



## 2023 Entergy Corporate GHG Emissions breakdown by category

All numbers in the table below represent CO2 equivalents (CO2e)

Operational Emissions Category	Emissions Source Category	Corporate emissions source	Greenhouse gas	Total emissions short tons CO2e	Total emissions in metric tons CO2e	percentage of total corporate emissions	Calculation worksheet in inventory document	
Scope 1 Direct Emission Sources	Stationary Combustion	Power generating units (includes emergency and backup generators)	CO2	39,403,259	35,746,035	56.45%	Stationary Combustion CEM	
			CH4	17,009	15,430	0.02%		
			N2O	56,049	50,847	0.08%		
		Small stationary combustion sources & generators (2022 updated methodology; co-located at generation stations, service stations and Power Through)	CO2	32,520	29,502	0.05%	All small stat cbn totals	
			CH4	13	12	0.00%		
			N2O	20	18	0.00%		
	Biomass power generation		Not applicable					
	Mobile Combustion	Corporate fleet	CO2	77,187	70,023	0.11%	Mobile Combustion	
			CH4	113	103	0.00%		
			N2O	602	547	0.00%		
	Biomass fleet		Not applicable					
	Fugitive Emissions	Natural gas transmission and distribution	CH4	49,751	45,133	0.07%	Fugitive CH4-NG T&D	
		Electricity transmission and distribution	SF6	36,936	33,508	0.05%	Fugitive SF6	
Cooling/air-conditioning (building, mobile and nuclear cooling eqpt)		HFCs	5,848	5,305	0.01%	Fugitive HFCs		
Process emissions	none applicable	Not applicable						
<b>Total Emissions from Direct Sources</b>				<b>39,679,308</b>	<b>35,996,463</b>	<b>56.84%</b>		
Scope 2 Indirect Emission Sources	Purchased Electricity	Power purchased for business operations outside Entergy service territory	CO2	170	154	0.00%	Purchased power	
			CH4	4	3	0.00%		
			N2O	0	0	0.00%		
	T&D losses & Company Usage	Entergy generated & purchased power consumed on Entergy T&D system and company location energy consumption	CO2	285,224	258,751	Note: these emissions are calculated for information only they are NOT included in the subtotal or the grand total shown below because any T&D losses are accounted for by the scope 1 emissions necessary to make up for these losses.		
			CH4	432	392			
N2O	773	701						
<b>Total Emissions from Indirect Sources</b>				<b>173</b>	<b>157</b>		<b>0.00%</b>	
Scope 3 Indirect Emissions (Optional categories)	Category 1 Purchased Goods and Services (Contains Waste Spend Data)	Spend method	CO2	3,009,542	2,730,211		4.31%	Purchased and Capital
			CH4	567,506	514,832	0.81%		
			N2O	0	0	0.00%		
			Other GHGs	26,564	24,098	0.04%		
			<b>Total (CO2e)</b>	<b>3,603,612</b>	<b>3,269,142</b>	<b>5.16%</b>		
	Category 2 Capital Goods (Contains Waste Spend Data)	Spend method	CO2	3,763,240	3,413,954	5.39%	Purchased and Capital	
			CH4	277,315	251,576	0.40%		
			N2O	0	0	0.00%		
			Other GHGs	27,706	25,134	0.04%		
			<b>Total (CO2e)</b>	<b>4,068,261</b>	<b>3,690,664</b>	<b>5.83%</b>		
	Category 3 Fuel and Energy-Related Activities (Location based)	Controllable Purchased Power (contracted power where the source is known sold to customers, such as Power Purchase Agreements)	CO2	2,980,586	2,703,943	4.27%	Purchased Power	
			CH4	8,076	7,327	0.01%		
			N2O	4,517	4,098	0.01%		
		<b>Total (CO2e)</b>	<b>2,993,180</b>	<b>2,715,367</b>	<b>4.29%</b>			
		Non-Controllable Power (market purchases with exact source being unknown sold to customers)	CO2	6,536,535	5,929,845	9.36%		
			CH4	8,160	7,403	0.01%		
			N2O	14,591	13,236	0.02%		
	<b>Total (CO2e)</b>	<b>6,559,286</b>	<b>5,950,484</b>	<b>9.40%</b>				
	<b>Total (CO2e)</b>	<b>9,552,465</b>	<b>8,665,851</b>	<b>13.68%</b>				
	Category 4 Upstream Transportation	Gas supplier emissions - gas delivery (primarily CH4, but does include other GHGs)	CH4 (CO2e)	9,526,868	8,642,630	13.65%	Delivered Gas	
	Category 6 Business Travel	Travel by air, rental car, hotel stays and personal vehicles	CO2	7,005	6,356	0.01%	Business Travel	
			CH4	6	5	0.00%		
			N2O	15	13	0.00%		
<b>Total (CO2e)</b>			<b>7,025</b>	<b>6,374</b>	<b>0.01%</b>			
Category 7 Employee Commuting	Travel by employees to and from normal work locations	CO2	29,570	26,826	0.04%	Employee Commuting		
		CH4	53	48	0.00%			
		N2O	804	729	0.00%			
		<b>Total (CO2e)</b>	<b>30,427</b>	<b>27,603</b>	<b>0.04%</b>			
Category 11 Use of Sold Products	Gas Combustion by LDC customers	CO2	1,042,819	946,030	1.49%	Product Combustion		
		CH4	417	378	0.00%			
		N2O	626	568	0.00%			
		<b>Total (CO2e)</b>	<b>1,043,862</b>	<b>946,976</b>	<b>1.50%</b>			
Category 13 Leased Assets	Entergy facility leased for sole use of third party	CO2	2,290,242	2,077,672	3.28%	Leased Assets		
		CH4	1,076	977	0.00%			
		N2O	1,283	1,163	0.00%			
		<b>Total (CO2e)</b>	<b>2,292,601</b>	<b>2,079,812</b>	<b>3.28%</b>			
<b>Total Emissions from Optional Sources</b>				<b>30,125,122</b>	<b>27,329,051</b>	<b>43.16%</b>		
<b>Total Corporate emissions</b>				<b>69,804,603</b>	<b>63,325,670</b>	<b>100%</b>		

**Direct Emissions from fossil fuel usage at generating facilities using CEM data**

2023						CO2 from CEM		CH4	N2O	Total Facility CO2e in short tons	Total CO2e in metric tons
Generating facility and EPA Acid Rain Unit ID	EPA Acid Rain Unit ID (Entergy ID if different)	Max capacity (MW)	State	Entergy equity share of unit	Primary fuel(s)	Total unit CO2	Entergy equity share of unit CO2 emissions	Entergy share CH4 emissions from generation	Entergy share N2O emissions from generation		
						(1)	(2)	(3)			
						short tons CO2	short tons CO2	short tons CO2e	short tons CO2e		
Acadia (Unit 2)	CT3	580	LA	100%	Natural Gas	663,273.31	663,273.31	311.74	371.43		
Acadia (Unit 2)	CT4		LA	100%	Natural Gas	629,977.67	629,977.67	296.09	352.79		
<b>Totals</b>							1,293,250.98	607.83	724.22	1,294,583.03	1,174,425.97
Attala	A01	480	MS	100%	Natural Gas	589,365.18	589,365.18	277.00	330.04		
Attala	A02		MS	100%	Natural Gas	641,792.89	641,792.89	301.64	359.40		
<b>Totals</b>		480					1,231,158.06	578.64	689.45	1,232,426.15	1,118,038.20
Baxter Wilson	1	550	MS	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Baxter Wilson	2	771	MS	100%	Gas/Oil	0.00	0.00	0.00	0.00		
<b>Totals</b>		1321					0.00	0.00	0.00	0.00	0.00
Big Cajun 2 <sup>(5)</sup>	2B3 (3)	257	LA	42% <sup>(5)</sup>	Coal	1,322,866.62	555,590.12	150.01	2,811.29		
<b>Totals</b>		257					555,590.12	150.01	2,811.29	558,551.42	506,709.32
Calcasieu Plant	GTG1	322	LA	100%	Natural gas	27,740.86	27,740.86	13.04	15.53		
Calcasieu Plant	GTG2		LA	100%	Natural gas	42,960.66	42,960.66	20.19	24.06		
<b>Totals</b>		322					70,701.52	33.23	39.59	70,774.34	64,205.40
Choctaw County	CTG1		MS	100%	Natural gas	706,284.19	706,284.19	331.95	395.52		
Choctaw County	CTG2		MS	100%	Natural gas	722,041.64	722,041.64	339.36	404.34		
Choctaw County	CTG3		MS	100%	Natural gas	719,817.49	719,817.49	338.31	403.10		
<b>Totals</b>							2,148,143.32	1,009.63	1,202.96	2,150,355.90	1,950,770.06
Gerald Andrus	1	761	MS	100%	Gas/Oil	157,636.09	157,636.09	74.09	88.28		
<b>Totals</b>		761					157,636.09	74.09	88.28	157,798.45	143,152.35
Hardin County Peaking Facility		146	TX	100%	Natural Gas	49,013.83	49,013.83	23.04	27.45		
Hardin County Peaking Facility			TX	100%	Natural Gas	44,929.67	44,929.67	21.12	25.16		
<b>Totals</b>							93,943.50	44.15	52.61	94,040.26	85,311.89
Hinds Energy Facility	H01	456	MS	100%	Gas CT	720,173.48	720,173.48	338.48	403.30		
Hinds Energy Facility	H02		MS	100%	Gas CT	670,261.15	670,261.15	315.02	375.35		
Hinds Energy Facility	Unit 2	29	MS	100%	Gas CT	2,782.50	2,782.50	1.31	1.56		
<b>Totals</b>		485					1,393,217.13	654.81	780.20	1,394,652.14	1,265,207.14
Hot Spring Energy Facility	CT-1	620	AR	100%	Gas CT	450,370.57	450,370.57	211.67	252.21		
Hot Spring Energy Facility	CT-2		AR	100%	Gas CT	500,222.184	500,222.18	235.10	280.12		
<b>Totals</b>		620					950,592.75	446.78	532.33	951,571.86	863,251.47
Independence	1	472	AR	56.5%	Coal	3,320,520.4	1,876,094.00	506.55	9,493.04		
Independence	2	332	AR	39.37%	Coal	2,766,273.94	1,089,082.05	294.05	5,510.76		
<b>Totals</b>		804					2,965,176.05	800.60	15,003.79	2,980,980.44	2,704,299.96
Lake Catherine	4	547	AR	100%	Gas/Oil	110,584.03	110,584.03	51.97	61.93		
<b>Totals</b>		547					110,584.03	51.97	61.93	110,697.93	100,423.47
Lake Charles Power Station	1A	877	LA	100%	Natural Gas	1,161,893.03	1,161,893.03	546.09	650.66		
Lake Charles Power Station	1B		LA	100%	Natural Gas	1,151,354.13	1,151,354.13	541.14	644.76		
<b>Totals</b>		877					2,313,247.16	1,087.23	1,295.42	2,315,629.80	2,100,704.02
Lewis Creek	1	260	TX	100%	Gas/Oil	510,224.70	510,224.70	239.81	285.73		
Lewis Creek	2	260	TX	100%	Gas/Oil	594,681.58	594,681.58	279.50	333.02		
<b>Totals</b>		520					1,104,906.28	519.31	618.75	1,106,044.33	1,003,386.54
Little Gypsy	1	244	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Little Gypsy	2	436	LA	100%	Gas/Oil	8,945.54	8,945.54	4.20	5.01		
Little Gypsy	3	573	LA	100%	Gas/Oil	376,890.50	376,890.50	177.14	211.06		

Generating facility and EPA Acid Rain Unit ID	EPA Acid Rain Unit ID (Entergy ID if different)	Max capacity (MW)	State	Entergy equity share of unit	Primary fuel(s)	Total unit CO2 (1)	Entergy equity share of unit CO2 emissions	Entergy share CH4 emissions from generation (2)	Entergy share N2O emissions from generation (3)	Total Facility CO2e in short tons	Total CO2e in metric tons
Totals		1253					385,836.04	181.34	216.07	386,233.45	350,385.09
Montgomery County Power Station	CT1		TX	92%	CCGT	1,308,511.99	1,209,588.48	568.51	677.37		
Montgomery County Power Station	CT2		TX	92%	CCGT	1,261,062.74	1,165,726.40	547.89	652.81		
Totals		0					2,375,314.88	1,116.40	1,330.18	2,377,761.46	2,157,068.91
Ninemile Point	3	135	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Ninemile Point	4	748	LA	100%	Gas/Oil	935,458.59	935,458.59	439.67	523.86		
Ninemile Point	5	763	LA	100%	Gas/Oil	1,353,900.91	1,353,900.91	636.33	758.18		
Ninemile Point	6A	280	LA	100%	CCGT	895,537.20	895,537.20	420.90	501.50		
Ninemile Point	6B	280	LA	100%	CCGT	899,186.75	899,186.75	422.62	503.54		
Totals		1646					4,084,083.45	1,919.52	2,287.09	4,088,290.05	3,708,834.35
New Orleans Power Station	1	132	LA	100%	Natural Gas	109,458.29	109,458.29	51.45	61.30		
Totals		132					109,458.29	51.45	61.30	109,571.03	99,401.17
Ouachita Power	CTGEN1	242	LA	100%	Natural gas	501,359.69	501,359.69	235.64	280.76		
Ouachita Power	CTGEN2	244	LA	100%	Natural gas	553,428.83	553,428.83	260.11	309.92		
Ouachita Power	CTGEN3	241	LA	100%	Natural gas	618,591.48	618,591.48	290.74	346.41		
Totals		727					1,673,380.00	786.49	937.09	1,675,103.58	1,519,628.41
Perryville	1-1		LA	100%	Gas/Oil	822,724.61	822,724.61	386.68	460.73		
Perryville	1-2	718	LA	100%	Gas/Oil	843,738.26	843,738.26	396.56	472.49		
Perryville	2-1		LA	100%	Gas/Oil	60,330.46	60,330.46	28.36	33.79		
Totals		718					1,726,793.32	811.59	967.00	1,728,571.92	1,568,134.07
R S Nelson	4	500	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
R S Nelson <sup>(6)</sup>	6	385	LA	80.9%	Coal	1,917,858.68	1,551,547.67	418.92	7,850.83		
Totals		885					1,551,547.67	418.92	7,850.83	1,559,817.42	1,415,042.56
Sabine	1	230	TX	100%	Gas/Oil	286,827.37	286,827.37	134.81	160.62		
Sabine	2	230	TX	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Sabine	3	420	TX	100%	Gas/Oil	501,079.33	501,079.33	235.51	280.60		
Sabine	4	530	TX	100%	Gas/Oil	1,145,726.24	1,145,726.24	538.49	641.61		
Sabine	5	480	TX	100%	Gas/Oil	420,542.89	420,542.89	197.66	235.50		
Totals		1890					2,354,175.83	1,106.46	1,318.34	2,356,600.63	2,137,872.13
Sterlington	7AB	102	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Sterlington	7C	101	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Totals		203					0.00	0.00	0.00	0.00	0.00
St Charles Power Station	1A	926	LA	100%	CCGT	1,093,886.29	1,093,886.29	514.13	612.58		
St Charles Power Station	1B		LA	100%	CCGT	1,043,486.11	1,043,486.11	490.44	584.35		
Totals		926					2,137,372.39	1,004.57	1,196.93	2,139,573.89	1,940,988.78
Union Power Station <sup>(7)</sup>	CT 1	495	AR	100%	Gas	789,162.54	789,162.54	370.91	441.93		
Union Power Station	CT 2		AR	100%	Gas	791,418.05	791,418.05	371.97	443.19		
Union Power Station	CT 3	495	AR	100%	Gas	734,323.73	734,323.73	345.13	411.22		
Union Power Station	CT 4		AR	100%	Gas	727,779.91	727,779.91	342.06	407.56		
Union Power Station	CT 5	495	AR	100%	Gas	721,700.63	721,700.63	339.20	404.15		
Union Power Station	CT 6		AR	100%	Gas	681,308.46	681,308.46	320.21	381.53		
Union Power Station	CT 7	495	AR	100%	Gas	673,071.97	673,071.97	316.34	376.92		
Union Power Station	CT 8		AR	100%	Gas	673,487.76	673,487.76	316.54	377.15		
Totals		1980					5,792,253.04	2,722.36	3,243.66	5,798,219.06	5,260,055.85
Washington Parish Energy Center	CT1		LA	100%	Gas	91,783.77	91,783.77	43.14	51.40		
Washington Parish Energy Center	CT2	361	LA	100%	Gas	94,868.78	94,868.78	44.59	53.13		
Totals		361					186,652.55	88	105	186,844.81	169,502.76
Waterford	1	411	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Waterford	2	411	LA	100%	Gas/Oil	155,316.87	155,316.87	73.00	86.98		

Generating facility and EPA Acid Rain Unit ID	EPA Acid Rain Unit ID (Entergy ID if different)	Max capacity (MW)	State	Entergy equity share of unit	Primary fuel(s)	Total unit CO2 (1)	Entergy equity share of unit CO2 emissions	Entergy share CH4 emissions from generation (2)	Entergy share N2O emissions from generation (3)	Total Facility CO2e in short tons	Total CO2e in metric tons
Waterford	4		LA	100%	Oil	3,484.90	3,484.90	1.64	1.95		
<b>Totals</b>		822					158,801.77	74.64	88.93	158,965.34	144,210.93
White Bluff	1	465	AR	57%	Coal	1,602,500.37	913,425.21	246.62	4,621.93		
White Bluff	2	481	AR	57%	Coal	2,747,399.47	1,566,017.70	422.82	7,924.05		
<b>Totals</b>		946					2,479,442.91	669.45	12,545.98	2,492,658.34	2,261,301.61

Totals	45,723,181.67	39,403,259	17,009	56,049	39,476,317.05	35,812,312.42
	short tons CO2	short tons CO2	short tons CO2e	short tons CO2e	Total Facility CO2e in short tons	Total CO2e in metric tons
	Total unit CO2	Entergy equity	Entergy	Entergy		
	CO2 from CEM	CH4	N2O			

- (1) CEM data reported to EPA Acid Rain program - can be verified at EPA's Clean Air Market's Database located at [http://camdataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard&EQW\\_datasetSelection=](http://camdataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard&EQW_datasetSelection=)
- (2) Emissions factor derived from CH4 (in CO2e) as percentage of emissions from CO2 for a specific fuel type. See "Emissions and Conversion Factors" for EPA emissions factors for specific fuels; emissions factor for natural gas used for all dual-fuel units as this represents the larger fuel input
- (3) Emissions factor derived from N2O (in CO2e) as percentage of emissions from CO2 for a specific fuel type. See "Emissions and Conversion Factors" for EPA emissions factors for specific fuels; emissions factor for natural gas used for all dual-fuel units as this represents the larger fuel input
- (4) Emission data obtained directly from the EPA's Database located at <http://ampd.epa.gov/ampd/>
- (5) While Entergy owns 42% of Big Cajun 2 Unit 3, our actual consumption of the MWhs generated from this facility varies from 42% to 45%. CO2 emission number shown is based on actual consumption of MWhs received from Fossil Operations.
- (6) During 2012, EWC (EAM Nelson Holdings, LLC) acquired 10.9% of this unit. Therefore, Entergy's overall ownership share of this unit increased to 80.9%

**Additional Notes**

- Emissions from Louisiana Station Plant 1 (Units 1A, 2A, 3A, 4A, 5A) are not included in the inventory; these units exist for the sole use of Exxon under a long term lease agreement.
- The following units were removed from the Inventory in 2014 - Lynch 2&3, Couch 1&2, Lake Catherine 1-3, Louisiana Station 2 (units 10-12), Ninemile 1&2, Nelson 3, Richie 1&2, and Sterlington 10. These units are either permanently retired (decommissioned in some cases) or are in extended reserve shutdown and are not expected to return to service.
- The following units were ADDED to the inventory in 2014 - Ninemile 6A and 6B - these units came online during December of 2014.
- The Acadia power plant has two units - Unit 1 (CT1 & CT2) is owned by CLECO, while Unit 2 (CT3 & CT4 as shown above) is owned by Entergy.
- Michoud Plant units removed from inventory in 2018 Inventory - the units were permanently retired in January 2016 and scheduled for demolition

## Small combustion sources at all generation stations - Updated for 2023

Small stationary combustion sources were initially calculated for all known equipment co-located at generating stations using parameters (such as max energy input/hour) developed in internal emissions compliance documents and assumed equipment capacity factors.

Starting in 2013, Entergy reported the previous year's GHG (CO<sub>2</sub>e) emissions from small sources co-located at Fossil plants in compliance with the EPA Mandatory Reporting Rule (General Stationary Fuel Combustion - Subpart C).

These updated values are substituted for the older, 2005 calculations in order to be consistent with mandatory GHG reporting. Nuclear estimates continue to rely on the 2005 calculations unless otherwise noted. The Thermal assets were divested in late 2013, so these assets and emission are removed from the inventory.

More detail on each of these facilities, the specific data collection methods, and the calculation methodology, can be found in the GHG Monitoring Plan required by the EPA Mandatory Reporting Rule.

Plant	CO <sub>2</sub> e Emissions reported under Mandatory Reporting Rule (short tons of all gases in 2022)  [obtained from Power Generation unless otherwise noted]	CO <sub>2</sub> e Emissions reported under Mandatory Reporting Rule (metric tons of all gases in 2022)  [obtained from Power Generation unless otherwise noted]	Comments
<b>Fossil fuel generating stations</b>			
Attalla	0.0	0.0	No Subpart C affected sources
Baxter Wilson	2,482.7	2,252.9	
Calcasieu	0.0	0.0	No Subpart C affected sources
Choctaw	2,667.0	2,420.2	
Gerald Andrus	0.0	0.0	
Hinds County	83.1	75.4	
Hot Spring	0.0	0.0	No Subpart C affected sources
Independence	506.9	460.0	(~50% ownership share)
Lake Catherine	3,137.3	2,847.0	
Lewis Creek	1,538.3	1,395.9	
Little Gypsy	1,662.8	1,508.9	
RS Nelson	0.0	0.0	No Subpart C affected sources (80.9% ownership share)
Ninemile Point	3,753.4	3,406.0	
Ouachita	2,208.0	2,003.6	
Perryville	2,981.1	2,705.2	
Rex Brown	0.0	0.0	Retired in 2011
Sabine	0.0	0.0	
St Charles	0.0	0.0	No Subpart C affected sources
Union	0.0	0.0	No Subpart C affected sources
Waterford	0.0	0.0	No Subpart C affected sources
White Bluff	1,855.1	1,683.3	(57% ownership share)
<b>Power Gen TOTAL</b>	<b>22,875.8</b>		

Source	lbs CO <sub>2</sub> e	2023 Generator Data	
		short tons CO <sub>2</sub> e	metric tons CO <sub>2</sub> e
Power Through	1,264,122.39	632.06	573.40
Power Delivery	6,939,932.99	3,469.97	3,147.90
<b>Total</b>	<b>8,204,055.38</b>	<b>4,102.03</b>	<b>3,721.30</b>

Nuclear generating stations <sup>(2)(3)</sup>	Plant total small sources CO <sub>2</sub> e (short tons using 2005 estimate calculations)
River Bend	301.6
Waterford 3	1,222.9
Grand Gulf	384.6
Arkansas Nuclear 1&2	3,665.8
<b>Nuclear TOTAL (short tons)</b>	<b>5,574.9</b>

**All small source totals 32,552.7**

- (1) Estimated based on average of other units
- (2) Vermont Yankee entered decommission status and did not operate beginning in 2016. Has been removed.
- (3) James Fitzpatrick was sold in 2017 and has been removed
- (4) Mablevale, Michoud, and Willow Glenn removed from inventory in 2018 since units have been retired, demolished, or scheduled for demolition.
- (5) Harrison County and NISCO removed from inventory in 2018 since Entergy has no equity share in ownership. Entergy only operates these units.
- (6) Pilgrim ownership was transferred to Holdtec on 8/26/2019. Pilgrim has been removed for the 2020 inventory.

## Direct Emissions of Escaped SF6 in Electricity T&D System ("Fugitive Emissions")

Note: The information below was as reported to the EPA under Subpart DD of the Mandatory GHG Reporting Rule.

More detail on the specific data collection methods, and the calculation methodology, can be found in the GHG Monitoring Plan required by the EPA Mandatory Reporting Rule.

2022 Fugitive SF6 Emissions Estimate			
SF6 Emissions (short tons) (1)	Global Warming Potential (GWP) (2)	Total CO2 Equivalent Emissions (short tons)	Total CO2 Equivalent Emissions (metric tons)
1.62	22,800	<b>36,936.0</b>	<b>33,507.7</b>

(1) Converted 1,3565.8 pounds to short tons - the amount of emissions reported for RY 2022

## Direct Emissions from fossil fuel usage for company mobile fleet ("Mobile Combustion")

Beginning in 2013, the GWP for N2O and CH4 was modified based on the EPA final rule effective 1/1/14.

Fuel Description	Fuel Code	Units consumed (gal)	Assumptions/Comments
Diesel	D	4,037,915	<b>Based on 2017 Entergy data provided by Carolanne Nichols</b> , it is assumed that totals for all bi-fuel categories are split at a 90/10 ratio between constituent fuel types and are calculated as such. Bi-fuels are separated below into its constituent fuel type category and emissions calculated. Green Plug-In (JEMS) units run on diesel on the highway and electricity on the job site.  CNG is measured in Gallons of Gasoline Equivalency or GGE. One gallon of CNG or GGE has the same energy value as a gallon of gasoline.  "Unknown" split evenly (50/50) between diesel and gasoline.
Gasoline	G	1,456,306	
BiFuel-Gasoline/Ethanol	S	1,388,260	
BiFuel-Gasoline/CNG	A	0	
BiFuel-Gasoline/LPG	B	0	
BiFuel-Diesel/Electricity	F	0	
Propane	P	66	
CNG	C		
LPG	L	221	
Green Plug-In JEMS	J	83,876	
BiFuel-Gasoline/Electricity	H	531	
Unknown	-	0	
Jet fuel		373,255	
<b>Total gallons consumed</b>		<b>7,340,430</b>	

Total units of each fuel type				CO2 using EPA Climate Leaders Efs		CO2 using WRI/WBCSD Protocol Efs	
Fuel	Total units consumed (GALLONS) - from inputs above	conversion to energy content (MMBtu/gallon)	Total MMBtu consumed	Emissions Factor (lbs CO2/MMBtu)	Total CO2 Emissions (short tons)	Emissions Factor (kg CO2/Gallon)	Total CO2 Emissions (short tons)
Diesel	4,121,791	0.1387	571,692	159.68	45,644	10.15	46,116
Gasoline	2,706,271	0.1251	338,555	156.44	26,482	8.81	26,281
Ethanol (E85)	138,826	0.0843	11,703	149.59	875	5.56	851
CNG	0	0.1251	0	116.41	0	See note	0
LPG	221	0.092	20	138.76	1	5.79	1
Propane	66	0.092	6	138.32	0	5.79	0
Jet fuel	373,255	0.135	50,389	154.72	3,898	9.57	3,937
<b>Totals</b>	<b>7,340,430</b>		<b>972,366</b>		<b>76,901</b>		<b>77,187</b>

Note: Emissions from Ethanol are considered "biogenic" emissions and do not contribute to net CO2 additions to the atmosphere. They are included with fossil fuel CO2 because it is de minimus.

Regarding CNG, no SCF measurement is available; used the EPA CL number as a proxy.

### Direct Emissions of N2O and CH4 from mobile fleet ("Mobile Combustion")

The calculation below uses conservative N2O and CH4 emissions factors to estimate these emissions from mobile sources. The emissions factors are from EPA Climate Leaders Guidance for construction vehicles.

**NOTE - Emission factors for these gases were not available for all fuel types - a conservative approach was used by using the emission factor for diesel.**

N2O from mobile sources					
N2O	gallons consumed	g N2O/gal fuel	total kg N2O	short tons	CO2e short tons
Gasoline	2,706,271	0.22	595.38	0.669	199.25
Diesel	4,121,791	0.26	1,071.67	1.203	358.64
Jet Fuel	373,255	0.26	97.05	0.109	32.48
Propane	66	0.26	0.02	0.000	0.01
CNG	0	0.26	0.00	0.000	0.00
LPG	221	0.26	0.06	0.000	0.02
Ethanol	138,826	0.26	36.09	0.041	12.08
<b>total</b>					<b>602.46</b>

<b>CH4 from mobile sources</b>					
<b>CH4</b>	<b>gallons consumed</b>	<b>g CH4 /gal fuel</b>	<b>total kg CH4</b>	<b>short tons</b>	<b>CO2e short tons</b>
Gasoline	2,706,271	0.50	1,353.14	1.520	37.99
Diesel	4,121,791	0.58	2,390.64	2.685	67.12
Jet Fuel	373,255	0.58	216.49	0.243	6.08
Propane	66	0.58	0.04	0.000	0.00
CNG	0	0.58	0.00	0.000	0.00
LPG	221	0.58	0.13	0.000	0.00
Ethanol	138,826.02	0.58	80.52	0.090	2.26
<b>total</b>					<b>113.45</b>
<b>Total N2O and CH4 CO2e</b>					<b>715.91</b>
<b>Total Estimated Emissions from Mobile Sources (short tons CO2e)</b>					<b>77,903</b>

## Emissions from natural gas from T&D operations

The calculation for Gas Operations below is based on as reported data from the GHG Summary Report for 2022. The Spindletop Gas Storage facility emissions are calculated using GRI emission factors (see notes below).

Gas Operations	CO2 equivalent emissions from facility subparts C-II, SS, and TT (metric tons) <b>Subpart W, Fugitive</b>	Total CO2 equivalent emissions (short tons)
Entergy Louisiana, L.L.C. Gas Business	10,395.4	11,459.0
Entergy New Orleans, Inc. Gas Business	12,420.4	13,691.1
<b>SUB-TOTAL</b>		<b>25,150.1</b>

Reported Natural Gas Release	Short tons natural gas	CO2 Equivalent Emissions
<b>SUB-TOTAL</b>		<b>0</b>

Spindletop Storage*					
Storage facilities	# storage facilities	Emissions factor (metric ton CH4/station-yr)	Total metric tons CH4	Total short tons CH4	Total short tons CO2e (Cell E x 25)
Fugitive Emissions from Storage Facilities	1	675.4	675.40	744.50	18,612.50
Vented Emissions from Storage Facilities	1	217.3	217.30	239.53	5,988.30
<b>SUB-TOTAL</b>					<b>24,600.80</b>

See note 3  
See note 4

### TOTALS FROM FUGITIVE NATURAL GAS

**49,751 short tons CO2e**

#### GENERAL NOTES:

- Source for emissions factors by equipment type is the Gas Research Institute (GRI), which provides factors in metric units only.

\* This category is carried forward from previous years

#### SPECIFIC NOTES:

- (1) Compressors are assumed to be for natural gas transmission, not storage.
- (2) general emissions factor used for vented gas; GRI provides emissions factors for specific equipment venting.
- (3) EF from API Table 6-1, (American Petroleum Institute), Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry. February 2004).
- (4) EF from GRI

### Direct Emissions of Fugitive HFCs in all utility cooling and A/C equipment

This sheet contains calculations for all sources of fugitive HFCs. HFCs from all sources are considered de minimus (i.e. insignificant in the Entergy corporate total). The activity data required to provide the highest level of accuracy is difficult and impractical to obtain for such a small source. Instead, emissions factors have been created based on national averages for a number of variables to provide a rough estimate of these emissions. The methodology behind these emissions factors is found below.

These CO2e totals are calculated using data, provided by Real Estate as of December 31, 2016, that does not change significantly between inventory years. These same data and emissions totals are used each year.

**2010 Update** - Facilities indicates that there is no significant change to these numbers; therefore, these numbers will continue to be carried forward each year.

**2013 Update** - carried historical data forward; however, updated the GWP consistent with an EPA final rule that became effective on 1/1/14.

**2014 Update** - removed the Thermal Operations facilities, as these were sold in late-2013.

**2015 Update** - No changes made

**2016 Update** - Values updated as of December 31, 2016

**2017-2020 Update** - No changes made

**2021-2023 Update** - Updated Entergy owned space & capital lease space

	square footage air-conditioned	EF: fugitive HFCs (short tons CO2e/sq ft)*	Facility fugitive HFC (short tons CO2e)
Mississippi	573,651	0.00078	447
Arkansas	941,604	0.00078	734
Louisiana	666,651	0.00078	520
New Orleans	172,295	0.00078	134
Texas	630,420	0.00078	491
ESI	1,020,160	0.00078	795
<b>Total Fugitive HFCs</b>	<b>4,004,781</b>		<b>3,121.66</b>

[ETRFossilRenewablePortfolio\\_6.9.2021.xlsx \(entergy.com\)](#)

Generation plant space assumes 50,000 sq. ft. per plant; 28 plants assumed.

From Nuclear facility			From all Entergy-owned vehicles			
lbs HFC charged to equipment	EF: fugitive HFCs as CO2e (GWP=1300)	Facility fugitive HFC (short tons CO2e)		Total CO2 from mobile sources (short tons)	EF: HFC as % of CO2 emissions **	Facility fugitive HFC (short tons CO2e)
0	1300	0	Vehicular A/C	77,903	3.50%	2,727
			Total CO2 from all mobile source fuels are included			

Entergy nuclear facilities **do not** use HFCs for cooling

**Total fugitive HFC emissions** **5,848** short tons CO2e

**\* Calculation for estimating fugitive HFC emissions from building space using A/C**

The calculation used in calculating the emissions factor for metric tons of CO2e fugitive HFC.	Average cooling capacity of chiller (ft2/ton of cooling capacity)	HFCs in chiller (kg HFC/tons of cooling)	Annual HFC loss factor (percent)	Total Annual HFC losses (MT HFC/1000 ft2)	Total Annual HFC losses (MT CO2e)/1000 ft2	Total Annual HFC losses (MT CO2e)/ ft2	Total Annual HFC losses (short tons CO2e)/ ft2
	280	1.2	15%	0.000642857	0.71	0.00071	0.00078
	Source: ASHRAE (http://www.themoderngroup.com/Newsorthy/HVAC%20Issues/Rule%20of%20Thumb%20Sizing.htm) Note that this is a conservative estimate - a reasonably designed building should be more like 400.	Source: http://www.usgbc.org/LEED/tsac/energy.asp	Source: EPA Climate Leaders Guidance, January 2004. Note: This estimate is the source of the greatest uncertainty in the calculation, since the range is 2-15%, and the average is probably more like 5%.		This is the emissions factor that is applied to the square footage of air conditioned space. This EF includes the global warming potential for HFC 134a (1,100).	Emissions factor for MT CO2e per ft2.	Emissions factor for short tons CO2e per ft2; conversion factor 1.1023

**Calculation to estimate HFCs from mobile A/C as percentage of CO2 emissions from mobile sources using national averages for equipment leakage and miles/gallon**

Vehicle type	HFC Emissions Estimate			CO2 Emissions Estimate				Emissions factor
	HFC capacity (kg HFC)	annual leakage rate (percentage)	CO2 emissions (kg CO2e/yr-veh); GWP=1100	Miles per gallon	Miles per year	Emission factor (kg CO2/gal)	CO2 Emissions (kg CO2/yr-veh)	Emissions factor: HFC emissions (CO2e) to CO2 (as %)
Car	0.8	20%	176	20	15,000	8.87	6,653	2.6%
light truck	1.2	20%	264	15	15,000	8.87	8,870	3.0%

Purchased Goods and Services													
Industry/Commodity	2023 Spend	Inflation Adjustment	CO2		CH4		N2O		Other GHGs		CO2e	CO2e	CO2e
			Emission Factor	Emissions (kg)	Emission Factor	Emissions (kg)	Emission Factor	Emissions (kg)	Emission Factor	Emissions (kg)	kg	short tons	metric tons
Administrative and Support Services	\$ 277,476,660.33	\$ 249,728,994.30	0.088	21,976,151.50	0.001	249,728.99	0	0.00	0.004	998,915.98	29,218,292.33	32,207.11	29,217.80
Chemical Products	\$ 48,299,030.15	\$ 43,469,127.13	0.282	12,258,293.85	0.001	43,469.13	0	0.00	0.01	434,691.27	13,779,713.30	15,189.28	13,779.48
Computer and Electronic Products	\$ 246,599,854.56	\$ 221,939,869.10	0.043	9,543,414.37	0	0.00	0	0.00	0.004	887,759.48	10,431,173.85	11,498.21	10,431.00
Construction	\$ 102,829,077.66	\$ 92,546,169.89	0.259	23,969,458.00	0.002	185,092.34	0	0.00	0.02	1,850,923.40	30,447,689.90	33,562.27	30,447.18
Electrical equipment, appliances, and components	\$ 525,326,183.46	\$ 472,793,565.11	0.197	93,140,332.33	0.001	472,793.57	0	0.00	0.011	5,200,729.22	110,160,900.67	121,429.56	110,159.05
Fabricated Metal Product	\$ 9,522,363.53	\$ 8,570,127.18	0.225	1,928,278.61	0.001	8,570.13	0	0.00	0.008	68,561.02	2,211,092.81	2,437.27	2,211.06
Machinery	\$ 75,212,703.11	\$ 67,691,432.80	0.167	11,304,469.28	0.167	11,304,469.28	0	0.00	0.043	2,910,731.61	296,826,932.82	327,190.18	296,821.94
Miscellaneous professional, scientific, and technical services	\$ 141,931,117.04	\$ 127,738,005.34	0.109	13,923,442.58	0.001	127,738.01	0	0.00	0.004	510,952.02	17,627,844.74	19,431.05	17,627.55
Motor vehicles, bodies and trailers	\$ 86,833,662.09	\$ 78,150,295.88	0.174	13,598,151.48	0.001	78,150.30	0	0.00	0.019	1,484,855.62	17,036,764.50	18,779.50	17,036.48
Petroleum and coal products	\$ 25,991,540.11	\$ 23,392,386.10	0.755	17,661,251.50	0.018	421,062.95	0	0.00	0.005	116,961.93	28,304,787.18	31,200.16	28,304.31
Utilities	\$ 959,265,159.05	\$ 863,338,643.14	2.884	2,489,868,646.83	0.005	4,316,693.22	0	0.00	0.01	8,633,386.43	2,606,419,363.65	2,873,037.22	2,606,375.52
Waste management and remediation services	\$ 85,501,847.18	\$ 76,951,662.46	0.274	21,084,755.51	0.044	3,385,873.15	0	0.00	0.013	1,000,371.61	106,731,955.83	117,649.86	106,730.16
<b>Total</b>	<b>\$ 2,584,789,198.27</b>	<b>\$ 2,326,310,278.44</b>		<b>2,730,256,645.86</b>		<b>20,593,641.05</b>		<b>0.00</b>		<b>24,098,839.58</b>	<b>3,269,196,511.59</b>	<b>3,603,611.68</b>	<b>3,269,141.52</b>

Capital Goods													
Industry/Commodity	2023 Spend	Inflation Adjustment	CO2		CH4		N2O		Other GHGs		CO2e	CO2e	CO2e
			Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	(kg)	(Short Tons)	(Metric Tons)
Administrative and Support Services	\$ 74,509,120.39	\$ 67,058,208.35	0.088	5,901,122.33	0.001	67,058.21	0	0.00	0.004	268,232.83	7,845,810.38	8,648.38	7,845.68
Chemical product	\$ 1,487,323.68	\$ 1,338,591.31	0.282	377,482.75	0.001	1,338.59	0	0.00	0.01	13,385.91	424,333.45	467.74	424.33
Computer and electronic products	\$ 272,278,458.19	\$ 245,050,612.37	0.043	10,537,176.33	0	0.00	0	0.00	0.004	980,202.45	11,517,378.78	12,695.52	11,517.19
Construction	\$ 479,448,251.33	\$ 431,503,426.20	0.259	111,759,387.39	0.002	863,006.85	0	0.00	0.02	8,630,068.52	141,964,627.22	156,486.58	141,962.24
Electrical equipment, appliances, and components	\$ 283,839,919.66	\$ 255,455,927.69	0.197	55,916,464.17	0.001	255,455.93	0	0.00	0.011	2,810,015.20	65,112,877.57	71,773.45	65,111.78
Fabricated metal products	\$ 700,000.00	\$ 630,000.00	0.225	157,500.00	0.001	630.00	0	0.00	0.008	5,040.00	178,290.00	196.53	178.29
Machinery	\$ 8,100,802.32	\$ 7,290,722.09	0.167	1,352,833.99	0.167	1,217,550.59	0	0.00	0.043	313,501.05	32,105,099.75	35,389.22	32,104.56
Miscellaneous professional, scientific, and technical services	\$ 403,107,717.72	\$ 362,796,945.95	0.109	39,544,867.11	0.001	362,796.95	0	0.00	0.004	1,451,187.78	50,065,978.54	55,187.37	50,065.14
Motor vehicles, bodies and trailers	\$ 4,094,409.75	\$ 3,684,968.78	0.174	641,184.57	0.001	3,684.97	0	0.00	0.019	70,014.41	803,323.19	885.50	803.31
Petroleum and coal products	\$ 477,337.43	\$ 429,603.69	0.755	324,350.78	0.018	7,732.87	0	0.00	0.005	2,148.02	519,820.46	572.99	519.81
Utilities	\$ 1,100,197,772.42	\$ 990,177,995.18	2.884	3,172,970,375.66	0.005	4,950,889.98	0	0.00	0.01	9,901,779.95	3,306,644,405.01	3,644,890.22	3,306,588.78
Waste and remediation	\$ 58,915,670.84	\$ 53,024,103.76	0.274	14,528,604.43	0.044	2,333,060.57	0	0.00	0.013	689,313.35	73,544,431.91	81,067.50	73,543.19
<b>Total</b>	<b>\$ 2,687,156,783.73</b>	<b>\$ 2,418,441,105.36</b>		<b>3,414,011,349.51</b>		<b>10,063,205.49</b>		<b>0.00</b>		<b>25,134,889.48</b>	<b>3,690,726,376.26</b>	<b>4,068,261.00</b>	<b>3,690,664.29</b>

Total CO2		Total CH4		Total N2O		Total Other GHGs		Total Co2e	
6,144,267,995.37	kg	30,656,846.54	kg	0.00	kg	49,233,729.07	kg	6,224,158,570.97	kg
6,772,782.18	short tons	33,792.82	short tons	0.00	short tons	54,269.98	short tons	6,860,844.99	short tons
6,145,900.35	metric tons	30,664.99	metric tons	0.00	metric tons	49,246.81	metric tons	6,225,812.15	metric tons

**Sources**

Emissions Factors [SupplyChainEmissionFactorsforUSIndustriesCommodities.xlsx \(live.com\)](#)

Spend Category

Reference [APPENDIX 3 - INDUSTRY AND COMMODITY REFERENCE LISTS .PDF](#)

Inflation Adjustment 2024 Conversion Factor of 0.9 was used to adjust 2023 spend to 2021 USD leveraging GDP, CPI and PPI; came from Corporate Commercial Analytics

Other GHGs (from EPA)

Other GHGs	GWP-100 Factors	Unit
butane, perfluorocyclo-, pfc-318	10300	kg CO2 eq.
ethane, 1,1,1-trifluoro-, hfc-143a	4470	kg CO2 eq.
ethane, 1,1,1,2-tetrafluoro-, hfc-134a	1430	kg CO2 eq.
ethane, hexafluoro-, hfc-116	12200	kg CO2 eq.
ethane, pentafluoro-, hfc-125	3500	kg CO2 eq.
methane, difluoro-, hfc-32	675	kg CO2 eq.
methane, tetrafluoro-, r-14	7390	kg CO2 eq.
methane, trifluoro-, hfc-23	14800	kg CO2 eq.
nitrogen fluoride	17200	kg CO2 eq.
propane, 1,1,1,3,3,3-hexafluoro-, hfc-236fa	9810	kg CO2 eq.
propane, perfluoro-	8830	kg CO2 eq.
sulfur hexafluoride	22800	kg CO2 eq.

Power purchased to serve utility customers							
Controllable power purchases				2023			
Code	Plant description	FACILITY CODE (SPO)	State	Total Energy purchased from plant (MWh)	Unit/Plant-Specific Emission Factor (lbs CO2/MWh), Based on Total Output [from eGRID2022 data, accessed 01/31/2024 unless otherwise noted]	CO2 emissions from purchased power (short tons) [using eGRID Unit-Specific Factors (when available)]	Comments/Notes
			LA	73,205	89.1	3,260.9	
			LA	117,366	-	-	
			LA	3,223,618	758.9	1,223,279.2	
			TX	260,700	872.3	113,702.1	
			LA	673,744	-	-	
			LA	95,809	-	-	
			TX	12,611	-	-	
			LA	623,235	1,088.04	339,051.7	
			LA	3,248,444	801.179	1,301,292.6	
			LA	164,132	-	-	
			LA	39,721	-	-	
			AR	163,167	-	-	
			LA	99,507	-	-	
			TX	34,207	-	-	
			LA	204,457	-	-	
<b>Totals</b>				<b>9,033,923</b>		<b>2,980,586.4</b>	<b>short tons CO2</b>
N2O emissions from controlled purchases (SERC MS Valley Total Output Rate, eGRID2022)				0.006	lbs/MWh	8,076.3	short tons CO2e
CH4 emissions from controlled purchases (SERC MS Valley Total Output Rate, eGRID2022)				0.040	lbs/MWh	4,517.0	short tons CO2e

\* some units may be in different control areas or eGRID subregions, however, impact to the overall GHG inventory is expected to be negligible.

<b>Total CO2e from Controllable Purchases</b>	<b>TOTAL</b>	<b>2,993,179.7</b>	<b>short tons CO2e</b>
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[Download Data | US EPA](#)

Indirect Emissions associated with purchased power	Total pchsd power MWh	Loss factor %	Total power lost MWh		
CO2 emissions from T&D losses of purchased power on Entergy system	25,354,553	3.410%	864,493	285,224.4	short tons CO2
CH4 emissions from T&D losses of purchased power on Entergy system				432.2	short tons CO2e
N2O emissions from T&D losses of purchased power on Entergy system				772.9	short tons CO2e
<b>TOTAL</b>				<b>286,429.5</b>	<b>short tons CO2e</b>

Purchased & Market Power Purchases						
Purchase Type	MWh	CO2 Emissions (ST)	CH4 Emissions (ST CO2e)	N2O Emissions (ST CO2e)	Total CO2e (ST)	Total CO2e (MT)
Controllable Purchases	9,033,923	2,980,586	4,517.0	8.076	2,993,179.71	2,715,367.74
Uncontrollable (Market) Purchases	16,320,630	6,536,535	8,160.3	14.591	6,559,285.68	5,950,485.58
	<b>25,354,553</b>	<b>9,517,121</b>	<b>12,677</b>	<b>22,667</b>	<b>9,552,465.39</b>	<b>8,665,853.32</b>
<b>TOTAL</b>					<b>3,279,609.25</b>	<b>short tons CO2e</b>

MWh Market Purchases provided by internal System Planning and Operations team; emissions estimated using eGRID factors

Entergy offices outside of service territory emissions							
Office	Sqr Ft	Approx energy consumption (Mwh) <sub>1</sub>	CO2 emissions short tons	CH4 emissions short tons	N2O Emissions (Lb/MWh)	Total emissions CO2e short tons	total emissions metric tons CO2e
Austin	9,534.00	214.52	82,70443487	1.57	0.02	84.29	76.47
Washington DC	12,407.00	279.16	86,95574673	1.95	0.02	88.94	80.68
<b>Total</b>		<b>493.68</b>	<b>169,6601816</b>	<b>3.52</b>	<b>0.04</b>	<b>173.22</b>	<b>157.15</b>

<sup>1</sup> Department of Energy estimate, 22.5 kWh per sq ft, annually  
<sup>2</sup> eGRID factors used to estimate emissions for sites, ERCOT for Austin and SERC Virginia/Carolina for DC office.

Estimated Losses and Consumption					
Operating Company	Generation GWh	Purchases GWh	Total Power	Losses & Company Usage	% Lost
EAI	28,179	4,289	32,468	1,280	0.039423432
ELL	52,593	15,363	67,956	1,933	2.84448761
EMI	12,078	4,670	16,748	701	4.185574397
ENOI	3,517	4,622	8,139	128	1.572674776
ETI	11,864	11,176	23,040	786	3.411458333
SERI	7,739		7,739	(29)	-0.374725417
ELIM		(15,341)	(15,341)		
<b>TOTALS*</b>	<b>115,970</b>	<b>24,779</b>	<b>140,749</b>	<b>4,799</b>	<b>0.034096157</b>

Source: 2021 Investor Guide pg 36  
4,828.00 Total Loss  
135,794.00 Total Power  
0.0341 % Loss

## Delivered Gas Emissions

This spreadsheet provides an estimate of upstream emissions associated with suppliers of natural gas for electric power generation and distribution to LDC customers. Delivered gas data was provided by System Planning & Operations.

Gas Deliveries (mmBtu)				Estimated Upstream Emissions (g CO2e)					
Electric Utility	Local Distribution Companies (ENO and ELL)	Emission Rate for Delivered Gas <sup>1</sup> (grams of CO2e per MJ)	Conversion of Emission Rate to g CO2e per mmBtu	Electric Utility	LDCs	Total	Conversion to lbs	Conversion to Short Tons	Conversion to Metric Tons
564,255,728	17,263,978	14.1	14875.5	8,393,586,081,864	256,810,304,739	8,650,396,386,603	19,053,736,534	9,526,868	8,642,632

**Notes and Sources**

1 - NETL Report - Industry Partnerships and their Role in Reducing Natural Gas Supply Chain Greenhouse Gas Emissions (2020); pp 50, Exhibit 6-10  
[NETL-Industry-Partnerships-and-their-Role-in-Reducing-Natural-Gas-Supply-Chain-Greenhouse-Gas-Emissions-Phase-2-12FEB2021.pdf \(doe.gov\)](#)  
 Published Feb 12,2021--check to see if new version at this time; may be every few years

GHGe Breakdown			
6,487,797,289,952	5,624,091	<b><u>TOTAL CH4, CO2e</u></b>	CH4 ~ = 75% of Total Natural Gas Industry CO2e GHG Emissions in the U.S. (Exhibit 6-11, p. 44, NETL report)
2,162,599,096,651	1,874,697	<b><u>TOTAL CO2, CO2e</u></b>	CO2 ~ = 25% of Total Natural Gas Industry CO2e GHG Emissions in the U.S. (Exhibit 6-11, p. 44, NETL report)
0.0000	937	<b><u>TOTAL N2O, CO2e</u></b>	N2O = 0.0005 lbs CO2e N2O/lb CO2 (ETR GHG Inventory emission factor for Industrial natural gas-fired facilities.)
<b>8,267,033</b>	<b>7,499,726</b>	<b>TOTAL CO2e</b>	Adjusted TOTAL

## Employee Business Travel - GHG Footprint Estimate

This section of the GHG inventory was produced in 2024 using 2023 actual travel numbers from AMEX travel.

Overall Summary	CO2 Emissions (lbs)	CO2 Emissions (short tons)	CO2 Emissions (metric tons)
Airline Flights	5,287,869	2,644	2,399
Rental Cars	551,193	276	250
Hotel Stays	1,643,741	822	746
Personal Vehicle Use	6,772,383	3,386	3,072
<b>TOTAL ESTIMATE</b>	<b>14,255,186</b>	<b>7,128</b>	<b>6,467</b>

### Airline GHG Footprint Estimate

Year	Distance Flown (miles)	CO2 Footprint (lbs)	CO2 Footprint (short tons)	CO2 Footprint (metric tons)
2023	11,993,382	5,287,869	2,644	2,399

Note: The AMEX Travel group provided the CO2 footprint estimate calculations - have requested details of assumptions and calculations

### Rental Car GHG Footprint Estimate

Year	Number of Days/Nights	Mileage Assumptions and Calculations				
		20% @ 5 mpd	30% @ 10 mpd	30% @ 20 mpd	15% @ 50 mpd	5% @ 100 mpd
2023	27,499	27,499	82,497	164,994	206,243	137,495
<b>GRAND TOTAL</b>		<b>618,727.5</b>	<b>miles</b>			
		<b>249,965.9</b>	<b>kg CO2 (@411 grams CO2 per mile)</b>			
		<b>551,192.7</b>	<b>lb CO2</b>			
		<b>275.6</b>	<b>short tons</b>			
		<b>250.0</b>	<b>metric tons</b>			

Source of assumptions and calculations: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U8YT.pdf>

### Hotel Nights

Year	Number of Days/Nights	Assumed kwh usage per room per day	Emission Rate Assumption (lbs per MWh)	Natural Gas Usage per room per night (mmBtu)	Total Emissions (lbs)	Total Emissions (short tons)	Total Emissions (metric tons)
2023	54,791						
<b>2023</b>	<b>54,791</b>	30	1,000	0.097	<b>1,643,741</b>	<b>821.9</b>	<b>745.6</b>

Source of assumptions and calculation: [https://www.epa.gov/sites/default/files/2018-12/documents/indirectemissions\\_draft2\\_12212018\\_b\\_508pass\\_3.pdf](https://www.epa.gov/sites/default/files/2018-12/documents/indirectemissions_draft2_12212018_b_508pass_3.pdf)

### Employee Personal Vehicle Mileage

#### Employee Personal Car Mileage GHG Footprint Estimate

Year	Miles	kg CO2	lbs CO2	short tons CO2	metric tons CO2
2023	7,602,168	3,071,276	6,772,383	3,386	3,071.90

Source of assumptions and calculations: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U8YT.pdf>

**Employee Commuting Emission Calculations**

Note: Survey administered in 2023  
Commuter Travel Calculations

**Commuting Emissions Summary**

Employee Commuting Total CO2e					
Commuting method (more than 75% of the time)	Miles travelled per year	Total emissions kg CO2e	Total emissions short tons CO2e	Total Emissions metric tons CO2e	% total commuting emissions
Individual car	68,935,196	25,821,125	28,463	25,821	97.6%
Public Transportation	467,886	64,320	71	64	0.2%
Carpool	1,496,835	560,671	618	561	2.1%
Bikers	-	-	-	-	0.0%
Walkers	-	-	-	-	0.0%
<b>Total</b>	<b>70,899,916</b>	<b>26,446,116</b>	<b>29,152</b>	<b>26,446</b>	<b>100.0%</b>

Employee Commuting Total GHG Breakdown						
Commuting method (more than 75% of the time)	Miles travelled per year	Greenhouse gas	Total emissions short tons CO2e	Total Emissions metric tons CO2e	% total commuting emissions	
Individual car	68,935,196	CO2	28,092,411	27,659	94.9%	
		CH4	44,877	49	0.2%	
		N2O	683,837	754	2.6%	
Public Transportation	467,886	CO2	64,077	71	0.2%	
		CH4	42	0.05	0.0%	
		N2O	201	0.22	0.0%	
Carpool	1,496,835	CO2	544,848	601	2.1%	
		CH4	974	1.07	0.0%	
		N2O	14,849	16	0.1%	
Bikers	-	CO2	-	-	0.0%	
		CH4	-	-	0.0%	
		N2O	-	-	0.0%	
Walkers	-	CO2	-	-	0.0%	
		CH4	-	-	0.0%	
		N2O	-	-	0.0%	
<b>Total</b>	<b>70,899,916</b>		<b>26,446,116</b>	<b>29,152</b>	<b>100.0%</b>	

**Commuting Survey Results & Workforce Estimations**

Employee Count	
Survey Responses	940
Total Workforce	11700

Commuting Frequency					
# of Commutes (Weekly)	Responses	%	Per Year Approx Commute Days (Individual)	Estimated Commuters for Full Workforce	Estimated Commutes for Full Workforce
Remote (zero)	31	3.3%	3	0	0
0.5	92	10%	10	24	27483
1	122	13%	13	48	72889
2	153	16%	16	96	182819
3	119	13%	13	144	213289
4	247	26%	26	192	590277
5	176	19%	19	240	525753
<b>TOTAL</b>	<b>940</b>		<b>100</b>	<b>744</b>	<b>1,612,509</b>

Commuting Method				Annual Commute Weighted Average Multiplier		
Commuting Method	# Survey Responses	estimated employees	% of survey responses	Commutes weekly	Commutes annually	# responses (survey)
Remote	31	385.85	3.30%	0	0	123
Walkers =	6	74.68	0.64%	2	96	394
Bikers =	6	74.68	0.64%			
Carpoolers =	7	87.13	0.74%			
Public Transporters =	6	74.68	0.64%	4.5	216	423
Individual Drivers =	884	11,002.98	94.04%			
<b>Total</b>	<b>940</b>	<b>11,700</b>	<b>100.00%</b>	<b>Total responses</b>		<b>940</b>
				<b>Commute weighted average</b>		<b>137.44</b>

Commuting Distance (miles one-way)						
	Low	Avg	High	# Employees Estimated	SURVEY RESPONSES (#)	SURVEY RESPONSES (%)
Remote	0	0	0	385.85	31	3.30%
	1.0	2.5	5.0	1,369.15	110	11.70%
	5.0	7.5	10.0	2,389.79	192	20.43%
	10.0	15.0	20.0	2,551.60	205	21.81%
	20.0	25.0	30.0	1,705.21	137	14.57%
	30.0	40.0	50.0	1,854.57	149	15.85%
	50.0	62.5	75.0	1,443.83	116	12.34%
<b>Total</b>	<b>116.0</b>	<b>152.5</b>	<b>190.0</b>	<b>11,700</b>	<b>940</b>	<b>100%</b>

Distribution of Commuting Method by Miles (Workforce Estimation)						
Survey	Individual Drivers	Carpoolers	Public	Bikers	Walkers	Remote
1 to 5 miles	1288	0	9	37.34	75	
5 to 10 miles	2247	0	15	37.34	0	
10-20 miles	2400	0	16	0	0	
20-30 miles	1604	0	11	0	0	
30 to 50 miles	1744	0	12	0	0	
50 to 75 miles	1358	87	9	0	0	
<b>Total</b>	<b>11003</b>	<b>87</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>386</b>

Estimated Emissions from Mileage and Method of Transport							
Method of Transportation	one way (workforce)	round trip (workforce)	annual miles (workforce)	annual gallons	lbs (workforce)	short tons (workforce)	metric tons (workforce)
Walkers =	188	375	51,639	-	-	-	-
Bikers =	373	747	102,640	-	-	-	-
Carpoolers =	5,445	10,891	1,496,835	24,947	498,945	249	226
Public Transporters =	1,702	3,404	467,886	1,872	37,431	19	17
Individual Drivers =	250,786	501,572	68,935,196	2,757,408	55,148,157	27,574	25,022
<b>Total</b>			<b>71,054,096</b>	<b>2,784,227</b>	<b>55,684,532</b>	<b>27,842</b>	<b>25,265</b>

Emissions Calculation for Public Transportation		
Method of Transit	# of miles	Total emissions kg CO2e
50% Bus	233,943	25,071
5% Intercity Rail	23,394	4,336
5% Commuter Rail	23,394	4,032
40% Transit Rail	187,154	30,638
<b>Total</b>	<b>467,886</b>	<b>64,077</b>

EPA Methodology	Method of travel	EFCO2 (kg CO2/vehicle-mile)	EFCH4 (g CH4/vehicle-mile)	EFN2O(g N2O/vehicle-mile)
E=VMT*(EFco2 + EFCH4*0.021 + EFN2O*0.310)	Individual car	0.364	0.031	0.032
E= total CO2e	Vanpool	0.19	0.036	0.047
VMT = vehicle miles travelled per year	Carpool	0.364	0.031	0.032
EFco2= CO2 emissions factor	Bus	0.107	0.0006	0.0005
EFCH4= CH4 emissions factor	Short haul airline (domestic)	0.185	0.0104	0.0085
EFN2O= N2O emissions factor	Medium haul airline (continental)	0.229	0.0104	0.0085
0.021= conversion factor	Long haul airline (intercontinental)	0.277	0.0104	0.0085
0.310= conversion factor	Intercity rail	0.195	0.002	0.001
*used for individual car, carpool and vanpool	Commuter rail	0.172	0.002	0.001
	Transit rail	0.163	0.004	0.002

$$E = \text{PMT} * (\text{EF}_{\text{CO}_2} + \text{EF}_{\text{CH}_4} * 0.021 + \text{EF}_{\text{N}_2\text{O}} * 0.310)$$

E= total CO2e

PMT= passenger miles travelled per year

EF<sub>CO2</sub>= CO2 emissions factor

EF<sub>CH4</sub>= CH4 emissions factor

EF<sub>N2O</sub>= N2O emissions factor

0.021= conversion factor

0.310= conversion factor

\*used for bus, air and rail travel

#### Estimating Fuel Use

Fuel use= DT x FE

DT= Distance travelled activity factor

FE= Fuel economy factor (ie. kgCO2/mile, gCH4/mile, gN2O/mile) \*see emissions factors chart above

\*used to determine the breakdown of CO2, CH4, N2O within total CO2e.

#### EPA Methodology sourced from EPA website

[http://epa.gov/climateleadership/documents/resources/commute\\_travel\\_product.pdf](http://epa.gov/climateleadership/documents/resources/commute_travel_product.pdf)

[http://www.epa.gov/climateleadership/documents/resources/mobilesource\\_guidance.pdf](http://www.epa.gov/climateleadership/documents/resources/mobilesource_guidance.pdf)

#### Assumptions

Employees who are either remote or commute every so often were treated as '0' commutes weekly; employees who commute 1-3 times per week were treated as '2' commutes per week; employees who come 4 to 5 times per week were treated as '4.5' commutes weekly

With 2 weeks of vacation, 12 holidays, we assumed an approximate 48 working weeks per year

We assume walkers walk under 5 miles one way, and cyclists/bikers bike up to 10 one-way

Carpoolers and Vanpoolers all put in the over 30 miles category

Used midpoint of mileage ranges surveyed

Assuming 20 pounds of CO2 emitted per gallon of fuel burned

Methodology sourced from EPA Climate Leaders: Greenhouse Gas Inventory Protocol Core Module Guidance

Specific sections: "Optional Emissions from Community Business Travel and Product Transport"

"Direct Emissions from Mobile Combustion Sources"

Data sourced from 2023 issued employee survey reflecting 2022 commuting

Public transportation method compiled from percentages estimated from data recording passenger trips in urbanized areas: 50% bus, 5% intercity rail, 5% commuter rail and 40% transit rail.

Source: US Census Bureau, Statistical Abstract of the United States: 2012

## Product Combustion - Emissions from combustion of Natural Gas distributed to retail customers

Values below represent those reported in the RY 2022 GHG reports submitted by Gas Operations and provided to SEP for each location.

Gas Operation	CO2 equivalent emissions from supplier subparts LL-QQ (metric tons) <b>Subpart NN Product Combustion</b>	Total CO2 equivalent emissions (short tons)
Entergy Louisiana, L.L.C. Gas Business	357,964.2	394,587.5
Entergy New Orleans, Inc. Gas Business	589,013.7	649,275.7
<b>TOTAL</b>	<b>946,977.9</b>	<b>1,043,863.2</b>

Entergy leases a power facility to a third party for their sole use

**Leased Assets**

Facility Name	Gross Load	Steam Load	CO2		Heat Input (mmBtu)
	(MWh)	(1000 lb)	short tons	metric tons	
Louisiana 1	3333297.56	7,747,434.80	2,290,241.58	2,077,672.21	38,537,841.56
			CH4		
			short tons	metric tons	
			1,076.41	976.51	
			N2O		
			short tons	metric tons	
			1,282.54	1,163.50	

Data obtained from EPA Clean Air Markets division: <https://campd.epa.gov/data/custom-data-download>  
 updated 2/7/24

**EPA Climate Leaders Emissions Factors for Fossil Fuel and Biomass Combustion**

The emissions factors below have been updated from the EPA Climate Leaders GHG inventory Protocol, October 2004 and with any other EPA Final Rules.

Fuel type	Heating Value (HHV): custom heating values should be used if available	Carbon content coefficient (kg C/MMBtu) (based on HHV)	Fraction oxidized	CO2 Emissions -- kg			CO2 Emissions -- lbs			CH4 Emissions				N2O Emissions			
				EPA emission factor (kg CO2/MMBtu) (HHV)*	EPA emission factor (kg CO2/mass or volume unit)	EPA emission factor (kg CO2/mass or volume unit)	EPA emission factor (lbs CO2/MMBtu) (HHV)*	EPA emission factor (lbs CO2/mass or volume unit)	EPA emission factor (lbs CO2/mass or volume unit)	EPA emission factor (g CH4/MMBtu)	EPA emission factor (kg CO2e/MMBtu) GWP=25	EPA emission factor (lbs CO2e/MMBtu)	CH4 (CO2e) emissions factor (lbs CO2e CH4/lb CO2)	EPA emission factor (g N2O/MMBtu)	EPA emission factor (kg CO2e/MMBtu) GWP=298	EPA emission factor (lbs CO2e/MMBtu)	N2O (CO2e) emissions (lbs CO2e N2O/lb CO2)
<b>Liquid fossil</b>	<b>MMBtu/bbl</b>			<b>kg CO2/gallon</b>	<b>kg CO2/bbl</b>		<b>lbs CO2/gallon</b>	<b>lbs CO2/bbl</b>									
Gasoline / petrol	5.253	19.34	0.99	70.95	8.79	369.18	156.44	19.38	814.04								
Kerosene	5.670	19.72	0.99	71.58	9.66	405.88	157.84	21.31	894.97								
Jet Fuel	5.670	19.33	0.99	70.17	9.47	397.74	154.72	20.88	877.02								
Aviation gasoline	5.048	18.87	0.99	68.50	8.23	345.66	151.04	18.15	762.18								
Distillate fuel (# 1,2,4, diesel)	5.825	19.95	0.99	72.42	10.08	423.36	159.68	22.23	933.51	1.8 (ind)	0.045	0.099	0.0006	.54 (ind)	0.16092	0.355	0.0022
Residual fuel oil (#5,6)	6.287	21.49	0.99	78.01	11.68	490.44	172.01	25.75	1,081.42	2.7 (elect gen)	0.068	0.149	0.0009	.54 (elect gen)	0.16092	0.355	0.0022
LPG	3.861	17.25	0.99	62.62	5.65	237.45	138.07	12.47	523.58	1.8 (ind)	0.045	0.099	0.0006	1.8 (ind)	0.16092	0.355	0.0021
Propane	3.824	17.2	0.99	62.44	5.71	239.90	137.67	12.59	528.98	2.7 (elect gen)	0.068	0.149	0.0009	2.7 (elect gen)	0.16092	0.355	0.0021
Ethane	2.916	16.25	0.99	58.99	4.12	172.91	130.07	9.08	381.27								
n-Butane	4.326	17.72	0.99	64.32	6.66	279.80	141.83	14.69	616.96								
Isobutane	4.162	17.75	0.99	64.43	6.42	269.52	142.07	14.15	594.29								
E85	See EPA Guidance					0.00	0.00		0.00								
CNG	1.027	14.47	0.995	52.79	.054 /cf			.12 /cf									
LNG					5.91 /gal			13.01 /gal									
Petroleum coke	6.024	27.85	0.99	101.10	609.00		0.00										
<b>Gaseous fossil</b>	<b>MMBtu/mcf</b>				<b>cu. ft.</b>			<b>cu. ft.</b>									
Natural gas (dry)	1.027	14.47	0.995	52.79	0.0542		116.41	0.1195		4.75 (ind)	0.119	0.262	0.00225	0.095 (ind)	0.028	0.062	0.0005
										0.95 (elect gen)	0.025	0.055	0.00047	0.095 (elect gen)	0.030	0.066	0.0006
<b>Solid fossil</b>	<b>MMBtu/short ton</b>				<b>short ton</b>			<b>short ton</b>									
Anthracite	25.09	28.26	0.99	102.58	2,573.83		226.20	5,675.30		10.0 (ind)	0.250	0.551	0.00265	1.4 (ind)	0.42	0.92	0.0044
Bituminous coal	24.93	25.49	0.99	92.53	2,306.74		204.03	5,086.36		1.0 (elect gen)	0.025	0.055	0.00027	1.4 (elect gen)	0.48	1.05	0.0051
Sub-bituminous coal	17.25	26.48	0.99	96.12	1,658.11		211.95	3,656.13									
Lignite	14.21	26.3	0.99	95.47	1,356.61		210.51	2,991.33									
Coke	24.80	27.85	0.99	101.10	2,507.17		222.92	5,528.31									
Unspecified (elec gen)	20.63	25.98	0.99	94.31	1,945.56		207.95	4,289.96									
Unspecified (indus)	23.03	25.75	0.99	93.47	2,151.84		206.11	4,744.81									
<b>Biofuels</b>																	
Wood and wood waste	15.38 MMBtu /short	25.6	0.995	92.93	1,429.23 /short		204.91	3,135.2 /short		30.1 (ind/elect gen)	0.753	1.659	0.0081	4.01 (ind/elect gen)	1.19	2.63	0.0129
Landfill gas (50/50)	502.5 Btu/cu ft.	14.2	0.995	51.81	.0260 /cf		114.24	.05733 /cf									
Biodiesel					9.29 /gal			20.48 /gal	860.35 /gal								
Ethanol (100)	3.539 MMBtu/bbl	17.99	0.99	65.30	5.5 /gal		143.99	12.13 /gal	509.46 /bbl								

Note: it is assumed the combustion of biomass and biofuels does not contribute to net CO2 emissions. As a result, Partners are required to list biomass CO2 emissions in terms of total gas but the emissions are not included in the overall CO2-equivalent emissions corporate inventory.

Note: CH4/N2O emissions factors for all mobile sources are dependent on many variables; for mobile sources consult the EPA Guidance Protocol

Note: CH4/N2O emissions factors for all mobile sources are dependent on many variables; for mobile sources consult the EPA Guidance Protocol

% of "unspecified coal"

Use the CH4/N2O emissions factors above for all coal types

Note: CH4 and N2O factors for wood are significant. All fossil fuels are less than 1% compared to the factors for CO2.

Note: CH4/N2O emissions factors for all mobile sources are dependent on many variables; for mobile sources consult the EPA Guidance Protocol

## Conversion Factors used in this inventory

### Mass

1 pound (lb)	453.6 grams (g)	0.4536 kilograms (kg)	0.0004536 metric tons (tonne)
1 kilogram (kg)	2.205 pounds (lb)		.0011023 short tons
1 short ton (ton)	2'000 pounds (lb)	907.2 kilograms (kg)	.9072 metric tons
1 metric ton	2'205 pounds (lb)	1'000 kilograms (kg)	1.1023 short tons (tons)

### Volume

1 cubic foot (ft <sup>3</sup> )	7.4805 US gallons (gal)	0.1781 barrel (bbl)	
1 cubic foot (ft <sup>3</sup> )	28.32 liters (L)	0.02832 cubic meters (m <sup>3</sup> )	
1 US gallon (gal)	0.0238 barrel (bbl)	3.785 liters (L)	0.003785 cubic meters (m <sup>3</sup> )
1 barrel (bbl)	42 US gallons (gal)	158.99 liters (L)	0.1589 cubic meters (m <sup>3</sup> )
1 litre (L)	0.001 cubic meters (m <sup>3</sup> )	0.2642 US gallons (gal)	
1 cubic meter (m <sup>3</sup> )	6.2897 barrels (bbl)	264.2 US gallons (gal)	1,000 liters (L)

### Energy

1 kilowatt hour (kWh)	3,412 Btu (btu)	3,600 kilojoules (KJ)	
1 megajoule (MJ)	0.001 gigajoules (GJ)		
1 gigajoule (GJ)	0.9478 million Btu (million btu)	277.8 kilowatt hours (kWh)	
1 Btu (btu)	1,055 joules (J)		
1 million Btu (million btu)	1.055 gigajoules (GJ)	293 kilowatt hours (kWh)	
1 therm (therm)	100,000 btu	0.1055 gigajoules (GJ)	29.3 kilowatt hours (kWh)

### Other

kilo	1,000		
mega	1,000,000		
giga	1,000,000,000		
tera	1,000,000,000,000		
1 psi	14.5037 bar		
1 kgf / cm <sup>3</sup> (tech atm)	1.0197 bar		
1 atmosphere (atm)	0.9869 bar	101.325 kilo pascals	14.696 pounds per square inch (psia)
1 mile (statue)	1.609 kilometers		
1 metric ton CH <sub>4</sub>	21 metric tons CO <sub>2</sub> equivalent		
1 metric ton N <sub>2</sub> O	310 metric tons CO <sub>2</sub> equivalent		
1 metric ton carbon	3.664 metric tons CO <sub>2</sub>		

Global Warming Potentials and Atmospheric Lifetimes (years)		
Greenhouse Gas	Gas Atmospheric Lifetime GWP <sup>a</sup>	Global Warming Potential
Carbon dioxide (CO <sub>2</sub> )	50-200	1
Methane (CH <sub>4</sub> ) <sup>b,c</sup>	12 +/- 3	25
Nitrous oxide (N <sub>2</sub> O) <sup>c</sup>	120	298
HFC-23 <sup>c</sup>	264	14,800
HFC-125 <sup>c</sup>	32.6	3,500
HFC-134a <sup>c</sup>	14.6	1,100
HFC-143a <sup>c</sup>	48.3	4,470
HFC-152a <sup>c</sup>	1.5	124
HFC-227ea <sup>c</sup>	36.5	3,220
HFC-236fa <sup>c</sup>	209	9,810
HFC-4310mee <sup>c</sup>	17.1	1,640
CF <sub>4</sub>	50,000	6,500
C <sub>2</sub> F <sub>6</sub>	10,000	9,200
C <sub>4</sub> F <sub>10</sub>	2,600	7,00
C <sub>6</sub> F <sub>14</sub>	3,200	7,400
SF <sub>6</sub> <sup>c</sup>	3,200	22,800

Source: Unless otherwise noted by note 'c' below, IPCC's Fourth Assessment Report (2007) GWPs.

a using a 100 year time horizon

b The methane GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor.

c Effective January 1, 2014, the Environmental Protection Agency, through issuance of a final rule, raised the GWP for methane and several classes of hydrofluorocarbons, while lowering the GWP for both nitrous oxide and sulfur hexafluoride.

The indirect effect due to the production of CO<sub>2</sub> is not included.

## Color key to calculations in the Entergy GHG Inventory

The colored heading cells in each worksheet of this GHG inventory enable inventory managers and users update and understand the role of each step of the calculation process.

<b>Yellow</b>	Specific fuel or gas calculated	This heading identifies the fuel and emissions being calculated below it.
<b>Red</b>	Annual activity data input	This is an input cell for company activity or usage data related to this emissions source for a given facility, source or even corporate-wide. Examples of input data are gallons of gasoline, lbs of CO2 (provided as CEM data), or square footage of building space occupied by the company. This activity data is currently identified in the units provided during the completion of PNM's GHG inventory for years 2001-2003. For some de minimus emissions sources (such as fugitive HFCs from building space
<b>Orange</b>	Calculation constant	This cell contain as constant (coefficient) such as a conversion factor or unit measurement and does not to be changed annually unless there is a change to an emissions factor, input units or facility status.
<b>Green</b>	Calculation conversion subtotal	This figure is calculated automatically and is a subtotal or unit conversion resulting from a spreadsheet calculation such as MMBtu converted from mcf or gallons. This cell contains an emissions or conversion factor in its formula.
<b>Blue</b>	Emissions source total	This figure is calculated automatically and is a total of CO2e (CO2-equivalent) for a given emissions source (e.g. a facility or equipment type) and the sum of individual sources is carried into the annual corporate emissions table. This cell contains an emissions or conversion factor in its formula.
<b>123.45</b>	Emissions source total	Bolded cells contain a figure for total emissions in CO2e for that source and are carried to the corporate emissions totals sheet for emissions source comparison.