2018 Entergy Corporate GHG Emissions breakdown by category

All numbers represent CO2 equivalents (CO2e) Unhide columns I - U for additional calculations and conversions -->

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
Direct Emission Sources	Stationary Combustion	Power generating units (includes emergency and backup generators)	CO2	39,644,952	35,965,295	87.9%	Stationary Combustion CEM
			CH4	15,735	14,275	0.0%	Stationary Combustion CEM
			N2O	87,398	79,286	0.2%	Stationary Combustion CEM
		Small stationary combustion sources (co-located at generation stations and stand alone units)	CO2, CH4, N2O	296,959	269,397	0.7%	All small stat cbn totals
		Biomass power generation	CO2	0	0	0.0%	NA
	Mobile Combustion	Corporate fleet	CO2	51,557	46,771	0.1%	Mobile Combustion
			CH4	76	69	0.0%	Mobile Combustion
			N2O	404	366	0.0%	Mobile Combustion
		Biomass fleet	CO2	0	0	0.0%	NA
	Fugitive Emissions	Natural gas transmission and distribution	CH4	70,238	63,718	0.2%	Fugitive CH4-NG T&D
		Electricity transmission and distribution	SF6	261,989	237,672	0.6%	Fugitive SF6
		Cooling/air-conditioning (building, mobile and nuclear cooling eqpt)	HFCs	6,161	5,589	0.0%	Fugitive HFCs
	Process emissions	none applicable	NA	0	0	0.0%	NA
Total Emissions from Direct Sources				**40,435,468**	**36,682,440**	**89.7%**	
Indirect Emission Sources	Purchased Electricity	Power purchased for business operations outside Entergy service territory	CO2	36,446	33,063	0.1%	Purchased power
	T&D losses	Entergy purchased power consumed on Entergy T&D system	CO2, CH4, N2O	132,829	120,500	Note: these emissions are included within the Optional emissions	Purchased power
Total Emissions from Indirect Sources				**169,274**	**153,563**		
Optional Emissions Sources	Purchased power (controllable)	Controllable purchased power sold to customers	CO2, CH4, N2O	3,758,378	3,409,543	8.3%	Purchased power
	Purchased power (uncontrollable)	Uncontrollable purchased power sold to customers	CO2, CH4, N2O	*Not Applicable beginning in 2014 - See *** Note at the bottom of the Purchased power tab*			
	Product combustion	Combustion of natural gas distributed to customers (Scope 3 for Entergy, Scope 1 for customers)	CO2, CH4, N2O	811,260	735,963	1.8%	Natural Gas Combustion
	Employee Commuting	Estimation of emissions resulting from employee commutes	CO2, CH4, N2O	51,557	46,772	0.1%	Employee Commuting
Total Emissions from Optional Sources				**4,621,195**	**4,192,277**	**10.2%**	
GHG Stabilization Commitment Total (progress toward third GHG commitment)				**43,700,289**	**39,644,235**	**96.9%**	
Total Corporate emissions				**45,093,109**	**40,907,780**	**100.0%**	

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

2018

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)	CO2 from CEM: Total unit CO2 (1) short tons CO2	CO2 from CEM: Entergy equity share of unit CO2 emissions short tons CO2	CH4: Entergy share CH4 emissions from generation (2) short tons CO2e	N2O: Entergy share N2O emissions from generation (3) short tons CO2e	Total Facility CO2e in short tons	Total CO2e in metric tons
Acadia (Unit 2)	CT3	580	LA	100%	Natural Gas	612,524.00	612,524.00	287.89	343.01		
Acadia (Unit 2)	CT4		LA	100%	Natural Gas	612,524.00	612,524.00	287.89	343.01		
Totals							1,225,048.00	575.77	686.03	1,226,309.80	1,112,489.54
Attala	A01	480	MS	100%	Natural Gas	492,643.50	492,643.50	231.54	275.88		
Attala	A02		MS	100%	Natural Gas	492,643.50	492,643.50	231.54	275.88		
Totals		480					985,287.00	463.08	551.76	986,301.85	894,757.98
Baxter Wilson	1	550	MS	100%	Gas/Oil	573,267.00	573,267.00	269.44	321.03		
Baxter Wilson	2	771	MS	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Totals		1321					573,267.00	269.44	321.03	573,857.47	520,594.74
Big Cajun 2[5]	2B3 (3)	257	LA	42%[5]	Coal	3,240,827.00	1,361,147.34	367.51	6,887.41		
Totals		257					1,361,147.34	367.51	6,887.41	1,368,402.26	1,241,393.64
Calcasieu Plant	GTG1	322	LA	100%	Natural gas	81,049.00	81,049.00	38.09	45.39		
Calcasieu Plant	GTG2		LA	100%	Natural gas	86,045.00	86,045.00	40.44	48.19		
Totals		322					167,094.00	78.53	93.57	167,266.11	151,741.26
Gerald Andrus	1	761	MS	100%	Gas/Oil	604,812.00	604,812.00	284.26	338.69		
Totals		761					604,812.00	284.26	338.69	605,434.96	549,241.35
Hinds Energy Facility	H01	456	MS	100%	Gas CT	646,946.50	646,946.50	304.06	362.29		
Hinds Energy Facility	H02		MS	100%	Gas CT	646,946.50	646,946.50	304.06	362.29		
Totals							1,293,893.00	608.13	724.58	1,295,225.71	1,175,009.00
Hot Spring Energy Facility	CT-1	620	AR	100%	Gas CT	724,122.50	724,122.50	340.34	405.51		
Hot Spring Energy Facility	CT-2		AR	100%	Gas CT	724,122.50	724,122.50	340.34	405.51		
Totals							1,448,245.00	680.68	811.02	1,449,736.69	1,315,179.00
Independence	1	472	AR	56.5%	Coal	5,336,445.00	3,015,091.43	814.07	15,256.36		
Independence	2	332	AR	39.37%	Coal	5,250,189.00	2,066,999.41	558.09	10,459.02		
Totals		804					5,082,090.83	1,372.16	25,715.38	5,109,178.38	4,634,968.66
Lake Catherine	4	547	AR	100%	Gas/Oil	209,557.00	209,557.00	98.49	117.35		
Totals		547					209,557.00	98.49	117.35	209,772.84	190,302.72
Lewis Creek	1	260	TX	100%	Gas/Oil	609,003.00	609,003.00	286.23	341.04		
Lewis Creek	2	260	TX	100%	Gas/Oil	561,712.00	561,712.00	264.00	314.56		
Totals		520					1,170,715.00	550.24	655.60	1,171,920.84	1,063,148.70
Little Gypsy	1	244	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Little Gypsy	2	436	LA	100%	Gas/Oil	556,282.00	556,282.00	261.45	311.52		
Little Gypsy	3	573	LA	100%	Gas/Oil	461,931.00	461,931.00	217.11	258.68		
Totals		1253					1,018,213.00	478.56	570.20	1,019,261.76	924,658.71
Ninemile Point	3	135	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Ninemile Point	4	748	LA	100%	Gas/Oil	1,756,130.00	1,756,130.00	825.38	983.43		
Ninemile Point	5	763	LA	100%	Gas/Oil	1,052,780.00	1,052,780.00	494.81	589.56		
Ninemile Point	6A	280	LA	100%	CCGT	865,671.00	865,671.00	406.87	484.78		
Ninemile Point	6B	280	LA	100%	CCGT	865,671.00	865,671.00	406.87	484.78		
Totals		1646					4,540,252.00	2,133.92	2,542.54	4,544,928.46	4,123,089.74
Ouachita Power	CTGEN1	789	LA	100%	Natural gas	627,886.00	627,886.00	295.11	351.62		
Ouachita Power	CTGEN2		LA	100%	Natural gas	453,362.00	453,362.00	213.08	253.88		

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
Ouachita Power	CTGEN3		LA	100%	Natural gas	545,842.00	545,842.00	256.55	305.67		
Totals		0					1,627,090.00	764.73	911.17	1,628,765.90	1,477,591.57
Perryville	1-1	718	LA	100%	Gas/Oil	803,037.50	803,037.50	377.43	449.70		
Perryville	1-2		LA	100%	Gas/Oil	803,037.50	803,037.50	377.43	449.70		
Perryville	2-1		LA	100%	Gas/Oil	31,298.00	31,298.00	14.71	17.53		
Totals		0					1,637,373.00	769.57	916.93	1,639,059.49	1,486,929.76
R S Cogen[4]	RS-5	425	LA	50%	Natural gas	818,936.70	409,468.35	192.45	229.30		
R S Cogen[4]	RS-6		LA	50%	Natural gas	784,441.90	392,220.95	184.34	219.64		
Totals		425					801,689.30	376.79	448.95	802,515.04	728,029.40
R S Nelson	4	500	LA	100%	Gas/Oil	0.00	0.00	0.00	0.00		
R S Nelson[6]	6	385	LA	80.9%	Coal	3,426,142.00	2,771,748.88	748.37	14,025.05		
Totals		885					2,771,748.88	748.37	14,025.05	2,786,522.30	2,527,890.51
Rex Brown	3	349	MS	100%	Gas/Oil	15.00	15.00	0.01	0.01		
Rex Brown	4		MS	100%	Gas/Oil	152,057.00	152,057.00	71.47	85.15		
Totals		0					152,072.00	71.47	85.16	152,228.63	138,099.49
Sabine	1	230	TX	100%	Gas/Oil	190,449.00	190,449.00	89.51	106.65		
Sabine	2	230	TX	100%	Gas/Oil	0.00	0.00	0.00	0.00		
Sabine	3	420	TX	100%	Gas/Oil	696,338.00	696,338.00	327.28	389.95		
Sabine	4	530	TX	100%	Gas/Oil	1,077,274.00	1,077,274.00	506.32	603.27		
Sabine	5	480	TX	100%	Gas/Oil	724,652.00	724,652.00	340.59	405.81		
Totals		1890					2,688,713.00	1,263.70	1,505.68	2,691,482.37	2,441,671.74
Sterlington	7AB	102	LA	100%	Gas/Oil	2,430.50	2,430.50	1.14	1.36		
Sterlington	7C	101	LA	100%	Gas/Oil	2,430.50	2,430.50	1.14	1.36		
Totals		203					4,861.00	2.28	2.72	4,866.01	4,414.37
Union Power Station[7]	CT 1	495	AR	100%	Gas	530,569.50	530,569.50	249.37	297.12		
Union Power Station	CT 2		AR	100%	Gas	530,569.50	530,569.50	249.37	297.12		
Union Power Station	CT 3	495	AR	100%	Gas	494,204.00	494,204.00	232.28	276.75		
Union Power Station	CT 4		AR	100%	Gas	494,204.00	494,204.00	232.28	276.75		
Union Power Station	CT 5	495	AR	100%	Gas	520,896.50	520,896.50	244.82	291.70		
Union Power Station	CT 6		AR	100%	Gas	520,896.50	520,896.50	244.82	291.70		
Union Power Station	CT 7	495	AR	100%	Gas	452,627.00	452,627.00	212.73	253.47		
Union Power Station	CT 8		AR	100%	Gas	452,627.00	452,627.00	212.73	253.47		
Totals		1980					3,996,594.00	1,878.40	2,238.09	4,000,710.49	3,629,383.51
Waterford	1	411	LA	100%	Gas/Oil	451,556.00	451,556.00	212.23	252.87		
Waterford	2	411	LA	100%	Gas/Oil	550,616.00	550,616.00	258.79	308.34		
Waterford	4		LA	100%	Oil	9,782.00	9,782.00	4.60	5.48		
Totals		822					1,011,954.00	475.62	566.69	1,012,996.31	918,974.80
White Bluff	1	465	AR	57%	Coal	3,819,075.00	2,176,872.75	587.76	11,014.98		
White Bluff	2	481	AR	57%	Coal	5,432,215.00	3,096,362.55	836.02	15,667.59		
Totals		946					5,273,235.30	1,423.77	26,682.57	5,301,341.64	4,809,296.24
Totals						**52,463,311.60**	**39,644,951.65**	**15,735.48**	**87,398.17**	39,748,085.31	36,058,856.44
						short tons CO2	short tons CO2	short tons CO2e	short tons CO2e		
						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

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
						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://camddataandmaps.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.

Small combustion sources at all generation stations - Updated for 2017

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 (CO2e) 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	CO2e Emissions reported under Mandatory Reporting Rule (short tons of all gases in 2017) [obtained from Power Generation unless otherwise noted]	CO2e Emissions reported under Mandatory Reporting Rule (metric tons of all gases in 2017) [obtained from Power Generation unless otherwise noted]	
	Fossil fuel generating stations			
	Atalla	0.0	0.0	
	Baxter Wilson	0.0	0.0	
	Buras	0.0	0.0	
	Calcasieu	0.0	0.0	
	Gerald Andrus	4,348.0	3,944.5	
	Hinds County	1,422.4	1,290.4	
	Hot Spring	7.4	6.7	
	Independence	521.4	473.1	(~50% ownership share)
	Lake Catherine	1,169.5	1,061.0	
	Lewis Creek	111,606.0	101,249.0	
	Little Gypsy	928.8	842.6	
	RS Nelson	0.0	0.0	(80.9% ownership share)
	Ninemile Point	5,794.3	5,256.6	
	Ouachita	140.2	127.2	
	Perryville	2,611.9	2,369.5	
	Rex Brown	628.3	570.0	
	Sabine	94,853.7	86,051.3	
	Sterlington	-	-	Below reporting threshold
	Union	-	-	No Subpart C affected sources
	Waterford 1&2	963.2	873.8	
	White Bluff	163.0	147.9	(57% ownership share)
	Power Gen TOTAL	**225,158.3**		

Nuclear generating stations[2][3]	Plant total small sources CO2e (short tons using 2005 estimate calculations)	
Pilgrim	14,818.0	Closure expected May 31, 2019
River Bend	687.0	
Indian Point 2	18,558.0	Slated to close in 2020
Indian Point 3	80.0	Slated to close in 2021
Palisades [1]	7,757.0	Slated to close in 2022
Waterford 3	7,042.0	
Grand Gulf	11,131.0	
Arkansas Nuclear 1&2	11,728.0	
Nuclear TOTAL (short tons)	**71,801.0**	

All small source totals	**296,959.3**

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

Note: The information below was collected and results calculated based on 2016 data.

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**	2,671,325	**Based on 2017 Entergy data provided by Carolanne Nichols**, 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**	842,819	
BiFuel-Gasoline/Ethanol	**S**	705,341	
BiFuel-Gasoline/CNG	**A**	19	
BiFuel-Gasoline/LPG	**B**	25	
BiFuel-Diesel/Electricity	**F**	0	
Propane	**P**	77	
CNG	**C**	62	
LPG	**L**	253	
Green Plug-In JEMS	**J**	35,557	
BiFuel-Gasoline/Electricity	**H**	1,770	
Unknown	-	0	
Jet fuel		613,272	**Total 2016 Fuel Purchase - from John Shilstone**
Total gallons consumed		**4,870,520**	

Total units of each fuel type

Fuel	Total units consumed (GALLONS) - from inputs above	conversion to energy content (MMBtu/gallon)	Total MMBtu consumed	CO2 using EPA Climate Leaders Efs: Emissions Factor (lbs CO2/MMBtu)	CO2 using EPA Climate Leaders Efs: Total CO2 Emissions (short tons)	CO2 using WRI/WBCSD Protocol Efs: Emissions Factor (kg CO2/Gallon)	CO2 using WRI/WBCSD Protocol Efs: Total CO2 Emissions (short tons)
Diesel	2,706,882	0.1387	375,445	159.68	29,975	10.15	30,285
Gasoline	1,479,436	0.1251	185,077	156.44	14,477	8.81	14,367
Ethanol (E85)	70,534	0.0843	5,946	149.59	445	5.56	432
CNG	64	0.1251	8	116.41	0	See note	0
LPG	256	0.092	24	138.76	2	5.79	2
Propane	77	0.092	7	138.32	0	5.79	0
Jet fuel	613,272	0.135	82,792	154.72	6,405	9.57	6,469
Totals	4,870,520		649,298		**51,304**		**51,557**

Note: Emissions from Ethanol are considered "biogenic" emissions are do not contribute to net CO2 additions to the atmosphere. They are include 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	1,479,436	0.22	325.48	0.366	108.92
Diesel	2,706,882	0.26	703.79	0.790	235.53
Jet Fuel	613,272	0.26	159.45	0.179	53.36
Propane	77	0.26	0.02	0.000	0.01
CNG	64	0.26	0.02	0.000	0.01
LPG	256	0.26	0.07	0.000	0.02
Ethanol	70,534	0.26	18.34	0.021	6.14
total					**403.98**

CH4 from mobile sources					
CH4	gallons consumed	g CH4 /gal fuel	total kg CH4	short tons	CO2e short tons
Gasoline	1,479,436	0.50	739.72	0.831	20.77
Diesel	2,706,882	0.58	1,569.99	1.763	44.08
Jet Fuel	613,272	0.58	355.70	0.399	9.99
Propane	77	0.58	0.04	0.000	0.00
CNG	64	0.58	0.04	0.000	0.00
LPG	256	0.58	0.15	0.000	0.00
Ethanol	70,534.10	0.58	40.91	0.046	1.15
total					**75.99**

Total N2O and CH4 CO2e	**479.97**

Total Estimated Emissions from Mobile Sources (short tons CO2e)	**52,037**

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 2016. 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) Subpart W, Fugitive	Total C02 equivalent emissions (short tons)
Entergy Louisiana, L.L.C. Gas Business	9,860.2	10,869.0
Entergy New Orleans, Inc. Gas Business	31,540.8	34,767.7
SUB-TOTAL		**45,636.7**

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	See note 3
Vented Emissions from Storage Facilities	1	217.3	217.30	239.53	5,988.30	See note 4
SUB-TOTAL					**24,600.80**	

TOTALS FROM FUGITIVE NATURAL GAS **70,238** **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.
- Fugitive and oxidized CO2 are known sources of GHG emissions from a natural gas T&D system; however these were not calculated as they are determined to be de minimus compared to CH4 from this source.

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.
(4) EF from GRI

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 methdology, can be found in the GHG Monitoring Plan required by the EPA Mandatory Reporting Rule.

2018 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)
11.49	22,800	**261,988.6**	**237,671.9**

(1) Converted 22,981.46 pounds to short tons - the amount of emissions reported for CY 2017.

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 Update - No changes made
2018 Update - No changes made

	square footage air-conditioned	EF: fugitive HFCs (short tons CO2e/sq ft) *	Facility fugitive HFC (short tons CO2e)
Entergy owned space	2,158,989	**0.00078**	1,683
Entergy capital lease space	1,708,276	**0.00078**	1,332
Generation plant space	1,700,000	**0.00078**	1,325
Total Fugitive HFCs	5,567,265		4,340

Generation plant space assumes 50,000 sq. ft. per plant; 34 plants assumed.

From Nuclear facility

	lbs HFC charged to equipment	EF: fugitive HFCs as CO2e (GWP=1300)	Facility fugitive HFC (short tons CO2e)
	0	1300	0

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

From all Entergy-owned vehicles

	Total CO2 from mobile sources (short tons)	EF: HFC as % of CO2 emissions **	Facility fugitive HFC (short tons CO2e)
Vehicular A/C	52,037	3.50%	1,821

Total CO2 from all mobile source fuels are included

Total fugitive HFC emissions **6,161** 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.themcdermottgroup.com/Newsworthy/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 Gudance, 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

HFC Emissions Estimate				**CO2 Emissions Estimate**				**Emissions factor**
Vehicle type	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%**

Power purchased to serve utility customers

Controllable power purchases - 2018

				2018			
Code	Plant description	FACILITY CODE (SPO)	State	Total Entergy purchased from plant (MWh)	Unit/Plant-Specific Emission Factor (lbs CO2/MWh), Based on Total Output [from eGRID2016 data, released 2/15/2018 unless otherwise noted]	CO2 emissions from puchased power (short tons) [using eGRID Unit-Specific Factors (when available)]	Comments/Notes
[redacted]				65,831.0	14.9	490.6	
				3,019,521.1	729.1	1,100,752.8	
				1,303,896.1	872.6	568,914.6	
				93,424.0	1,517.9	70,905.4	
				26,280.0	-	-	
				1,512,866.2	1,062.6	803,793.4	
				2,819,176.3	822.7	1,159,692.1	
				215,150.4	-	-	
				32,760.0	2,360.7	38,668.8	
Totals				**9,088,905.1**		**3,743,217.8**	**short tons CO2**
N2O emissions from controlled purchases (SERC MS Valley Total Output Rate, eGRID2016)				0.007	lbs/MWh	**9,479.7**	**short tons CO2e**
CH4 emissions from controlled purchases (SERC MS Valley Total Output Rate, eGRID2016)				0.050	lbs/MWh	**5,680.6**	**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.

Total CO2e from Controllable Purchases

TOTAL	**3,758,378.1**	**short tons CO2e**

Indirect Emissions associated with purchased power	**Totalpchsd power MWh**	**Loss factor %**	**Total power lost MWh**		
CO2 emissions from T&D losses of purchased power on Entergy system	**9,088,905**	3.485%	316,725	130,441.3	short tons CO2
CH4 emissions from T&D losses of purchased power on Entergy system				27.7	short tons CO2e
N2O emissions from T&D losses of purchased power on Entergy system				2,359.6	short tons CO2e
			TOTAL	**132,828.7**	**short tons CO2e**

Grid Power purchased for EWC plants/operations (non-Entergy power)

Plant and associated facilities[2]	2016 Electricity Usage (kwh)	eGRID Subregion	eGRID2016 Emission Factor (lb CO2e/MWh)	Estimated Emissions (short tons CO2e)
Indian Point Energy Center (IPEC)	96,050,000	NYCW	637.08	30,595.7
James A. Fitzpatrick (JAF)	15,799,000	NYUP	295.94	2,337.8
Pilgrim (PIL)	12,461,000	NEWE	563.72	3,512.2
Palisades (PAL)[1]	-	RFCM	1,278.90	0.0
TOTAL	**124,310,000**		**TOTAL**	**36,445.7 short tons CO2e**

(1) Provided by Anthony Dichman based on Station Service Purchases from ISOs. Calculations on file.
(2) Vermont Yankee entered decommission status and did not operate beginning in 2016 - according to Nuclear, their power usage is negligible; so this was removed beginning in 2016.

*** **2014 NOTE** - Due to the transition in late 2013 to MISO, Entergy is no longer quantifying emissions from "non-controllable purchases" due to the fact that there is a risk that double counting may occur.

Operating Company	Generation GWh	Purchases GWh	Total Power	Losses	% Lost
EAI	26,428	4,134	30,562	1,300	**0.042536483**
ELL	40,762	23,112	63,874	2,125	**3.32686226**
EMI	8,633	5,999	14,632	705	**4.81820667**
ENOI	2,677	4,795	7,472	119	**1.59261242**
ETI	6,620	14,278	20,898	308	**1.473825246**
SERI	6,623	-	6,623	(52)	**-0.785142685**
ELIM		(14,783)	(14,783)		
TOTALS*	**91,743**	**37,535**	**129,278**	**4,505**	**0.034847383**

***Per Kyle Sennino**

Source: 2017 Stat Rpt Pages 35 and 36

4,505.00 **Total Loss**
129,278.00 **Total Power**
0.0348 % Loss

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

Values below represent those reported in the 2016 Annual GHG Inventory Report submitted by Gas Operations and provided to ESP for each location.

Gas Operation	CO2 equivalent emissions from supplier subparts LL-QQ (metric tons) Subpart NN Product Combustion	Total CO2 equivalent emissions (short tons)
Entergy Louisiana, L.L.C. Gas Business	328,015.6	361,574.9
Entergy New Orleans, Inc. Gas Business	407,948.0	449,685.2
TOTAL	**735,963.6**	**811,260.0**

Employee Commuting Emission Calculations

Commuter Travel Calculations

Commuting Method (more than 75% of time)	
Number of Employees =	**14000**
Walkers =	144
Bikers =	44
Carpoolers =	1154
Vanpoolers =	33
Public Transporters =	67
Individual Drivers =	12558
Total	14000

Survey # (n)	%
13	1.03%
4	0.32%
104	8.24%
3	0.24%
6	0.48%
1132	89.70%
1262	100.00%

Commuting Distance (miles one-way)						
	Low	**Avg**	**High**	**# Employees**	**SURVEY RESPONSES (#)**	**SURVEY RESPONSES (%)**
	0.0	0.5	0.9	202	25	1%
	1.0	3.0	5.0	1553	192	11%
	6.0	8.0	10.0	2572	318	18%
	11.0	15.5	20.0	3227	399	23%
	21.0	25.5	30.0	2548	315	18%
	31.0	35.5	40.0	3898	482	28%
Total	70.0	88.0	105.9	14000	1731	100%

Distribution of Commuting Method by Miles						
	Individual Drivers	**Carpoolers**	**Vanpoolers**	**Public**	**Bikers**	**Walkers**
	181	-	-	1	4	108
	1393	-	-	7	40	36
	2307	-	-	12	-	-
	2895	-	-	15	-	-
	2285	-	-	12	-	-
	3497	1154	33	19	-	-
Total	12558	1154	33	67	44	144

Method of Transportation	Miles Traveled by Method (using midpoint of mileage range)			Estimated Emissions			
	one way	**round trip**	**yearly miles**	**yearly gallons**	**lbs**	**short tons**	**met tons**
Walkers =	157	314	66811	-	-	-	
Bikers =	122	244	51890	-	-		
Carpoolers =	40957	81914	17447772	290796	5815924	2908	2638
Vanpoolers =	1181	2363	503301	3355	67107	34	30
Public Transporters =	1325	2650	564467	2258	45157	23	20
Individual Drivers =	249991	499981	106496040	4259842	85196832	42598	38645
Total			125130281	4556251	91125020	45563	41334

Employee Commuter Travel 2014

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	106,496,040	39,890,328	43,971	39,891	77.8%
Vanpool	503,301	268,927	296	269	13.1%
Public Transportation	564,467	77,304	85	77	3.8%
Carpool	17,447,772	6,535,429	7,204	6,535	5.3%
Bikers	51,890	-	-	-	0.0%
Walkers	66,811	-	-	-	0.0%
Total	125,130,281	46,771,989	51,557	46,772	100.0%

Commuting method (more than 75% of the time)	Miles travelled per year	Greenhouse gas	Total emissions kg CO2e	Total emissions short tons CO2e	Total Emissions metric tons CO2e	% total commuting emissions
Individual car	106,496,040	CO2	38,764,559	42,730	38,765	82.9%
		CH4	69,329	76	69	0.1%
		N2O	1,056,441	1,165	1,056	2.3%
Vanpool	503,301	CO2	261,213	288	261	0.6%
		CH4	380	0.42	0.38	0.0%
		N2O	7,333	8	7	0.0%
Public Transportation	564,467	CO2	77,077	85	77	0.2%
		CH4	25	0.03	0.02	0.0%
		N2O	201	0.22	0.20	0.0%
Carpool	17,447,772	CO2	6,350,989	7,001	6,351	13.6%
		CH4	11,358	12.52	11.36	0.0%
		N2O	173,082	191	173	0.4%
Bikers	51,890	CO2	-	-	-	0.0%
		CH4	-	-	-	0.0%
		N2O	-	-	-	0.0%
Walkers	66,811	CO2	-	-	-	0.0%
		CH4	-	-	-	0.0%
		N2O	-	-	-	0.0%
Total	125,130,281		46,771.988	**51,557**	**46,772**	**100.0%**

Calculation for Public Transportation	# of miles	Total emissions kg CO2e
50% Bus	282,233	30,246
5% Intercity Rail	28,223	5,231
5% Commuter Rail	28,223	4,864
40% Transit Rail	225,787	36,962
Total	564,467	77,304

EPA Methodology

E=VMT*(EF_{CO2} + EF_{CH4}*0.021 + EF_{N2O}*0.310)
E= total CO2e
VMT= vehicle miles travelled per year
EF_{CO2}= CO2 emissions factor
EF_{CH4}= CH4 emissions factor
EF_{N2O}= N2O emissions factor
0.021= conversion factor
0.310= conversion factor

*used for individual car, carpool and vanpool

E=PMT*(EF_{CO2} + EF_{CH4}*0.021 + EF_{N2O}*0.310)
E= total CO2e
PMT= passenger miles travelled per year
EF_{CO2}= CO2 emissions factor
EF_{CH4}= CH4 emissions factor
EF_{N2O}= N2O emissions factor
0.021= conversion factor
0.310= conversion factor

*used for bus, air and rail travel

Method of travel	EF_{CO2} (kg Co2/vehicle-mile)	EF_{CH4} (g CH4/vehicle-mile)	EF_{N2O}(g N2O/vehicle-mile)
Individual car	0.364	0.031	0.032
Vanpool	0.519	0.036	0.047
Carpool	0.364	0.031	0.032
Bus	0.107	0.0006	0.0005
Short haul airline (domestic)	0.185	0.0104	0.0085
Medium haul airline (continental)	0.229	0.0104	0.0085
Long haul airline (intercontinental)	0.277	0.0104	0.0085
Itercity rail	0.185	0.002	0.001
Commuter rail	0.172	0.002	0.001
Transit rail	0.163	0.004	0.002

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 detrmine the breakdown of CO2, CH4, N20 within total CO2e.

EPA Methodology sourced from EPA website
http://epa.gov/climateleadership/documents/resources/commute_travel_product.pdf
http://www.epa.gov/climateleadership/documents/resources/mobilesource_guidance.pdf

Assumptions
9/80 schedule - all employees commute nine days every two weeks
2 weeks of vacation
12 holidays
For a total of 213 work days per employee per year
Walkers and bike riders all put into 0 to 5 miles
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 Copy of Employee Commuting Emission Estimation 2014.
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
Mileage based off of a survey of 1400 employees.
Data sourced from Copy of Employee Commuting Emission Estimation 2014.

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.

				CO2 Emissions -- kg			CO2 Emissions -- lbs			CH4 Emissions				N20 Emissions			
Fuel type	Heating Value (HHV): custom heating values should be used if available	Carbon content coefficient (kg C/MMBtu) (based on HHV)	Fraction oxidized	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 N20/MMBtu)	EPA emission factor (kg **CO2e**/MMBtu) GWP=298	EPA emission factor (lbs **CO2e**/MMBtu)	N2O (**CO2e**) emissions (**lbs** CO2e N2O/**lb** CO2)
Liquid fossil	**MMBtu/bbl**				kg CO2/gallon	kg CO2/bbl		lbs CO2/gallon	lbs CO2/bbl								
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	Note: CH4/N2O emissions factors for all mobile sources are dependent on many variables; for mobile sources consult the EPA Guidance Protocol							
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
										2.7 (elect gen)	0.068	0.149	0.0009	.54 (elect gen)	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	1.8 (ind)	0.045	0.099	0.0006	1.8 (ind)	0.16092	0.355	0.0021
										2.7 (elect gen)	0.068	0.149	0.0009	2.7 (elect gen)	0.16092	0.355	0.0021
LPG	3.861	17.25	0.99	62.62	5.65	237.45	138.07	12.47	523.58								
Propane	3.824	17.2	0.99	62.44	5.71	239.90	137.67	12.59	528.98								
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	Note: CH4/N2O emissions factors for all mobile sources are dependent on many variables; for mobile sources consult the EPA Guidance Protocol							
Isobutane	4.162	17.75	0.99	64.43	6.42	269.52	142.07	14.15	594.29								
E85	ee 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	0.00									
Gaseous fossil	**MMBtu/mcf**				cu. ft.			cu. ft.									
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
Solid fossil	**MMBtu/short ton**				short ton			short ton									
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
										1.0 (elect gen)	0.025	0.055	0.00027	1.4 (elect gen)	0.48	1.05	0.0051
Bituminous coal	24.93	25.49	0.99	92.53	2,306.74		204.03	5,086.36		% of "unspecified coal"				% of "unspecified coal"			
Sub-bituminous coal	17.25	26.48	0.99	96.12	1,658.11		211.95	3,656.13		Use the CH4/N2O emissions factors above for all coal types							
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									
Biofuels																	
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		Note: CH4 and N2O factors for wood are significant. All fossil fuels are less than 1% compared to the factors for CO2.							
Biodiesel					9.29 /gal			20.48 /gal	860.35 /gal	Note: CH4/N2O emissions factors for all mobile sources are dependent on many variables; for mobile sources consult the							
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.

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^3)	7.4805 US gallons (gal)	0.1781 barrel (bbl)	
1 cubic foot (ft^3)	28.32 liters (L)	0.02832 cubic meters (m^3)	
1 US gallon (gal)	0.0238 barrel (bbl)	3.785 liters (L)	0.003785 cubic meters (m^3)
1 barrel (bbl)	42 US gallons (gal)	158.99 liters (L)	0.1589 cubic meters (m^3)
1 litre (L)	0.001 cubic meters (m^3)	0.2642 US gallons (gal)	
1 cubic meter (m^3)	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^3 (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_4	21 metric tons CO_2 equivalent		
1metric ton N_2O	310 metric tons CO_2 equivalent		
1 metric ton carbon	3.664 metric tons CO_2		

Global Warming Potentials and Atmospheric Lifetimes (years)		
Gas Atmospheric Lifetime GWP[a]		
Greenhouse Gas	**Atmospheric Lifetime**	**Global Warming Potential**
Carbon dioxide (CO2)	50-200	1
Methane (CH4)[b,c]	12 +/- 3	25
Nitrous oxide (N2O)[c]	120	298
HFC-23[c]	264	14,800
HFC-125[c]	32.6	3,500
HFC-134a[c]	14.6	1,100
HFC-143a[c]	48.3	4,470
HFC-152a[c]	1.5	124
HFC-227ea[c]	36.5	3,220
HFC-236fa[c]	209	9,810
HFC-4310mee[c]	17.1	1,640
CF4	50,000	6,500
C2F6	10,000	9,200
C4F10	2,600	7,00
C6F14	3,200	7,400
SF6[c]	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 CO2 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.

Yellow	Specific fuel or gas calculated	This heading identifies the fuel and emissions being calculated below it.
Red	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
Orange	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.
Green	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.
Blue	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.
123.45	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.