	527	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	-	-	527	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	-	-	527	-	-	-	-	-
2003	-	-	-	-	-	-	-	-	-	-	470	-	-	-	-	-
2004	-	-	-	-	-	-	-	-	-	-	412	-	-	-	-	-
2005	226	-	-	-	-	-	-	-	-	-	504	-	-	-	-	-
2006	226	-	-	-	-	-	-	-	-	-	674	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Source:	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source

	Transportation									Agriculture						
etc)	University Fleet					Air Travel		Commuters		Animal Agriculture						
Solar / Wind / Biomass	Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline	Dairy Cows	Beef Cows	Swine	Goats	Sheep	Horses	Poultry
kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4	kg CH_4
-	57	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	57	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	57	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	56	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	44	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source

	Solid Waste		
	cludes all solid waste produced by campus except waste composted or burned on campus for powe		
Other	Landfilled Waste with no CH_4 Recovery	Landfilled Waste with CH_4 Recovery and Flaring	Landfilled Waste with CH_4 Recovery and Electric Generation
kg CH_4	kg CH_4	kg CH_4	kg CH_4
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	(4,464)	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source	kg CH_4 = kg CH_4 / Source x Source

MODULE	Emission Factor
WORKSHEET	N_2O
UNIVERSITY	University of Missouri - Saint Louis

	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources													
Fiscal Year	Electricity	Steam and Chilled water produced off-campus		On-Campus Cogeneration Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories, etc)								
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O
1990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-
1999	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-
2003	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-
2004	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-
2005	516	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-
2006	516	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Source:	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source

Transportation									Agriculture									
University Fleet					Air Travel		Commuters											
									Fertilizer Application		Animal Agriculture							
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline	Synthetic	Organic	Dairy Cows	Beef Cows	Swine	Goats	Sheep	Horses	Poultry	Other
kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	-
15	1	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source	kg N_2O= kg N_2O / Source x Source

Spreadsheet Map

On this Worksheet: Energy use factors for all inputs. These factors estimate the energy used in the consumption of the various fuels and puts them in the same units. Some input categories are not visible here (such as refrigerants) as their associated en

MODULE	**Emission Factor**
WORKSHEET	**Energy**
UNIVERSITY	**University of Missouri - Saint Louis**

	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources														
Fiscal Year	Electricity	Steam and Chilled water		On-Campus Cogeneration Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories, etc)									
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Incinerated Waste	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu
1990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-	-	-	-
1999	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-	-	-	-
2003	-	-	-	-	-	-	-	-	-	-	-	89,156	-	-	-	-	-	-
2004	-	-	-	-	-	-	-	-	-	-	-	78,123	-	-	-	-	-	-
2005	244,815	-	-	-	-	-	-	-	-	-	-	95,721	-	-	-	-	-	-
2006	244,815	-	-	-	-	-	-	-	-	-	-	127,926	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source

Transportation								
University Fleet					Air Travel		Commuters	
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline
MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu
4,018	732	-	-	-	-	-	-	-
4,018	732	-	-	-	-	-	-	-
4,018	732	-	-	-	-	-	-	-
4,018	732	-	-	-	-	-	-	-
4,000	732	-	-	-	-	-	-	-
3,989	732	-	-	-	-	-	-	-
3,989	732	-	-	-	-	-	-	-
3,987	732	-	-	-	-	-	-	-
3,986	732	-	-	-	-	-	-	-
3,986	732	-	-	-	-	-	-	-
3,985	732	-	-	-	-	-	-	-
3,985	732	-	-	-	-	-	-	-
3,983	732	-	-	-	-	-	-	-
3,983	732	-	-	-	-	-	-	-
3,983	732	-	-	-	-	-	-	-
3,983	732	-	-	-	-	-	-	-
3,137	718	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source	MMBtu = MMBtu / Source x Source

MODULE	Summary
WORKSHEET	CO_2 Summary (kg)
UNIVERSITY	University of Missouri - Saint Louis

Fiscal Year	Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary				Transportation					Agriculture	Solid Waste	Refrigerants and other Chemicals	Total Emissions (kg CO_2)
			Total	Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Total	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel				
1990	-	-	-	-	-	-	336,095	336,095	-	-	-	-	-	-	336,095
1991	-	-	-	-	-	-	336,095	336,095	-	-	-	-	-	-	336,095
1992	-	-	-	-	-	-	336,241	336,241	-	-	-	-	-	-	336,241
1993	-	-	-	-	-	-	336,387	336,387	-	-	-	-	-	-	336,387
1994	-	-	-	-	-	-	335,436	335,436	-	-	-	-	-	-	335,436
1995	-	-	-	-	-	-	333,613	333,613	-	-	-	-	-	-	333,613
1996	-	-	-	-	-	-	333,377	333,377	-	-	-	-	-	-	333,377
1997	-	-	5,279,138	5,279,138	-	-	333,071	333,071	-	-	-	-	-	-	5,612,209
1998	-	-	5,279,138	5,279,138	-	-	332,728	332,728	-	-	-	-	-	-	5,611,866
1999	-	-	5,279,138	5,279,138	-	-	332,674	332,674	-	-	-	-	-	-	5,611,813
2000	-	-	5,279,138	5,279,138	-	-	332,765	332,765	-	-	-	-	-	-	5,611,904
2001	-	-	5,279,138	5,279,138	-	-	332,765	332,765	-	-	-	-	-	-	5,611,904
2002	-	-	5,279,138	5,279,138	-	-	332,658	332,658	-	-	-	-	-	-	5,611,796
2003	-	-	4,706,669	4,706,669	-	-	332,658	332,658	-	-	-	-	-	-	5,039,326
2004	-	-	4,124,221	4,124,221	-	-	332,658	332,658	-	-	-	-	-	-	4,456,879
2005	22,201,349	-	5,053,244	5,053,244	-	-	332,658	332,658	-	-	-	-	-	-	27,587,251
2006	22,201,349	-	6,753,391	6,753,391	-	-	272,212	272,212	-	-	-	-	-	-	29,226,951
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MODULE	**Summary**
WORKSHEET	**CH_4 Summary (kg)**
UNIVERSITY	**University of Missouri - Saint Louis**

Fiscal Year	Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary				Transportation					Agriculture	Solid Waste	Refrigerants and other Chemicals	Total Emissions (kg CH_4)
			Total	Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Total	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel				
1990	-	-	-	-	-	-	60	60	-	-	-	-	(4,464)	-	(4,404)
1991	-	-	-	-	-	-	60	60	-	-	-	-	(4,464)	-	(4,404)
1992	-	-	-	-	-	-	60	60	-	-	-	-	(4,464)	-	(4,404)
1993	-	-	-	-	-	-	59	59	-	-	-	-	(4,464)	-	(4,404)
1994	-	-	-	-	-	-	59	59	-	-	-	-	(4,464)	-	(4,404)
1995	-	-	-	-	-	-	59	59	-	-	-	-	(4,464)	-	(4,404)
1996	-	-	-	-	-	-	59	59	-	-	-	-	(4,464)	-	(4,405)
1997	-	-	527	527	-	-	59	59	-	-	-	-	(4,464)	-	(3,878)
1998	-	-	527	527	-	-	59	59	-	-	-	-	(4,464)	-	(3,878)
1999	-	-	527	527	-	-	59	59	-	-	-	-	(4,464)	-	(3,878)
2000	-	-	527	527	-	-	59	59	-	-	-	-	(4,464)	-	(3,878)
2001	-	-	527	527	-	-	59	59	-	-	-	-	(4,464)	-	(3,878)
2002	-	-	527	527	-	-	59	59	-	-	-	-	(4,464)	-	(3,878)
2003	-	-	470	470	-	-	59	59	-	-	-	-	(4,464)	-	(3,935)
2004	-	-	412	412	-	-	59	59	-	-	-	-	(4,464)	-	(3,993)
2005	226	-	504	504	-	-	59	59	-	-	-	-	(4,464)	-	(3,675)
2006	226	-	674	674	-	-	47	47	-	-	-	-	(4,464)	-	(3,517)
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MODULE	**Summary**
WORKSHEET	**N_2O Summary (kg)**
UNIVERSITY	**University of Missouri - Saint Louis**

Fiscal Year	Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary				Transportation					Agriculture	Solid Waste	Refrigerants and other Chemicals	Total Emissions (kg N_2O)
			Total	Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Total	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel				
1990	-	-	-	-	-	-	21	21	-	-	-	10	-	-	30
1991	-	-	-	-	-	-	21	21	-	-	-	10	-	-	30
1992	-	-	-	-	-	-	21	21	-	-	-	10	-	-	30
1993	-	-	-	-	-	-	21	21	-	-	-	10	-	-	30
1994	-	-	-	-	-	-	21	21	-	-	-	10	-	-	30
1995	-	-	-	-	-	-	21	21	-	-	-	10	-	-	30
1996	-	-	-	-	-	-	21	21	-	-	-	10	-	-	30
1997	-	-	11	11	-	-	21	21	-	-	-	10	-	-	41
1998	-	-	11	11	-	-	21	21	-	-	-	10	-	-	41
1999	-	-	11	11	-	-	21	21	-	-	-	10	-	-	41
2000	-	-	11	11	-	-	21	21	-	-	-	10	-	-	41
2001	-	-	11	11	-	-	21	21	-	-	-	10	-	-	41
2002	-	-	11	11	-	-	21	21	-	-	-	10	-	-	41
2003	-	-	9	9	-	-	21	21	-	-	-	10	-	-	40
2004	-	-	8	8	-	-	21	21	-	-	-	25	-	-	54
2005	516	-	10	10	-	-	21	21	-	-	-	28	-	-	575
2006	516	-	13	13	-	-	17	17	-	-	-	3	-	-	549
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MODULE Summary
WORKSHEET eCO_2 Summary (Metric Tonnes eCO_2)
UNIVERSITY University of Missouri - Saint Louis

															Total Emission	Offsets				Total Offset	Net
Fiscal Year	Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary				Transportation					Agriculture	Solid Waste	Refrigerants and other Chemicals	Total Emissions (MT eCO_2)	'Green' Electric Certificates	Composting	Forest Preservation	Other	Total Emissions (MT eCO_2)	Net Emissions (MT eCO_2)
			Total	Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Total	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel										
1990	-	-	-	-	-	-	344	344	-	-	-	3	(103)	-	244	-	-	-	-	-	244
1991	-	-	-	-	-	-	344	344	-	-	-	3	(103)	-	244	-	-	-	-	-	244
1992	-	-	-	-	-	-	344	344	-	-	-	3	(103)	-	244	-	-	-	-	-	244
1993	-	-	-	-	-	-	344	344	-	-	-	3	(103)	-	244	-	-	-	-	-	244
1994	-	-	-	-	-	-	343	343	-	-	-	3	(103)	-	243	-	-	-	-	-	243
1995	-	-	-	-	-	-	341	341	-	-	-	3	(103)	-	241	-	-	-	-	-	241
1996	-	-	-	-	-	-	341	341	-	-	-	3	(103)	-	241	-	-	-	-	-	241
1997	-	-	5,294	5,294	-	-	341	341	-	-	-	3	(103)	-	5,535	-	-	-	-	-	5,535
1998	-	-	5,294	5,294	-	-	340	340	-	-	-	3	(103)	-	5,535	-	-	-	-	-	5,535
1999	-	-	5,294	5,294	-	-	340	340	-	-	-	3	(103)	-	5,535	-	-	-	-	-	5,535
2000	-	-	5,294	5,294	-	-	340	340	-	-	-	3	(103)	-	5,535	-	-	-	-	-	5,535
2001	-	-	5,294	5,294	-	-	340	340	-	-	-	3	(103)	-	5,535	-	-	-	-	-	5,535
2002	-	-	5,294	5,294	-	-	340	340	-	-	-	3	(103)	-	5,535	-	-	-	-	-	5,535
2003	-	-	4,720	4,720	-	-	340	340	-	-	-	3	(103)	-	4,961	-	-	-	-	-	4,961
2004	-	-	4,136	4,136	-	-	340	340	-	-	-	7	(103)	-	4,381	-	-	-	-	-	4,381
2005	22,359	-	5,068	5,068	-	-	340	340	-	-	-	8	(103)	-	27,673	-	-	-	-	-	27,673
2006	22,359	-	6,773	6,773	-	-	278	278	-	-	-	1	(103)	-	29,309	-	-	-	-	-	29,309
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MODULE	**Summary**
WORKSHEET	**Energy Use in MMBtu**
UNIVERSITY	**University of Missouri - Saint Louis**

Fiscal Year	Purchased Electricity	Purchased Steam and Chilled water	On-campus Stationary				Transportation					Agriculture	Solid Waste	Refrigerants and other Chemicals	Total Energy Use (MMBtu)
			Total	Non Co-Gen	Co-Gen Electric	Co-Gen Steam	Total	Fleet	Student Commuters	Faculty/Staff Commuters	Air Travel				
1990	-	-	-	-	-	-	4,750	4,750	-	-	-	-	-	-	4,750
1991	-	-	-	-	-	-	4,750	4,750	-	-	-	-	-	-	4,750
1992	-	-	-	-	-	-	4,750	4,750	-	-	-	-	-	-	4,750
1993	-	-	-	-	-	-	4,750	4,750	-	-	-	-	-	-	4,750
1994	-	-	-	-	-	-	4,732	4,732	-	-	-	-	-	-	4,732
1995	-	-	-	-	-	-	4,721	4,721	-	-	-	-	-	-	4,721
1996	-	-	-	-	-	-	4,721	4,721	-	-	-	-	-	-	4,721
1997	-	-	100,000	100,000	-	-	4,719	4,719	-	-	-	-	-	-	104,719
1998	-	-	100,000	100,000	-	-	4,718	4,718	-	-	-	-	-	-	104,718
1999	-	-	100,000	100,000	-	-	4,718	4,718	-	-	-	-	-	-	104,718
2000	-	-	100,000	100,000	-	-	4,717	4,717	-	-	-	-	-	-	104,717
2001	-	-	100,000	100,000	-	-	4,717	4,717	-	-	-	-	-	-	104,717
2002	-	-	100,000	100,000	-	-	4,715	4,715	-	-	-	-	-	-	104,715
2003	-	-	89,156	89,156	-	-	4,715	4,715	-	-	-	-	-	-	93,871
2004	-	-	78,123	78,123	-	-	4,715	4,715	-	-	-	-	-	-	82,838
2005	244,815	-	95,721	95,721	-	-	4,715	4,715	-	-	-	-	-	-	345,251
2006	244,815	-	127,926	127,926	-	-	3,855	3,855	-	-	-	-	-	-	376,596
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MODULE	Emission Factor
WORKSHEET	CO_2
UNIVERSITY	University of Missouri - Saint Louis

	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources														
Fiscal Year	Electricity	Steam and Chilled water produced off-campus		On-Campus Cogeneration Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories, etc)									
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Incinerated Waste	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
	kg CO_2 / kWh	kg CO_2 / MMBtu	kg CO_2 / MMBtu	kg CO_2 / Gallon	kg CO_2 / Gallon	kg CO_2 / MMBtu	kg CO_2 / Gallon	kg CO_2 / Short Ton	kg CO_2 / Gallon	kg CO_2 / Gallon	kg CO_2 / MMBtu	kg CO_2 / Gallon	kg CO_2 / MMBtu	kg CO_2 / Short Ton	kg CO_2 / MMBtu	kg CO_2 / MMBtu	kg CO_2 / MMBtu	kg CO_2 / MMBtu
1990	0.562	79	79	11.70	9.99	53	5.3	2,018	11.70	9.99	52.8	5.3	49	2,018	0	0	0	0
1991	0.562	79	79	11.70	9.99	53	5.3	2,016	11.70	9.99	52.8	5.3	49	2,016	0	0	0	0
1992	0.562	79	79	11.70	9.99	53	5.3	2,021	11.70	9.99	52.8	5.3	49	2,021	0	0	0	0
1993	0.562	79	79	11.70	9.99	53	5.3	1,997	11.70	9.99	52.8	5.3	49	1,997	0	0	0	0
1994	0.562	79	79	11.70	9.99	53	5.4	1,984	11.70	9.99	52.8	5.4	49	1,984	0	0	0	0
1995	0.562	79	79	11.70	9.99	53	5.4	1,983	11.70	9.99	52.8	5.4	49	1,983	0	0	0	0
1996	0.562	79	79	11.70	9.99	53	5.3	1,974	11.70	9.99	52.8	5.3	49	1,974	0	0	0	0
1997	0.562	79	79	11.70	9.99	53	5.3	1,961	11.70	9.99	52.8	5.3	49	1,961	0	0	0	0
1998	0.562	79	79	11.70	9.99	53	5.3	1,978	11.70	9.99	52.8	5.3	49	1,978	0	0	0	0
1999	0.562	79	79	11.70	9.99	53	5.3	1,966	11.70	9.99	52.8	5.3	49	1,966	0	0	0	0
2000	0.562	79	79	11.70	9.99	53	5.3	1,969	11.70	9.99	52.8	5.3	49	1,969	0	0	0	0
2001	0.562	79	79	11.70	9.99	53	5.3	1,952	11.70	9.99	52.8	5.3	49	1,952	0	0	0	0
2002	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2003	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2004	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2005	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2006	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2007	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2008	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2009	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2010	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2011	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2012	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2013	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2014	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2015	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2016	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2017	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2018	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2019	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
2020	0.562	79	79	11.70	9.99	53	5.3	1,967	11.70	9.99	52.8	5.3	49	1,967	0	0	0	0
Source:	EF_Electric	EF_Steam	EF_Water	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary

Transportation									Solid Waste		Offsets			
University Fleet					Air Travel		Commuters				Actions taken to offset emissions			
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline	Incinerated Waste (waste to energy plant) not used for school power		'Green' Electric Certificates	Composting	Forest Preservation	Other
									Mass Burn Incinerator	Refuse Derived Fuel (RDF) Incinerator				
kg CO_2 / Gallon	kg CO_2 / Gallon	kg CO_2 / MMBtu	kg CO_2 / kWh	kg CO_2 / MMBtu	kg CO_2 / Mile	kg CO_2 / Mile	kg CO_2 / Gallon	kg CO_2 / Gallon	kg CO_2 / Short Ton	kg CO_2 / Short Ton	MT eCO_2 / kWh	MT CO_2 / Short Ton	Metric Tonnes CO_2	Metric Tonnes CO_2
8.81	9.99	52.8	0.562	0	0.347	0.347	8.81	8.81	-110	-37	-0.00057	-0.18	-1	-1
8.81	9.99	52.8	0.562	0	0.329	0.329	8.81	8.81	-110	-37	-0.00057	-0.18	-1	-1
8.82	9.99	52.8	0.562	0	0.321	0.321	8.82	8.82	-110	-37	-0.00057	-0.18	-1	-1
8.82	9.99	52.8	0.562	0	0.321	0.321	8.82	8.82	-110	-37	-0.00057	-0.18	-1	-1
8.79	9.99	52.8	0.562	0	0.312	0.312	8.79	8.79	-110	-37	-0.00057	-0.18	-1	-1
8.74	9.99	52.8	0.562	0	0.308	0.308	8.74	8.74	-110	-37	-0.00057	-0.18	-1	-1
8.73	9.99	52.8	0.562	0	0.294	0.294	8.73	8.73	-110	-37	-0.00057	-0.18	-1	-1
8.72	9.99	52.8	0.562	0	0.292	0.292	8.72	8.72	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.289	0.289	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.284	0.284	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.277	0.277	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
8.71	9.99	52.8	0.562	0	0.276	0.276	8.71	8.71	-110	-37	-0.00057	-0.18	-1	-1
EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_SolidWaste	EF_SolidWaste	EF_Offset	EF_Offset	To make offset negative	To make offset negative

MODULE	Emission Factor
WORKSHEET	CH_4
UNIVERSITY	University of Missouri - Saint Louis

	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources													
Fiscal Year	Electricity	Steam and Chilled water produced off-campus		On-Campus Cogeneration Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories, etc)								
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
	kg CH_4 / kWh	kg CH_4 / MMBtu	kg CH_4 / MMBtu	kg CH_4 / Gallon	kg CH_4 / Gallon	kg CH_4 / MMBtu	kg CH_4 / Gallon	kg CH_4 / Short Ton	kg CH_4 / Gallon	kg CH_4 / Gallon	kg CH_4 / MMBtu	kg CH_4 / Gallon	kg CH_4 / Short Ton	kg CH_4 / MMBtu	kg CH_4 / MMBtu	kg CH_4 / MMBtu	kg CH_4 / MMBtu
1990	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2234	0.001581	0.001455	0.00527	0.01054	0.2234	0	0	0	0
1991	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2226	0.001581	0.001455	0.00527	0.01054	0.2226	0	0	0	0
1992	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2221	0.001581	0.001455	0.00527	0.01054	0.2221	0	0	0	0
1993	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2214	0.001581	0.001455	0.00527	0.01054	0.2214	0	0	0	0
1994	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2206	0.001581	0.001455	0.00527	0.01054	0.2206	0	0	0	0
1995	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2201	0.001581	0.001455	0.00527	0.01054	0.2201	0	0	0	0
1996	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2200	0.001581	0.001455	0.00527	0.01054	0.2200	0	0	0	0
1997	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2195	0.001581	0.001455	0.00527	0.01054	0.2195	0	0	0	0
1998	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2201	0.001581	0.001455	0.00527	0.01054	0.2201	0	0	0	0
1999	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2000	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2195	0.001581	0.001455	0.00527	0.01054	0.2195	0	0	0	0
2001	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2177	0.001581	0.001455	0.00527	0.01054	0.2177	0	0	0	0
2002	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2003	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2004	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2005	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2006	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2007	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2008	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2009	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2010	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2011	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2012	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2013	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2014	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2015	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2016	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2017	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2018	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2019	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
2020	0.000	0.00995	0.00995	0.001581	0.001455	0.00527	0.01054	0.2194	0.001581	0.001455	0.00527	0.01054	0.2194	0	0	0	0
Source:	EF_Electric	EF_Steam	EF_Water	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary

Transportation									Agriculture								Solid Waste		
University Fleet					Air Travel		Commuters										Includes all solid waste produced by campus except waste composted or burned on campus for pow		
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline	Animal Agriculture								Landfilled Waste with no CH_4 Recovery	Landfilled Waste with CH_4 Recovery and Flaring	Landfilled Waste with CH_4 Recovery and Electric Generation
									Dairy Cows	Beef Cows	Swine	Goats	Sheep	Horses	Poultry	Other			
kg CH_4 / Gallon	kg CH_4 / Gallon	kg CH_4 / MMBtu	kg CH_4 / kWh	kg CH_4 / MMBtu	kg CH_4 / Mile	kg CH_4 / Mile	kg CH_4 / Gallon	kg CH_4 / Gallon	kg CH_4 / head	kg CH_4 / head	kg CH_4 / head	kg CH_4 / head	kg CH_4 / head	kg CH_4 / head	kg CH_4 / head	kg CH_4 / head	kg CH_4 / Short Ton	kg CH_4 / Short Ton	kg CH_4 / Short Ton
0.0018	0.00057	0.014	0.000	0	0.0000095	0.0000095	0.0018	0.0018	136	48	13	5	8	24	0	0	27.1	-3.2	-9.6
0.0018	0.00057	0.014	0.000	0	0.0000090	0.0000090	0.0018	0.0018	140	47	13	5	8	24	0	0	27.1	-3.2	-9.6
0.0018	0.00057	0.014	0.000	0	0.0000088	0.0000088	0.0018	0.0018	141	47	12	5	8	24	0	0	27.1	-3.2	-9.6
0.0018	0.00057	0.014	0.000	0	0.0000088	0.0000088	0.0018	0.0018	137	47	13	5	8	24	0	0	27.1	-3.2	-9.6
0.0018	0.00057	0.014	0.000	0	0.0000086	0.0000086	0.0018	0.0018	143	47	14	5	8	24	0	0	27.1	-3.2	-9.6
0.0018	0.00057	0.014	0.000	0	0.0000085	0.0000085	0.0018	0.0018	145	47	14	5	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000081	0.0000081	0.0017	0.0017	140	47	14	5	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000081	0.0000081	0.0017	0.0017	144	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000080	0.0000080	0.0017	0.0017	147	46	16	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000078	0.0000078	0.0017	0.0017	151	47	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	151	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
0.0017	0.00057	0.014	0.000	0	0.0000076	0.0000076	0.0017	0.0017	154	46	15	6	8	24	0	0	27.1	-3.2	-9.6
EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_SolidWaste	EF_SolidWaste	EF_SolidWaste

MODULE	Emission Factor
WORKSHEET	N_2O
UNIVERSITY	University of Missouri - Saint Louis

	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources													
Fiscal Year	Electricity	Steam and Chilled water produced off-campus		On-Campus Cogeneration Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories, etc)								
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
	kg N_2O / kWh	kg N_2O / MMBtu	kg N_2O / MMBtu	kg N_2O / Gallon	kg N_2O / Gallon	kg N_2O / MMBtu	kg N_2O / Gallon	kg N_2O / Short Ton	kg N_2O / Gallon	kg N_2O / Gallon	kg N_2O / MMBtu	kg N_2O / Gallon	kg N_2O / Short Ton	kg N_2O / MMBtu	kg N_2O / MMBtu	kg N_2O / MMBtu	kg N_2O / MMBtu
1990	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0313	0.000221	0.00020	0.00011	0.00013	0.0313	0	0	0	0
1991	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0312	0.000221	0.00020	0.00011	0.00013	0.0312	0	0	0	0
1992	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0311	0.000221	0.00020	0.00011	0.00013	0.0311	0	0	0	0
1993	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0310	0.000221	0.00020	0.00011	0.00013	0.0310	0	0	0	0
1994	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0309	0.000221	0.00020	0.00011	0.00013	0.0309	0	0	0	0
1995	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0308	0.000221	0.00020	0.00011	0.00013	0.0308	0	0	0	0
1996	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0308	0.000221	0.00020	0.00011	0.00013	0.0308	0	0	0	0
1997	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
1998	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0308	0.000221	0.00020	0.00011	0.00013	0.0308	0	0	0	0
1999	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2000	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2001	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0305	0.000221	0.00020	0.00011	0.00013	0.0305	0	0	0	0
2002	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2003	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2004	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2005	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2006	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2007	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2008	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2009	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2010	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2011	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2012	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2013	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2014	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2015	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2016	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2017	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2018	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2019	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
2020	0.0000130	0.00099	0.00099	0.000221	0.00020	0.00011	0.00013	0.0307	0.000221	0.00020	0.00011	0.00013	0.0307	0	0	0	0
Source:	EF_Electric	EF_Steam	EF_Water	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary

Transportation									Agriculture									
University Fleet					Air Travel		Commuters											
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline	Fertilizer Application		Animal Agriculture							
									Synthetic	Organic	Dairy Cows	Beef Cows	Swine	Goats	Sheep	Horses	Poultry	Other
kg N_2O / Gallon	kg N_2O / Gallon	kg N_2O / MMBtu	kg N_2O / kWh	kg N_2O / MMBtu	kg N_2O / Mile	kg N_2O / Mile	kg N_2O / Gallon	kg N_2O / Gallon	kg N_2O / Pound	kg N_2O / Pound	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head	kg N_2O / head
0.00061	0.00026	0.00041	0.000	0	0.000011	0.000011	0.00061	0.00061	0.014	0.013	0.98	0.18	0.02	0.04	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000010	0.000010	0.00060	0.00060	0.014	0.013	0.97	0.20	0.02	0.04	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000010	0.000010	0.00060	0.00060	0.014	0.013	0.98	0.18	0.02	0.04	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000010	0.000010	0.00060	0.00060	0.014	0.013	0.97	0.19	0.02	0.04	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000010	0.000010	0.00060	0.00060	0.014	0.013	0.98	0.18	0.02	0.04	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000010	0.000010	0.00060	0.00060	0.014	0.013	0.98	0.18	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.98	0.18	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.98	0.19	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.98	0.20	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.20	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.21	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
0.00060	0.00026	0.00041	0.000	0	0.000009	0.000009	0.00060	0.00060	0.014	0.013	0.97	0.22	0.02	0.05	0.01	0.10	0.01	0.00
EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Agriculture	EF_Agriculture	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals	EF_Animals

MODULE	Emission Factor																		
WORKSHEET	Energy																		
UNIVERSITY	University of Missouri - Saint Louis																		
	Purchased Electricity	Puchased Steam / Chilled Water		On Campus Stationary Sources															
Fiscal Year	Electricity	Steam and Chilled water		On-Campus Cogeneration Plant					This category includes all stationary sources of emisssions on campus (heating, cooling, cooking, laboratories, etc)										
		Purchased Steam	Purchased Chilled Water	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Coal	Residual Oil (#5 - #6)	Distillate Oil (#1 - #4)	Natural Gas	Propane	Incinerated Waste	Coal	Other A	Other B	Other C	Solar / Wind / Biomass
	MMBtu/ kWh	MMBtu / MMBtu	MMBtu / MMBtu	MMBtu / Gallon	MMBtu / Gallon	MMBtu / MMBtu	MMBtu / Gallon	MMBtu / Short Ton	MMBtu / Gallon	MMBtu / Gallon	MMBtu / MMBtu	MMBtu / Gallon	MMBtu / Short Ton	MMBtu / Short Ton	MMBtu / MMBtu	MMBtu / MMBtu	MMBtu / MMBtu	MMBtu / MMBtu
1990	0.006194	1.27	1.27	0.15	0.14	1	0.09	21.20	0.15	0.14	1	0.09	9.00	21.20	1	1	1	1
1991	0.006194	1.27	1.27	0.15	0.14	1	0.09	21.12	0.15	0.14	1	0.09	9.00	21.12	1	1	1	1
1992	0.006194	1.27	1.27	0.15	0.14	1	0.09	21.07	0.15	0.14	1	0.09	9.00	21.07	1	1	1	1
1993	0.006194	1.27	1.27	0.15	0.14	1	0.09	21.01	0.15	0.14	1	0.09	9.00	21.01	1	1	1	1
1994	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.93	0.15	0.14	1	0.09	9.00	20.93	1	1	1	1
1995	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.88	0.15	0.14	1	0.09	9.00	20.88	1	1	1	1
1996	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.87	0.15	0.14	1	0.09	9.00	20.87	1	1	1	1
1997	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.83	0.15	0.14	1	0.09	9.00	20.83	1	1	1	1
1998	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.88	0.15	0.14	1	0.09	9.00	20.88	1	1	1	1
1999	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.82	0.15	0.14	1	0.09	9.00	20.82	1	1	1	1
2000	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.83	0.15	0.14	1	0.09	9.00	20.83	1	1	1	1
2001	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.66	0.15	0.14	1	0.09	9.00	20.66	1	1	1	1
2002	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2003	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2004	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2005	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2006	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2007	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2008	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2009	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2010	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2011	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2012	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2013	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2014	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2015	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2016	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2017	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2018	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2019	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
2020	0.006194	1.27	1.27	0.15	0.14	1	0.09	20.81	0.15	0.14	1	0.09	9.00	20.81	1	1	1	1
	EF_Electric	EF_Steam	EF_Water	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary	EF_Stationary

Transportation

University Fleet					Air Travel		Commuters	
Gasoline Fleet	Diesel Fleet	Natural Gas Fleet	Electric Fleet	Other Fleet	Faculty / Staff Business	Student Programs	Faculty / Staff Gasoline	Students Gasoline
MMBtu / Gallon	MMBtu / Gallon	MMBtu / MMBtu	MMBtu/ kWh	MMBtu / MMBtu	MMBtu / Miles	MMBtu / Miles	MMBtu / Gallon	MMBtu / Gallon
0.13	0.14	1	0	1	0.00493	0.00493	0.13	0.13
0.13	0.14	1	0	1	0.00467	0.00467	0.13	0.13
0.13	0.14	1	0	1	0.00456	0.00456	0.13	0.13
0.13	0.14	1	0	1	0.00456	0.00456	0.13	0.13
0.12	0.14	1	0	1	0.00444	0.00444	0.12	0.12
0.12	0.14	1	0	1	0.00438	0.00438	0.12	0.12
0.12	0.14	1	0	1	0.00418	0.00418	0.12	0.12
0.12	0.14	1	0	1	0.00417	0.00417	0.12	0.12
0.12	0.14	1	0	1	0.00412	0.00412	0.12	0.12
0.12	0.14	1	0	1	0.00405	0.00405	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
0.12	0.14	1	0	1	0.00394	0.00394	0.12	0.12
EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation	EF_Transportation

Spreadsheet Map

On this Worksheet: Emissions factors for purchased electricity. This sheet selects the appropriate emission factors based on your input of state (on the Introduction sheet) and region (on the Input_Data sheet). Your selections are displayed below.

MODULE	**Emission Factors**
WORKSHEET	**Electric**
State	**Missouri** Change your state
eGRID Region	**MAIN South** Change your region

Fiscal Year	CO_2 EF	CH_4 EF	N_2O EF	MTCDE EF	Energy Use Factor
	kg CO_2 / kWh	kg CH_4 / kWh	kg N_2O / kWh	Metric Tonnes eCO_2 / kWh	MMBtu / kWh
1990	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1991	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1992	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1993	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1994	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1995	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1996	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1997	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1998	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
1999	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2000	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2001	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2002	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2003	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2004	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2005	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2006	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2007	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2008	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2009	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2010	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2011	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2012	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2013	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2014	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2015	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2016	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2017	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2018	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2019	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
2020	0.56172	0.0000057078	0.0000130464	0.00057	0.0062
Source:	EF_ElectricCO2	EF_ElectricCH4N2O	EF_ElectricCH4N2O	MTCDE = ((kg CO2) + (	EF_ElectricEnergy

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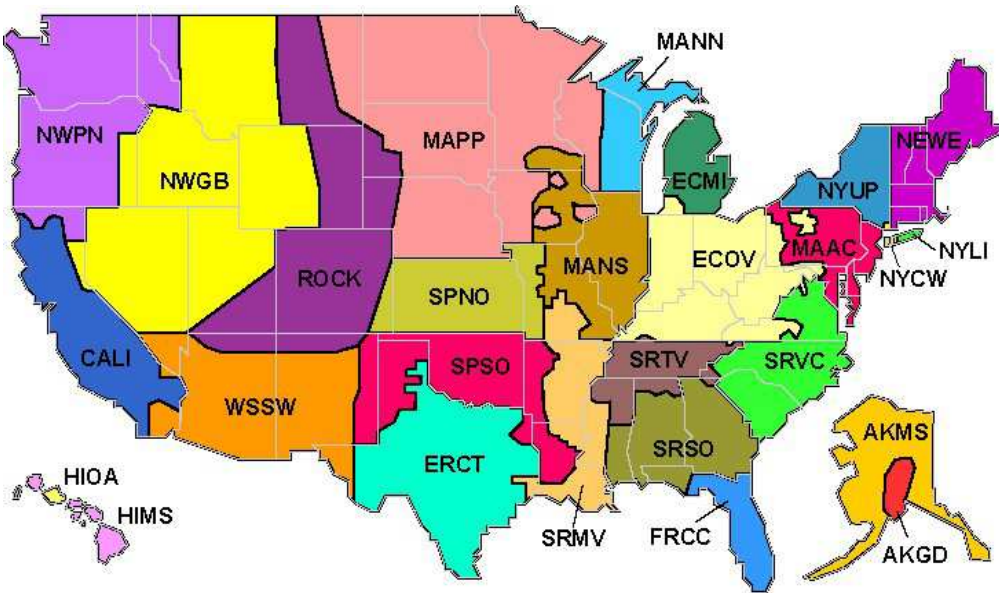
Spreadsheet Map

On this Worksheet: Choose your electric supplier region in the boxes below.



	State	
1) Choose your state -->		
	eGRID Subregion Symbol	**Region Name**
2) Choose your region -->	MANS	MAIN South

Return to inputs

Source: 13

Spreadsheet Map

On this Worksheet: CO_2 Emission factors for all electric supply regions.

MODULE	Emission Factors															
WORKSHEET	ElectricCO2															
Fiscal Year	AKGD	AKMS	CALI	ECMI	ECOV	ERCT	FRCC	HIMS	HIOA	MAAC	MANN	MANS	MAPP	NEWE	NWGB	NWPN
	ASCC Alaska Grid	ASCC Miscellaneous	WECC California	ECAR Michigan	ECAR Ohio Valley	ERCOT	FRCC	HICC Miscellaneous	Oahu	MAAC	MAIN North	MAIN South	MAPP	NPCC New England	WECC Great Basin	WECC Pacific Northwest
	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh
1990	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1991	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1992	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1993	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1994	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1995	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1996	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1997	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1998	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
1999	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2000	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2001	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2002	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2003	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2004	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2005	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2006	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2007	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2008	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2009	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2010	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2011	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2012	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2013	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2014	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2015	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2016	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2017	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2018	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2019	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
2020	0.634	0.344	0.362	0.738	0.892	0.639	0.630	0.770	0.779	0.498	0.797	0.562	0.834	0.408	0.385	0.304
Source:	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13

NYCW	**NYLI**	**NYUP**	**ROCK**	**SPNO**	**SPSO**	**SRMV**	**SRSO**	**SRTV**	**SRVC**	**USA**	**WSSW**	**Other**
NPCC NYC/ Westchester	NPCC Long Island	NPCC Upstate NY	WECC Rockies	SPP North	SPP South	SERC Mississippi Valley	SERC South	SERC Tennessee Valley	SERC Virginia/Carolina	Nationwide	WECC Southwest	Other
kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh	kg CO_2 / kWh
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
0.494	0.752	0.381	0.847	0.911	0.879	0.602	0.707	0.621	0.525	0.630	0.643	
13	13	13	13	13	13	13	13	13	13	13	13	13

Spreadsheet Map

On this Worksheet: CH4 and N2O Emission factors for each state. Scroll to the right to see the N2O factors.

MODULE	Emission Factors
WORKSHEET	ElectricCH$_4$N$_2$O

Fiscal Year	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine
	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh	kg CH$_4$ / kWh
1990	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1991	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1992	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1993	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1994	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1995	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1996	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1997	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1998	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
1999	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2000	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2001	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2002	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2003	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2004	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2005	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2006	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2007	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2008	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2009	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2010	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2011	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2012	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2013	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2014	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2015	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2016	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2017	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2018	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2019	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
2020	0.00000621	0.00000308	0.00000308	0.00000566	0.00000304	0.00000575	0.00000788	0.00000557	0.00000680	0.00000584	0.00000969	0.00000362	0.00000371	0.00000648	0.00000625	0.00000507	0.00000634	0.00000426	0.00002559
Source:	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14

0.000453

Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota
kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
0.00000535	0.00000788	0.00000661	0.00000711	0.00000598	0.00000571	0.00000489	0.00000430	0.00000408	0.00000779	0.00000349	0.00000593	0.00000367	0.00000476	0.00000666	0.00000589	0.00000498	0.00000149	0.00000485	0.00000308	0.00000412	0.00000240
14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14

Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U.S.	Other	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Hawaii
kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg CH_4 / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
0.00000476	0.00000349	0.00000607	0.00000435	0.00000621	0.00000168	0.00000621	0.00000625	0.00000666	0.00000503		0.00001010	0.00000403	0.00000698	0.00000920	0.00000168	0.00001309	0.00000544	0.00001028	0.00000815	0.00001024	0.00000829
14	14	14	14	14	14	14	14	14	14		14	14	14	14	14	14	14	14	14	14	14

Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina
kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
0.00000149	0.00000815	0.00001463	0.00001350	0.00001151	0.00001454	0.00000507	0.00001223	0.00000933	0.00000720	0.00001133	0.00001119	0.00000747	0.00001305	0.00001028	0.00000992	0.00000883	0.00000639	0.00000358	0.00001341	0.00000403	0.00000920
14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14

North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U.S.	Other
kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh	kg N2O / kWh
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
0.00001536	0.00001305	0.00001010	0.00000154	0.00000920	0.00000213	0.00000657	0.00000548	0.00000960	0.00000661	0.00001395	0.00000177	0.00000870	0.00000181	0.00001431	0.00001178	0.00001531	0.00000870	
14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	

Spreadsheet Map

On this Worksheet: Energy use factors for all electric supply regions.

MODULE	Emission Factors															
WORKSHEET	ElectricEnergy															
Fiscal Year	AKGD ASCC Alaska Grid	AKMS ASCC Miscellaneous	CALI WECC California	ECMI ECAR Michigan	ECOV ECAR Ohio Valley	ERCT ERCOT	FRCC FRCC	HIMS HICC Miscellaneous	HIOA Oahu	MAAC MAAC	MANN MAIN North	MANS MAIN South	MAPP MAPP	NEWE NPCC New England	NWGB WECC Great Basin	NWPN WECC Pacific Northwest
	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh
1990	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1991	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1992	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1993	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1994	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1995	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1996	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1997	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1998	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
1999	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2000	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2001	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2002	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2003	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2004	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2005	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2006	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2007	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2008	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2009	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2010	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2011	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2012	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2013	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2014	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2015	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2016	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2017	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2018	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2019	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
2020	0.0104	0.0056	0.0062	0.0088	0.0097	0.0089	0.0083	0.0112	0.0100	0.0059	0.0091	0.0062	0.0090	0.0064	0.0044	0.0041
Source:	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13

NYCW	**NYLI**	**NYUP**	**ROCK**	**SPNO**	**SPSO**	**SRMV**	**SRSO**	**SRTV**	**SRVC**	**USA**	**WSSW**	**Other**
NPCC NYC/ Westchester	NPCC Long Island	NPCC Upstate NY	WECC Rockies	SPP North	SPP South	SERC Mississippi Valley	SERC South	SERC Tennessee Valley	SERC Virginia/Carolina	Nationwide	WECC Southwest	Unknown
MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh	MMBtu / kWh
0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
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0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
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0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
0.0076	0.0109	0.0051	0.0095	0.0100	0.0106	0.0085	0.0084	0.0069	0.0060	0.0077	0.0077	
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Source:

MODULE	Emission Factors	
WORKSHEET	Solid Waste	
UNIVERSITY	University of Missouri - Saint Louis	
	Inc	
Fiscal Year	Mass Burn Incinerator	
	CO_2 Emission Factor	CO_2 Emission Factor
	Metric Tonne C / Short Ton	kg CO_2 / Short Ton
1990	-0.03	-110.00
1991	-0.03	-110.00
1992	-0.03	-110.00
1993	-0.03	-110.00
1994	-0.03	-110.00
1995	-0.03	-110.00
1996	-0.03	-110.00
1997	-0.03	-110.00
1998	-0.03	-110.00
1999	-0.03	-110.00
2000	-0.03	-110.00
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2002	-0.03	-110.00
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2004	-0.03	-110.00
2005	-0.03	-110.00
2006	-0.03	-110.00
2007	-0.03	-110.00
2008	-0.03	-110.00
2009	-0.03	-110.00
2010	-0.03	-110.00
2011	-0.03	-110.00
2012	-0.03	-110.00
2013	-0.03	-110.00
2014	-0.03	-110.00
2015	-0.03	-110.00
2016	-0.03	-110.00
2017	-0.03	-110.00
2018	-0.03	-110.00
2019	-0.03	-110.00
2020	-0.03	-110.00
Source:	11	kg CO2 / Short ton = (Metric Tonne C / short ton) x (44 MTCDE / 12 MTCE) x (1000 kg / Metric Tonne)

MODULE
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Source:

MODULE	Emission Factors
WORKSHEET	Offsets
UNIVERSITY	University of Missouri - Saint Loui
	Green' Electric Certificates
Fiscal Year	MT eCO_2 avoided / kWh
1990	-0.00057
1991	-0.00057
1992	-0.00057
1993	-0.00057
1994	-0.00057
1995	-0.00057
1996	-0.00057
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2019	-0.00057
2020	-0.00057
Source:	EF_Electric

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Source:

Spreadsheet Map

On this Worksheet: Global warming potentials for various chemicals. If you need to add a chemical, be sure to add both its name and its 100-year GWP

MODULE	Reference	
WORKSHEET	Global Warming Potential	
UNIVERSITY	University of Missouri - Saint Louis	
Chemical	100 Year GWP	Source
CO_2	1	1
CH_4	23	1
N_2O	296	1
Hydrofluorocarbons		
HFC-23	12,000	1
HFC-32	550	1
HFC-41	97	1
HFC-125	3,400	1
HFC-134	1,100	1
HFC-134a	1,300	1
HFC-143	330	1
HFC-143a	4,300	1
HFC-152	43	1
HFC-152a	120	1
HFC-161	12	1
HFC-227ea	3,500	1
HFC-236cb	1,300	1
HFC-236ea	1,200	1
HFC-236fa	9,400	1
HFC-245ca	640	1
HFC-245fa	950	1
HFC-365mfc	890	1
HFC-4310mee	1,500	1
Iodocarbons		
FIC-1311	1	1
Fully Fluorinated Species		
SF_6	22,200	1
CF_4	5,700	1
C_2F_6	11,900	1
C_3F_8	8,600	1
C_4F_{10}	8,600	1
c-C_4F_8	10,000	1
C_5F_{12}	8,900	1
C_6F_{14}	9,000	1
Ethers and Halogenated Ethers		
CH_3OCH_3	1	1
$(CF_3)_2CFOCH_3$	330	1
$(CF_3)CH_2OH$	57	1
$CF_3CF_2CH_2OH$	40	1
$(CF_3)_2CHOH$	190	1
HFE-125	14,900	1
HFE-134	6,100	1
HFE-143a	750	1
HCFE-235da2	340	1
HFE-245cb2	580	1
HFE-245fa2	570	1
HFE-254cb2	30	1
HFE-347mcc3	480	1
HFE-356pcf3	430	1
HFE-374pcf2	540	1
HFE-7100	390	1
HFE-7200	55	1
H-Galden 1040x	1,800	1
HG-10	2,700	1
HG-01	1,500	1
Others		
NF_3	10,800	1
SF_5CF_3	17,500	1
c-C_3F_6	16,800	1
HFE-227ea	1,500	1
HFE-236ea2	960	1
HFE-236fa	470	1
HFE-245fa1	280	1
HFE-263fb2	11	1
HFE-329mcc2	890	1
HFE-338mcf2	540	1
HFE-347-mcf2	360	1
HFE-356mec3	98	1
HFE-356pcc3	110	1
HFE-356pcf2	260	1
HFE-365mcf3	11	1
$(CF_3)_2CHOCHF_2$	370	1
$(CF_3)_2CHOCH_3$	26	1
$(CF_2)_4CH(OH)$	70	1

Spreadsheet Map

On this Worksheet: Reference Data

MODULE	**Reference**
WORKSHEET	**Constants and Conversions**
UNIVERSITY	**University of Missouri - Saint Louis**

Category	From	To	Multiply By	Source	Notes
Conversion	pound	kilogram	0.454	8	
Conversion	short ton	pounds	2,000	8	
Conversion	short ton	tonne, a.k.a. metric tonne	0.9072	8	
Conversion	cubic foot	cubic meter	0.02832	8	
Conversion	US gallon	liters	3.785412	8	
Conversion	barrel	cubic meter	0.159	8	
Conversion	CO_2	C	0.273	Physical Fact	CO2 weighs 44/12 more than C
Conversion	C	CO_2	3.667	Physical Fact	CO2 weighs 44/12 more than C
Conversion	Tg Carbon/QBtu	kg C / MMBtu	1	Physical Fact	(Tg C / QBtu) x (10^9 kg / Tg) x (Qbtu / 10^9 MMBtu)
Conversion	MMBtu	Terajoules (TJ)	0.00106	8	
Conversion	foot pound	Btu	0.00129	21	
Conversion	acre	hectare	0.40469	21	
Conversion	square meter	hectare	0.00010	Physical Fact	1 hectare = 10,000 m^2
Conversion	mile	kilometer	1.60934	21	
Conversion	barrel	gallon petroleum	42	21	1 US barrel petroleum = 42 gallons petroleum

Elemental Mass	Grams per Mole	Source
Hydrogen - H	1.00794	http://www.chemicalelements.com
Carbon - C	12.0107	http://www.chemicalelements.com
Nitrogen - N	14.00674	http://www.chemicalelements.com
Oxygen - O	15.9994	http://www.chemicalelements.com
Sulfur - S	32.066	http://www.chemicalelements.com

Spreadsheet Map

General Notes
Helpful Hints
Changing/Adding Emissions Coefficients
Biogenic gas

Troubleshooting

If you get the message "*The cell or chart you are trying to change is protected and therefore read only*.

Solve it: In order to reduce accidental changes to the spreadsheets, they have all been 'protected' again change (except the input cells). If you are sure that you want to change a protected cell (or alter a graph put the arrow over 'Protection' in the tools menu and choose 'Unprotect Sheet." Be sure to turn protectio back on after you make the change to eliminate any accidental changes.

If you See "###" where you think there should be numbers:

Solve it: There is a number that is too big to fit within the column – make the column bigger by draggi one of its borders wider (at the top by the row of letters). You may need to disable protection (see above).

If labels on a graph are jumbled on top of one another and unreadable:

Solve it: Double click slowly on the label that needs to be moved, when a box has appeared around it, dra it to the desired position. You may need to turn off protection (see above) to alter the graph. You can al change the type or format of the graph to fit your needs. Be sure to not change the "source dat information.

If there are labels on graphs that do not apply to your institution:

Solve it: You can simply click slowly on the label that does not apply (i.e. if your school has no animal and press delete when the label is highlighted. This deletion is permanent, so be sure the label is not neede

To the top

Helpful Hints

A "-" in a cell means that it contains a formula, but that you have not entered data it needs. If you see a where you think there should be a number, then double check your inputs.

To keep a row heading (i.e. fuel type or year) in view as you scroll to the right, click on the column to t right of the row heading and then choose "Freeze Panes" from the Window menu. The row headings w disappear

To surf through the spreadsheets as if they were a series of web pages, enable the "Web" Toolbar in the Menu and use the forward and back buttons. Going back does NOT undo any changes that have been m (click on the Edit menu to undo).

Once all the data has been entered, print a copy of the inputs sheet for your records, and in case of comp troubles.

The Internet links in the spreadsheets are active; you can click on them to open the referenced web page

To the top

Changing/Adding Emissions Coefficients

If the institution uses fuels or has other sources of emissions that are not already included in the sprea you will need to add them. There are two steps to this process: changing the name, and then updati emissions factors for the new fuel. Several sectors (on-campus stationary sources, transportation, an etc.) have emission sources titled "Other." These columns are for you to add any additional sources th unique to your school. Change the name of the fuel/animal/refrigerant on the Inputs sheet, at the top appropriate column. Changing the name of the source will update the rest of the sheets. After changi of the fuel types (except refrigerants) the emissions factors will also need to be updated. After you c the name on the Inputs sheet, the "EF_" sheet for that sector (i.e. EF_Transportation) sheet will displ new names. New factors need to be entered for each of the columns for each new fuel, be sure to u same units listed for each factor. The units cannot be changed; any emission factor must first be con to the correct units before entering them.

Note:
Fuels have a higher heating value (HHV, also called a Gross Caloric Value, GCV) and a lower heating (LHV, also called a Net Caloric Value, NCV). The HHV is the quantity of heat liberated by the cor combustion of a unit volume or weight of a fuel assuming that the produced water vapor is comp

condensed and the heat is recovered. The LHV is a better estimate of usable heat in that most of th contained in water vapor is not recovered and the IPCC recommends using them in emissions calcula However, following the lead of the U.S. EPA, this calculator uses LHVs.

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Biogenic Gases

Following the IPCC protocol, CO_2 emissions from biogenic sources are not included in this inventory. The are several sources of biogenic CO_2, such as landfill gas, incinerator emissions, and biomass combustio Biogenic CO_2 refers to carbon in wood, paper, and grass trimmings that was originally removed from t atmosphere by photosynthesis, and under natural conditions, it would eventually cycle back to t atmosphere as CO_2 due to degradation processes. The quantity of carbon that these natural processes cyc through the earth's atmosphere, waters, soils, and biota is much greater than the quantity added l anthropogenic GHG sources. But the focus of the Framework Convention on Climate Change is anthropogenic emissions - emissions resulting from human activities and subject to human control - becau it is these emissions that have the potential to alter the climate by disrupting the natural balances in carbo biogeochemical cycle, and altering the atmosphere's heat-trapping ability. Thus, for processes with C emissions, if (a) the emissions are from biogenic materials and (b) the materials are grown on a sustainab basis, then those emissions are considered to simply close the loop in the natural carbon cycle -- that is, th return to the atmosphere CO_2 which was originally removed by photosynthesis. In this case, the C emissions from wood and biomass are not counted. On the other hand, CO_2 emissions from burning fos fuels are counted because these emissions would not enter the cycle were it not for human activit Likewise, CH_4 emissions from landfills are counted - even though the source of carbon is primari biogenic, CH_4 would not be emitted were it not for the human activity of landfilling the waste, which creat anaerobic conditions conducive to CH_4 formation. Note that this approach does not distinguish between t timing of CO_2 emissions, provided that they occur in a reasonably short time scale relative to the speed the processes that affect global climate change. In other words, as long as the biogenic carbon wou eventually be released as CO_2, it does not matter whether it is released virtually instantaneously (e.g., fro combustion) or over a period of a few decades (e.g., decomposition on the forest floor).

Source: *Greenhouse Gas Emissions from Management of Selected Materials in Municipal Solid Waste*, US EPA, 1998, www.epa.gov/epaoswer/non-hw/muncpl/ghg/greengas.pdf)

Spreadsheet Map

On this Worksheet: Reference Data and notes on calculations

MODULE	**Reference**
WORKSHEET	**Sources**
UNIVERSITY	**University of Missouri - Saint Louis**

Source #	Worksheet	Reference	Year	Website
1	EF_GWP	Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003) EPA 430-R-03-004; Annex S	2003	http://yosemite.epa.gov/OAR/globalwarming.nsf/content/Re
2	EF_Transportation	GREET Model 1.5a, Argonne National Laboratory, US Department of Energy	2001	http://www.transportation.anl.gov/software/GREET/index.h
4	EF_HeatingValues	Annual Energy Review 2002. Energy Information Administration, U.S. Department of Energy. Annex Y	2003	http://www.eia.doe.gov/emeu/aer/contents.html
3	EF_Transportation	U.S. Department of Transportation, Bureau of Transportation Statistics, National Transportation Statistics 2005. BTS05-08	2005	http://www.bts.gov/publications/national_transportation_stat
5	EF_Transportation	U.S. Department of Transportation, Bureau of Transportation Statistics, National Transportation Statistics 2002. BTS02-08 (4-20)	2003	http://www.bts.gov/publications/national_transportation_stat
6	EF_CarbonContent	Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003) EPA 430-R-03-004; Annex A	2003	http://yosemite.epa.gov/OAR/globalwarming.nsf/content/Re
7	EF_CH4N2O	Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003) EPA 430-R-03-004; Annex D	2003	http://yosemite.epa.gov/OAR/globalwarming.nsf/content/Re
8	EF_ConstantsConversions	Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003) EPA 430-R-03-004; Annex Y	2003	http://yosemite.epa.gov/OAR/globalwarming.nsf/content/Re
9	EF_Transportation	Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003) EPA 430-R-03-004; Annex E	2003	http://yosemite.epa.gov/OAR/globalwarming.nsf/content/Re
10	EF_Electric2	Updated State-level Greenhouse Gas Emission Coefficients for Electricity Generation 1998-2000. Energy Information Administration, Office of Integrated Analysis and Forecasting, Energy Information Administration, U.S. Department of Energy, April 2002	2002	ftp://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/e-supdoc.pdf
11	EF_SolidWaste	Solid Waste Management And Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks, 2nd EDITION, EPA530-R-02-006, May 2002	2002	http://www.epa.gov/epaoswer/non-hw/muncpl/ghg/greengas
12	EF_Animal	Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003) EPA 430-R-03-004; Annex L & M	2003	http://yosemite.epa.gov/OAR/globalwarming.nsf/content/Re
13	EF_ElectricCO2	Emissions and Generated Resource Integrated Database (eGRID), Data Years 1996-2000, Version 2.01. US EPA Office of Atmospheric Programs. Prepared by E.H. Pechan & Associates, Inc.	2003	http://www.epa.gov/cleanenergy/egrid.htm
14	EF_ElectricCH4N2O	Updated State-level Greenhouse Gas Emission Coefficients for Electricity Generation 1998-2000. Energy Information Administration, Office of Integrated Analysis and Forecasting, Energy Information Administration, U.S. Department of Energy, April 2002	2002	ftp://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/e-supdoc.pdf
15	EF_CarbonContent	Solid Waste Management And Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks, 2nd EDITION, EPA530-R-02-006, May 2002	2002	http://www.epa.gov/epaoswer/non-hw/muncpl/ghg/greengas
16	EF_Agriculture	Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003) EPA 430-R-03-004; Annex N	2003	http://yosemite.epa.gov/OAR/globalwarming.nsf/content/Re
17	EF_Steam	Indirect Emissions from Purchases/Sales of Electricity and Steam. Climate Leaders Greenhouse Gas Inventory Protocol. U.S. EPA. Draft 2003	2003	http://www.epa.gov/climateleaders/pdf/indirectelectricitygu
18	EF_Steam	Energy Tips #15, Office of Industrial Technologies, U.S. Department of Energy	2000	http://www.oit.doe.gov/bestpractices/pdfs/bnch_cost.pdf
19	EF_Offset	Solid Waste Management And Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks, 2nd EDITION, EPA530-R-02-006, May 2002	2002	http://www.epa.gov/epaoswer/non-hw/muncpl/ghg/greengas
20	Inputs	Methods for Estimating Greenhouse Gas Emissions from Agricultural Soil Management, U.S. Environmental Protection Agency & Emission Inventory Improvement Program. Draft June 2003	2003	http://www.epa.gov/ttn/chief/eiip/techreport/volume08/index
21	EF_Constants	onlineconversion.com	2005	http://www.onlineconversion.com/

Notes
Values are taken from the IPCC 3rd assessment report and assume a 100 year period.
Gasoline vehicles are from GREET 1.5a Near-Term Results Table 3.1 "Per-Mile Fuel Consumption and Emissions of Vehicle Operations." Cars and Light Duty Trucks (LDT-1) were selected to represent the commuter fleet. Factors were converted from g/mile to g/gallon using the fuel efficiency. Diesel vehicle emission factors are from heavy duty vehicles (trucks, buses, etc) and are located in the EF Emissions Factors table.
Heating values for liquid fuels were changed from MMBtu/Barrel to MMBtu/gallon using 42gallons/barrel. The heating value for coal is "Commercial Coal." All factors are Higher Heating Values, as used by the US EPA.
Fleet composition (% cars) was derived from total registered vehicles in the US for each year (Table 1-11) and includes passenger cars, light trucks and motorcycles. Average fuel efficiency is from Table 4-11 and includes passenger cars, light trucks and motorcycles.
Airline efficiency (Btu/Passenger Mile) from table 4-20. Factors for Domestic Travel were used, assuming that the vast majority of travel would be within country.
Carbon Content Values are from Table A-15 and A-16.
Factors from table D-2. Factors were converted from g/GJ to kg/MMBtu using the following conversion factors: (g/GJ) x (1 GJ /10^9 J) x (1J / 0.0009486 Btu) x (10^6 Btu / MMBtu) x (1 kg / 1000 g) = (kg/MMBtu). Factors are for "Commercial" operations.
CH4 and N2O emission factors from table E-15. Factors were converted from "g gas / kg fuel" to "kg gas / gallon" using 7.93 barrels jet fuel/metric tonne (from Annex Y - reference 8), 42 gallons/barrel, and 1000 g / kg.
Wood and waste are assumed to have no CO emissions because the carbon in these fuels are considered to be part of the natural carbon cycle. See Intergovernmental Panel on Climate Change, Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Reference Manual (Volume 3), 1996, p. 6.28 (http://www.ipcc-nggip.iges.or.jp/public/gl/invs6a.htm). The CH4 and N2O coefficient for wood is taken from EPA's AP-42 (using their assumed 4500 Btu/lb and their coefficients of 0.1 lb CH /ton and 0.04 lb N O/ton). Coefficients for refuse assumed to be the same as for wood. CH4 and N2O emissions from wood are included becuase they would not have been released during the natural decomposition of the material. Heating value was converted as follows: (4500 Btu/lb) x (2,000 lbs / Short Ton) x (MMBtu / 1,000,000 Btu) = 9.0 MMBtu / Short Ton
Waste Combustion (from Exhibit 6-6): Factors include emissions from combustion of waste but not from biogenic sources following the U.S. EPA guidelines. Factor takes into account Utility CO2 emissions avoided by biogas electric generation. Factor does not include avoided CO2 emissions due to steel recovery and recycling, as few universities will dispose of great amounts of steel. Factors are negative because energy generation from waste results in fewer emissions than would have been emitted by standard utility generation. These factors do not account for other harmful effects of waste combustion. Landfilling (from Exhibit 7-6): Factor includes the emissions associated with transporting the waste to the landfill and CH4 from biogenic sources, but not CO2 resulting from the combustion of biogenic CH4, following the U.S. EPA guidelines. For combustion of landfill gas with electric generation, the factor takes into account Utility CO2 emissions avoided by biogas electric generation. When food discards, yard trimmings, paper, and wood are landfilled, anaerobic bacteria degrade the materials, producing CH4 and CO2. CH4 is counted as an anthropogenic GHG, because even though it is derived from sustainably harvested biogenic sources, degradation would not result in CH4 emissions if not for deposition in landfills. The CO2 is not counted as a GHG in this context because if it were not emitted from landfills, it would be produced through natural decomposition. Because metals do not contain carbon, they do not generate CH4 when landfilled. Plastics do not biodegrade, and therefore do not generate any CH4. Transportation of waste materials to a landfill results in anthropogenic CO2 emissions, due to the combustion of fossil fuels in the vehicles used to haul the wastes. Because food discards, yard trimmings, and paper are not completely decomposed by anaerobic bacteria, some of the carbon in these materials is stored in the landfill. Because this carbon storage would not normally occur under natural conditions (virtually all of the organic material would degrade to CO2, completing the photosynthesis/respiration cycle), this is counted as an anthropogenic sink. Some factors are negative becuase the landfilling process resulted in a net sink of carbon. See source for more details.
Emission factors for cattle (dairy and beef) were derived from national data by dividing total emissions (Table L-11) by total population of animals (Table M-1). This was done to simplify the calculations as much needed data would be hard to estimate at the university scale.
CO2 Emission factors are from year 2000. This was done because data was only available back to 1998 at the subregion scale. Using constant electric emission factors will not capture changing emission due to changes in fuel source. However, it will result in more transparent final emission estimates for the university because all changes in emissions will be due to changes at the university. Factors were converted from lbs/kWh to kg/kWh using 0.453 Kg/lb. Energy efficiency (MMBtu fuel / kWh) is also from year 2000 and was derived by dividing total heat input by total electric output.
Emission factors for CH4 and N2O are averages for 1998-2000. Values are only available by state.
Factors from exhibit 6-6, colum (b). This factor is for on-campus combustion of waste. Thus factor does not include avoided emissions because combustion is on campus and no emissions are being avoided. Factor assumes no transportation emissions and no avoided emissions due to steel recovery.
Efficiencies are assumed to be the same for chilled water and steam production.
Production efficiencies from Table 2.
Factor is for composted "yard trimmings." Factor estimates CO2 sink from increased humus formation and soil carbon restoration. Factor includes CO2 emissions from transportation.
Aggregated fraction of N in other commercial organic fertilizers = 4.1%
Choose from various units using this widely accepted tool.