

AT&T 2012 International Greenhouse Gas Emissions Inventory Methodology and Process Detail Document

05/24/2013

Overview

The purpose of this document is to provide an overview of the process and activities AT&T used to develop the company's 2012 greenhouse gas (GHG) emissions inventory. The following document provides specific detail on the scope, standards, methodologies and results of AT&T's 2012 inventory efforts.

1. Protocol:

AT&T used the fundamentals of *The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, Revised Edition* by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). In addition, the protocol outlined by the EPA Climate Leaders program, which is founded on WRI principles, was applied to select emission sources to determine emissions.

2. Organizational Boundary:

AT&T has chosen to utilize the Operational Control approach to consolidate GHG emissions. This approach includes any asset or facility in which AT&T has an operating interest in the inventory. For instance, we included both owned and leased assets in our real estate portfolio and mobile fleet in our inventory. We believe that omitting estimated emissions from leased assets would result in a materially incomplete measurement.

AT&T chose to use this approach because it more accurately reflects all operations. However, because there are no uniform and mandatory standards for data acquisition and reporting at this point, it is important to note that AT&T's emissions data cannot accurately be compared to other entities, as their approach might not be comparable to ours.

Consistent with the approach used in reporting its prior inventories, AT&T has included international Scope 1 emissions from ground fleet vehicles, Scope 2 emissions from electric power, and Scope 3 emissions from business air travel.

3. Emission Sources:

The following sources within AT&T's operational footprint were included in the 2012 Inventory:

- Emission Source
 - Scope 1 (Direct):
 - Natural Gas
 - Propane
 - #2 Fuel Oil (Diesel)
 - Ground Fleet
 - Flight Operations
 - Engines (Stationary Generators)
 - Engines (Portable Generators)
 - Refrigerant
 - Scope 2 (Indirect):
 - Purchased Electric Power
 - Purchased Steam

- Scope 3 (Ancillary Indirect):
 - Business Air Travel
 - Business Rental Car Travel

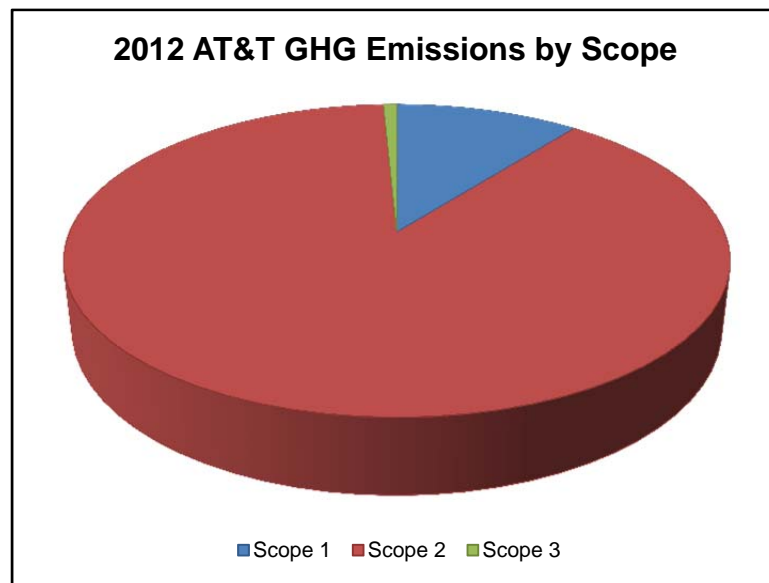
4. Greenhouse Gases

The AT&T 2012 inventory includes measures of carbon dioxide (CO₂), nitrous oxide (N₂O) methane (CH₄) emissions, and hydrofluorocarbons (HFCs), and their carbon dioxide equivalents (CO₂-e).

5. Emission Factors:

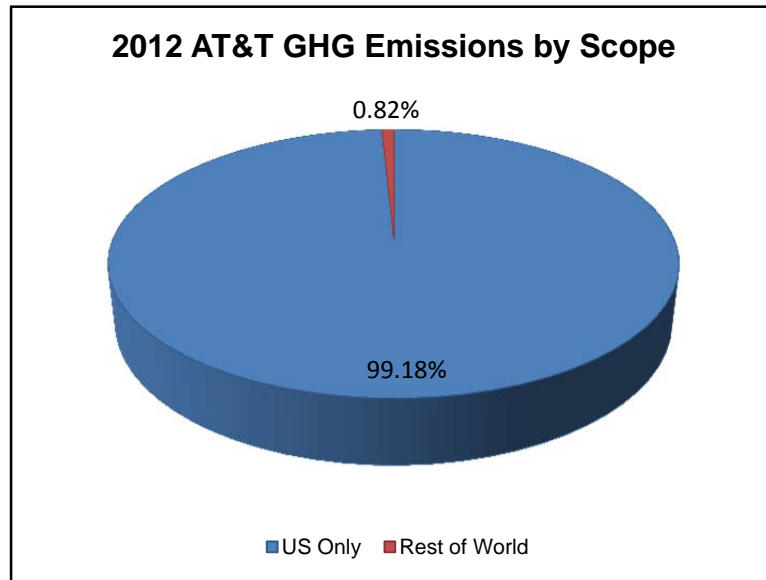
Consistent with prior inventories, AT&T has elected to utilize guidance from the EPA Climate Leaders for emissions calculations in preparing the 2012 GHG Inventory, along with published emission factors from the EPA (including the *Mandatory Reporting Rule* and *Greenhouse Gas Sources & Sinks*), EIA, and the IEA. The emission factors for each greenhouse gas (CO₂, CH₄, N₂O, HFC) were taken from guidance documentation and multiplied by the respective global warming potential (GWP) to derive an emission factor in terms of carbon dioxide equivalents (CO₂-e). Detailed references are listed in Appendix B.

6. AT&T's 2012 Greenhouse Gas Emissions Inventory, by Scope:



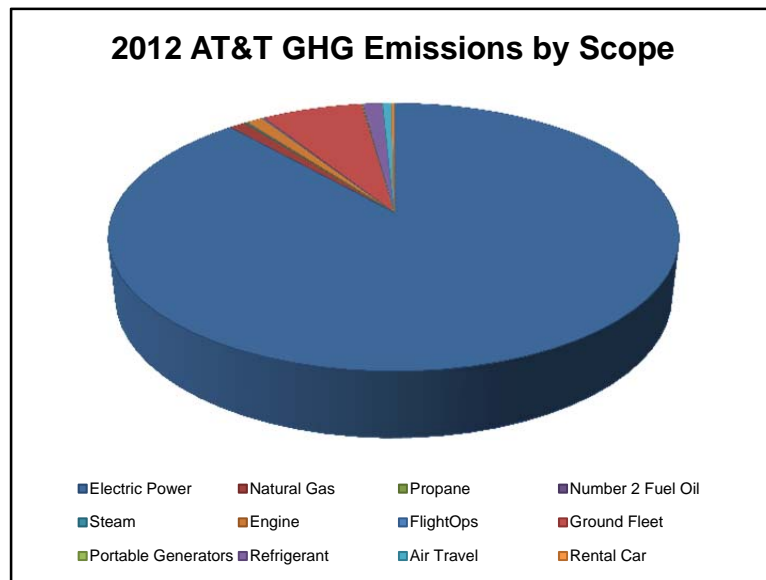
Scope	mtons CO ₂ -e	%
Total	8,912,080	100.00%
Scope 1	948,441	10.64%
Scope 2	7,894,626	88.58%
Scope 3	69,013	0.78%

7. AT&T's 2012 Greenhouse Gas Inventory by Geography



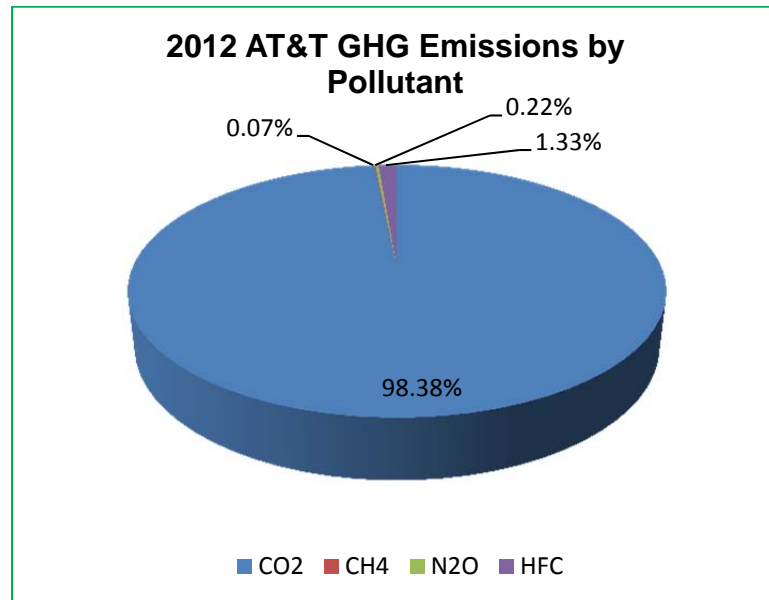
Region	US Only	Rest of World
Scope	mtons CO2-e	mtons CO2-e
Scope 1	945,841	2,600
Scope 2	7,827,238	67,388
Scope 3	66,212	2,801
Total	8,839,291	72,789

8. AT&T's 2012 Greenhouse Gas Emissions Inventory, by Source:



Source	mtons CO2-e	%
Total (mtons CO2e)	8,912,080	100%
Electric Power	7,882,027	88.44%
Natural Gas	96,517	1.08%
Propane	4,688	0.05%
Number 2 Fuel Oil	4,276	0.05%
Steam	12,599	0.14%
Engine	99,197	1.11%
FlightOps	12,332	0.14%
Ground Fleet	605,962	6.80%
Portable Generators	7,182	0.08%
Refrigerant	118,287	1.33%
Air Travel	54,463	0.61%
Rental Car	14,550	0.16%

9. AT&T's 2012 Greenhouse Gas Emissions Inventory, by Pollutant:



Source	CO2-e	CO2	CH4	N2O	HFC
Total (mtons CO2e)	8,912,080	8,767,801	292.30	64.05	118,287
Electric Power	7,882,027	7,875,873	165.09	8.67	-
Natural Gas	96,517	96,422	1.82	0.18	-
Propane	4,688	4,669	0.23	0.05	-
Number 2 Fuel Oil	4,276	4,261	0.17	0.03	-
Steam	12,599	12,548	1.16	0.09	-
Engine	99,197	98,871	4.01	0.78	-
FlightOps	12,332	12,204	0.34	0.39	-
Ground Fleet	605,962	588,068	114.94	49.94	-
Portable Generators	7,182	7,159	0.29	0.06	-
Refrigerant	118,287	-	-	-	118,287

Source	CO2-e	CO2	CH4	N2O	HFC
Air Travel	54,463	53,679	2.86	2.34	-
Rental Car	14,550	14,046	1.38	1.53	-

10. Data Acquisition:

The majority of AT&T's emission source data is collected via enterprise data systems. For instance, the vast majority of AT&T utility bills are paid by a third-party bill payment service. This results in consolidated data collection and improved data accuracy because of the specialized and focused service of our vendor/partner. In addition, the vast majority of AT&T's mobile fleet fuel purchases and miles driven are logged in a centralized fleet management platform, enabling accurate data collection for calculation of fleet emissions. Additional data systems, such as real estate portfolio systems, flight operations management systems, building and emergency engine inventory systems, and travel management systems were also utilized as needed. However, there were some instances in which data estimations were required. Any estimations or assumptions have been documented in the sections below.

As described throughout this document, AT&T has employed methodologies for acquiring data and reporting results that are intended to yield an accurate, detailed and fair representation of AT&T's emissions. It is important to note, however, that in the absence of uniform and mandatory processes for data acquisition and reporting of emissions, comparing the results reported by AT&T and those reported by other entities may not yield an accurate comparison of emissions and operations. AT&T commits to continue to review and refine the data acquisition and reporting methodologies for future reports as appropriate to address further development of industry standards.

Source Description and Calculation Methodology

A discussion of the emission sources included in AT&T's 2012 inventory is below. Sources are listed in descending order of magnitude and methodology references are available in Appendix B.

1. Electric Power

Data Collection:

Electric power is used to energize AT&T facilities and equipment. Actual electricity usage information was obtained from utility invoices, when available. However, for some facilities in which AT&T operates, no discrete bill was available (e.g. a full-service leased facility in which utilities are a component of rent). In these instances, electricity consumption was estimated based on the square footage and type of space. AT&T evaluated the use of the U.S. Energy Information Administration's Commercial Buildings Energy Consumption Survey (CBECS) intensity factors to estimate usage. However, because of the greater electricity intensity of some of AT&T's technical spaces (e.g. telephone switching and data center space) we felt strongly that the CBECS estimate understated consumption for our technical spaces. So, we chose to develop specific intensity measures for these types of spaces. To develop these AT&T-specific intensities, we performed a comprehensive review of consumption data by facility type and square footage. We are confident that this exercise provides a more accurate representation of the consumption for those facilities at which consumption estimation was required.

Emission Factor:

AT&T utilized EPA Climate Leaders guidance (EPA430-K-03-006 - June 2008) and eGrid 2012 v1.0 (issued May 2012) to calculate emissions from electricity consumption. For U.S. based facilities where zip code information was available, we utilized the zip codes' corresponding eGrid Subregion emission factors for CO₂, N₂O, and CH₄. If zip code was not known, we utilized state-based emissions factors. In the rare case where state information was not known, we used the standardized national emission factors for the U.S. for each pollutant. For facilities outside of the U.S., AT&T utilized International Energy Agency data as per WRI / WBCSD GHG Protocol guidance (International Energy Agency Data Services "CO₂ Emissions from Fuel Combustion (2012 Edition)"). A detailed list of the emissions factors for purchased electric power can be found in Appendix C.

2. Ground Fleet

Data Collection: AT&T's ground fleet is comprised of an assortment of vehicle types from passenger cars to heavy duty trucks. In the U.S., fuel consumption and mileage information is gathered via an enterprise fleet management system that allows AT&T to track fuel purchases for and miles driven by vehicles in the fleet. Fuel consumption data was used to estimate CO₂ emissions. Mileage and vehicle type data were utilized to calculate CH₄ and N₂O emissions.

For international based fleet vehicles, activity data was available and utilized for leased vehicles in 13 countries outside of the US. This activity was provided in annual miles or kilometers driven per vehicle. Manufacturers' published figures for emissions in grams of CO₂ per kilometer were then used to calculate CO₂ emissions for the International Fleet. CH₄ and N₂O emissions were then calculated using the ratio of each pollutant to overall CO₂e for the US dataset.

Emission Factor:

Domestic Fleet (eFOSS):

- Utilized EPA's Mandatory Reporting Rule (40 CFR 98) Tables C-1 and C-2 for fuel-specific CO₂ emission factors
- Derived CO₂ equivalent (CO₂-e) emission factors utilizing CH₄ and N₂O emission factors (Table 16 below) based on fuel type and model year

International Fleet (Lease Reports)

- Utilized OEM published emission factors in g/km for international vehicles where mileage data is provided in lieu of fueling volumes

3. Refrigerants

Data Collection:

Refrigerants are used in building cooling systems. The most commonly used refrigerant within AT&T's portfolio is R-22, which was not considered a GHG per the WRI GHG Protocol. However, a subset of cooling systems exist that makes use of HFC based refrigerants - primarily R-134a and R410. For our 2012 GHG inventory, building inventory systems were analyzed to identify the total tonnage of HFCs in use and applied a standard loss rate. This loss rate (or refrigerant emitted) used to derive an emissions rate per square foot for the subset of facilities where refrigerant capacity is tracked. This emissions rate is then scaled over the portfolio-wide square footage in order to estimate emissions inclusive of those facilities at which HVAC capacity is not tracked. For our 2012 GHG inventory, sufficient data or information to develop an estimation of the Scope 1 greenhouse gas emissions produced from refrigerant usage within our cell site operations was not available and was not estimated.

Emission Factor:

AT&T utilized EPA Climate Leaders guidance (EPA430K-03-004 - May 2008) for emission factors based on each refrigerant's GWP and standard equipment loss rate. The equivalent emissions factor is based on a weighted GWP that takes into account the proportion of R134a and R410a used within the portfolio.

4. Natural Gas

Data Collection:

Natural gas is used within the AT&T portfolio for facility and equipment heating needs. Consumption data for natural gas was collected via utility invoices that were processed, verified and paid by a third-party bill payment vendor. Potential natural gas usage at leased assets where bills are not paid by AT&T and were not estimated.

Emission Factor:

AT&T utilized EPA's Mandatory Reporting Rule (40 CFR 98) Tables C-1 emission factors for natural gas.

5. Engines (Stationary and Portable Generators)

Data Collection:

Engines and stationary generators are used to generate power on an emergency basis at AT&T facilities. These engines are engaged whenever the electricity grid is unavailable or whenever requested as part of a Demand Response program to support grid operations and prevent grid failure. Additionally, monthly maintenance runs occur to ensure each engine is operating properly. These maintenance runs account for the majority of emissions associated with these assets. AT&T also uses engines that power portable generators to support its operations for portable backup power, to power truck-mounted equipment, and for outside field use, such as pumping out manholes.

In order to obtain activity related data for this emissions source several of AT&T's internal databases for equipment inventories are used to compile an aggregate list of all stationary and portable engines, their engine characteristics, as well as run-time data, where available. In order to estimate the fuel usage that serves as the basis of our emissions estimate, we used engine runtime data (actual runtime data, where available, and average runtime estimates by state based off of known data sets when not available), in conjunction with engine horsepower capacity, to estimate fuel consumption used during maintenance runs. To estimate fuel usage based on engine runtime, AT&T utilized the guidance provided in Appendix 2 of the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines, developed by the California Environmental Protection Agency Air Resources Board in order to calculate fuel consumption per hour of runtime. This fuel consumption is then used to calculate emissions from stationary and portable generators utilizing fuel specific emissions factors as described below.

Emission Factor:

AT&T utilized EPA's Mandatory Reporting Rule (40 CFR 98) Tables C-1 and C-2 for fuel-specific CO₂ emission factors (diesel, gasoline, kerosene, natural gas, propane, and butane).

6. Business Air Travel

Data Collection:

Business travel on commercial airline carriers is considered a Scope 3 emissions stream. AT&T's travel system captures the mileage flown by AT&T passengers on commercial airline jets. All business air travel including international flights was included.

Emission Factor:

Flight legs were categorized into short, medium, long hauls and the specific emission factors for CO₂, N₂O, and CH₄ were applied to each flight leg according to EPA Climate Leaders' guidance (EPA430-R-08-006 May 2008) (see below).

Table 1. Air Travel Emission Factors

Airline Travel Distance	kg CO ₂ /passenger-mile	g CH ₄ /passenger-mile	g N ₂ O/passenger-mile
Long Haul (>>_ 700 miles)	0.185	0.0104	0.0085
Medium Haul (>>_ 300 and < 700 miles)	0.229	0.0104	0.0085
Short Haul (< 300 miles)	0.277	0.0104	0.0085
Distance Not Known	0.271	0.0104	0.0085

7. Flight Operations

Data Collection:

AT&T uses corporate jets to transport AT&T passengers for business travel and for network support operations in remote areas such as Alaska. The travel data, including flight leg miles flown and fuel consumption, are managed by a specific flight management system.

Emission Factor:

AT&T utilized EPA's Mandatory Reporting Rule (40 CFR 98) Tables C-1 and C-2 for fuel-specific CO₂ emission factors.

8. Purchased Steam

Data Collection:

Steam is primarily used within the AT&T portfolio for facility and equipment heating needs. Consumption data for steam was collected via utility invoices that were processed, verified and paid by a third-party bill payment vendor.

Emission Factor:

AT&T utilized EIA Voluntary Reporting of Greenhouse Gases Appendix N. Emission Factors for Steam and Chilled Water (Form EIA-1605) for emission factors related to its steam consumption throughout the portfolio.

9. Business Rental Car Travel

Data Collection:

Business rental car travel via commercial vendors is considered a Scope 3 emissions stream. To estimate this emission source, AT&T engaged its primary rental car vendors to gather mileage driven by car class for AT&T passengers. Mileage for each vendor AT&T utilizes, both domestically and abroad, are collected as part of the source data set and average fuel economy per vehicle class is used to derive fuel consumption across the rental activity data. Calculations of CO₂ are made based off of this fuel consumption data, while CH₄ and N₂O are calculated from mileage-based emission factors.

Emission Factor:

AT&T utilized EPA's Mandatory Reporting Rule (40 CFR 98) Tables C-1 and C-2 for fuel-specific CO₂ emission factors. In order to calculate N₂O and CH₄ emissions, vehicle miles

were assigned car or light-duty truck classifications, and the appropriate emission factors were applied based on EPA Climate Leaders guidance in EPA430-R-08-006, Table 2.

10. No. 2 Fuel Oil (Diesel)

Data Collection:

No. 2 Fuel Oil (also called stationary “Diesel”) is primarily used within the AT&T portfolio for facility and equipment heating needs as a stationary fuel. Diesel is also used in engines and ground fleet, but these sources are documented in other sections of this document. Consumption data for Fuel Oil was collected via utility invoices that were processed, verified and paid by a third-party bill payment vendor.

Emission Factor:

AT&T utilized EPA’s Mandatory Reporting Rule (40 CFR 98) Tables C-1 and C-2 for distillate fuel oil #2.

11. Propane

Data Collection:

Propane is primarily used within the AT&T portfolio for facility and equipment heating needs and for on-site fork trucks. In addition, handheld propane is used in the field for operational needs. The bulk of propane usage information was obtained from utility invoices from AT&T’s third-party bill payment service provider. In addition, propane consumption used for field operations was estimated based on average consumption per technician, based on a sampling of usage data from several locations across the country. This figure was calculated for 2012 based upon the total number of employees in the WorkCenter group. The emissions reported for 2012 are the aggregate of this estimated figure and the billed usage from facilities.

Emission Factor:

AT&T utilized EPA’s Mandatory Reporting Rule (40 CFR 98) Tables C-1 for propane.

Appendix A: Emission Factor Summary

Scope	Source	CO2	Units	CH4	Units	N2O	Units
1	Natural Gas	53.02	kg CO2/MMBtu	1.0	g CH4/MMBtu	0.10	g N2O/MMBtu
1	Propane	61.46	kg CO2/MMBtu	3.0	g CH4/MMBtu	0.60	g N2O/MMBtu
1	Number 2 Fuel Oil	73.96	kg CO2/MMBtu	3.0	g CH4/MMBtu	0.60	g N2O/MMBtu
1	Engines (Stationary)	<i>Due to multiple fuel types, consult Methodology Discussion for Emission Factor details.</i>					
1	Portable Generators	<i>Due to multiple fuel types, consult Methodology Discussion for Emission Factor details.</i>					
1	FlightOps	72.22	kg CO2/MMBtu	3.0	g CH4/MMBtu	0.60	g N2O/MMBtu
1	Ground Fleet	<i>Due to multiple fuel types, consult Methodology Discussion for Emission Factor details.</i>					
1	Refrigerant	<i>Leakage rate of 15% and weighted refrigerant-specific GWP</i>					
2	Electric Power	<i>See Appendix C for Electric Power Emission Factors</i>					
2	Steam	88.18	kg CO2 /MMBtu	8.169	g CH4/MMBtu	0.603	g N2O/MMBtu
3	Business Air Travel	<i>Due to varying EFs based on flight length, consult Methodology Discussion for Emission Factor details.</i>					
3	Business Rental Car Travel	<i>Due to multiple fuel types, consult Methodology Discussion for Emission Factor details.</i>					

Appendix B: Summary of Methodology Sources

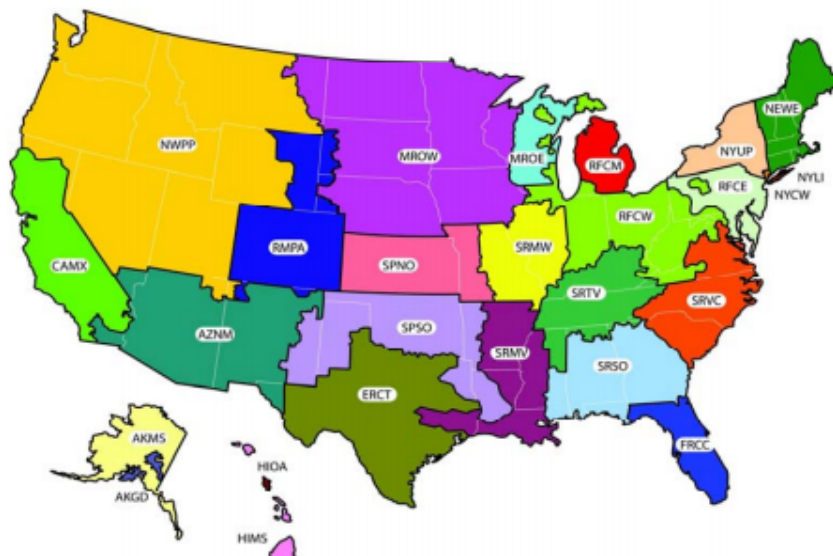
Source	Reporting Protocol	Source File	Document Name	Table #	Document Link
Electric Power	EPA Climate Leaders	EPA 430K-03-006	Indirect Emissions from Purchases/Sale of Electricity and Steam	n/a	LINK
Natural Gas	EPA Climate Leaders	EPA 430K-08-003	Direct Emissions from Stationary Combustion Sources	Table B-3; Table A-1 adjusted for fuel type	LINK
Propane	EPA Climate Leaders	EPA 430K-08-003	Direct Emissions from Stationary Combustion Sources	Table B-3; Table A-1 adjusted for fuel type	LINK
Number 2 Fuel Oil	EPA Climate Leaders	EPA 430K-08-003	Direct Emissions from Stationary Combustion Sources	Table B-3; Table A-1 adjusted for fuel type	LINK
Steam	EPA Climate Leaders	EPA 430K-03-006	Indirect Emissions from Purchases/Sale of Electricity and Steam	n/a	LINK
Stationary Engines	EPA Climate Leaders	EPA 430K-08-003	Direct Emissions from Stationary Combustion Sources	Table B-3; Table A-1 adjusted for fuel type	LINK
FlightOps	EPA Climate Leaders	EPA 430K-08-004	Direct Emissions from Mobile Combustion Sources	Table B-2 CO2; Table A-6 N2O & CH4	LINK
Ground Fleet	EPA Climate Leaders	EPA 430K-08-004	Direct Emissions from Mobile Combustion Sources	Table B-1	LINK
Portable Generators	EPA Climate Leaders	EPA 430K-08-003	Direct Emissions from Stationary Combustion Sources	Table B-3; Table A-1 adjusted for fuel type	LINK
Refrigerant	EPA Climate Leaders	EPA 430K-03-004	Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment	Table 1	LINK
Air Travel	EPA Climate Leaders	EPA 430-R-08-006	Optional Emissions from Commuting, Business Travel, and Product Transport	Table 4	LINK
Rental Car	EPA Climate Leaders	EPA 430-R-08-006	Optional Emissions from Commuting, Business Travel, and Product Transport	Table 1	LINK

Appendix C: Electric Power Emission Factors

Source: USEPA's eGRID 2012 v1.0 (w/ 2009 data):
<http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>

Year 2009 eGRID Subregion Emissions - Greenhouse Gases

eGRID subregion acronym	eGRID subregion name	Carbon dioxide (CO ₂)		Methane (CH ₄)		Nitrous oxide (N ₂ O)		Carbon dioxide equivalent (CO ₂ e)	
		Emissions (tons)	Total output emission rate (lb/MWh)	Emissions (lbs)	Total output emission rate (lb/GWh)	Emissions (lbs)	Total output emission rate (lb/GWh)	Emissions (tons)	Total output emission rate (lb/MWh)
AKGD	ASCC Alaska Grid	3,418,599.2	1,280.86	148,069.7	27.74	41,037.1	7.69	3,426,514.6	1,283.82
AKMS	ASCC Miscellaneous	356,546.7	521.26	29,714.2	21.78	5,840.6	4.28	356,764.0	523.05
AZNM	WECC Southwest	110,878,238.5	1,191.35	3,561,141.7	19.13	2,900,380.0	15.58	111,365,189.4	1,196.58
CAMX	WECC California	70,073,810.9	658.68	6,157,626.7	28.94	1,311,778.2	6.17	70,341,791.6	661.20
ERCT	ERCOT All	199,139,906.1	1,181.73	5,629,452.6	16.70	4,416,287.2	13.10	199,883,539.8	1,186.14
FRCC	FRCC All	122,439,895.3	1,176.61	8,166,370.6	39.24	2,816,516.4	13.53	122,962,202.2	1,181.63
HIMS	HICC Miscellaneous	2,040,418.0	1,351.66	218,580.2	72.40	41,676.4	13.80	2,049,172.9	1,357.46
HIOA	HICC Oahu	6,366,549.3	1,593.35	813,084.8	101.74	175,655.3	21.98	6,402,313.2	1,602.30
MROE	MRO East	23,546,678.9	1,591.65	709,541.1	23.98	800,090.0	27.04	23,678,143.0	1,600.54
MROW	MRO West	155,238,602.5	1,628.60	5,490,113.7	28.80	5,297,920.9	27.79	155,117,426.5	1,637.82
NEWE	NPCC New England	44,339,191.3	728.41	9,213,992.4	75.68	1,686,749.2	13.86	44,697,384.3	734.29
NWPP	WECC Northwest	110,316,981.8	819.21	4,118,840.7	15.29	3,366,677.8	12.50	110,882,064.7	823.40
NYCW	NPCC NYC/Westchester	12,366,433.6	610.67	961,942.8	23.75	113,665.3	2.81	12,394,152.1	612.04
NYLI	NPCC Long Island	6,356,817.1	1,347.99	913,584.0	96.86	116,699.5	12.37	6,384,498.1	1,353.86
NYUP	NPCC Upstate NY	21,928,714.4	497.92	1,403,919.9	15.94	595,911.5	6.77	22,035,821.8	500.35
RFCE	RFC East	123,710,640.9	947.42	7,008,815.6	26.84	3,907,455.5	14.96	124,389,889.1	952.63
RFCM	RFC Michigan	73,224,945.8	1,659.46	2,771,897.8	31.41	2,461,195.1	27.89	73,635,536.0	1,668.76
RFCW	RFC West	427,000,110.8	1,520.59	10,176,040.4	18.12	14,115,523.2	25.13	429,294,865.3	1,528.76
RMPA	WECC Rockies	56,623,836.8	1,824.51	1,380,995.5	22.25	1,687,704.3	27.19	56,899,931.4	1,833.41
SPNO	SPP North	59,020,114.4	1,815.76	1,365,746.1	21.01	1,878,166.5	28.89	59,325,570.5	1,825.15
SPSO	SPP South	112,285,381.2	1,599.02	3,265,015.7	23.25	3,059,907.2	21.79	112,793,949.5	1,606.26
SRMV	SERC Mississippi Valley	82,878,735.5	1,002.41	3,215,833.3	19.45	1,761,789.2	10.65	83,186,579.1	1,006.12
SRMW	SERC Midwest	98,040,187.4	1,749.75	2,193,144.7	19.57	3,247,829.8	28.98	98,566,629.1	1,759.15
SRSO	SERC South	167,509,257.9	1,325.68	5,628,363.8	22.27	5,250,262.1	20.78	168,382,146.3	1,332.59
SRTV	SERC Tennessee Valley	161,685,648.7	1,357.71	4,114,940.7	17.28	5,260,404.6	22.09	162,544,218.3	1,364.92
SRVC	SERC Virginia/Carolina	151,834,726.1	1,035.87	6,306,228.1	21.51	5,114,608.4	17.45	152,693,705.8	1,041.73
U.S.		2,402,619,969.1	1,216.18	94,962,986.6	24.03	71,431,731.4	18.08	2,414,688,998.8	1,222.29



Source: "CO2 Emissions from Fuel Combustion (2012 Edition)", International Energy Agency, Paris.

Dataset: 2010 Data

<http://www.iea.org/co2highlights/>

Region/Country/Economy	2010
Canada	186
Chile	410
Mexico	455
United States	522
OECD Americas	479
Australia	841
Israel	689
Japan	416
Korea	533
New Zealand	150
OECD Asia Oceania	501
Austria	188
Belgium	220
Czech Republic	589
Denmark	360
Estonia	1 014
Finland	229
France	79
Germany	461
Greece	718
Hungary	317
Iceland	0
Ireland	458
Italy	406
Luxembourg	410
Netherlands	415
Norway	17
Poland	781
Portugal	255
Slovak Republic	197
Slovenia	325
Spain	238
Sweden	30
Switzerland	27
Turkey	460
United Kingdom	457
OECD Europe	331
Albania	2
Armenia	181
Azerbaijan	584

Region/Country/Economy	2010
Belarus	585
Bosnia and Herzegovina	729
Bulgaria	579
Croatia	305
Cyprus	702
Georgia	71
Gibraltar	762
Kazakhstan	766
Kosovo	1 287
Kyrgyzstan	94
Latvia	227
Lithuania	548
FYR of Macedonia	687
Malta	872
Republic of Moldova	583
Montenegro	405
Romania	499
Russian Federation	639
Serbia	724
Tajikistan	24
Turkmenistan	1 898
Ukraine	419
Uzbekistan	734
Former Soviet Union (if no detail)	x
Former Yugoslavia (if no detail)	x
Non-OECD Europe and Eurasia	605
Algeria	548
Angola	440
Benin	720
Botswana	2 517
Cameroon	207
Congo	142
Dem. Rep. of Congo	3
Côte d'Ivoire	445
Egypt	450
Eritrea	646
Ethiopia	7
Gabon	383
Ghana	259
Kenya	274
Libya	885
Morocco	718
Mozambique	1
Namibia	197

Region/Country/Economy	2010
Nigeria	405
Senegal	637
South Africa	927
Sudan	344
United Rep. of Tanzania	329
Togo	195
Tunisia	463
Zambia	3
Zimbabwe	660
Other Africa	477
Africa	637
Bangladesh	593
Brunei Darussalam	798
Cambodia	804
Chinese Taipei	768
India	912
Indonesia	709
DPR of Korea	465
Malaysia	727
Mongolia	1 492
Myanmar	262
Nepal	1
Pakistan	425
Philippines	481
Singapore	499
Sri Lanka	379
Thailand	513
Vietnam	432
Other Asia	296
Asia	746
People's Rep. of China	766
Hong Kong, China	723
China	766
Argentina	367
Bolivia	423
Brazil	87
Colombia	176
Costa Rica	56
Cuba	1 012
Dominican Republic	589
Ecuador	389
El Salvador	223
Guatemala	286
Haiti	538

Region/Country/Economy	2010
Honduras	332
Jamaica	711
Netherlands Antilles	707
Nicaragua	460
Panama	298
Paraguay	-
Peru	289
Trinidad and Tobago	700
Uruguay	81
Venezuela	264
Other Non-OECD Americas	252
Non-OECD Americas	197
Bahrain	640
Islamic Rep. of Iran	565
Iraq	1 003
Jordan	566
Kuwait	842
Lebanon	709
Oman	794
Qatar	494
Saudi Arabia	737
Syrian Arab Republic	594
United Arab Emirates	598
Yemen	655
Middle East	674
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Appendix D: Breakdown of Emissions by Source and Pollutant

AT&T 2012 GHG Inventory Breakdown by Source and Pollutant

Source	Total		Scope	CO2			CH4			N2O			HFC		
	mt CO2-e	%		mt CO2-e	mt CO2	%	mt CO2-e	mt CH4	%	mt CO2-e	mt N2O	%	mt CO2-e	mt HFC	%
Electric Power	7,882,027		2	7,875,873	7,875,873	99.92%	3,467	165.09	0.04%	2,687	8.67	0.03%	-	-	0.00%
Natural Gas	96,517		1	96,422	96,422	99.90%	38	1.82	0.04%	56	0.18	0.06%	-	-	0.00%
Propane	4,688		1	4,669	4,669	99.60%	5	0.23	0.10%	14	0.05	0.30%	-	-	0.00%
Number 2 Fuel Oil	4,276		1	4,261	4,261	99.66%	4	0.17	0.09%	11	0.03	0.25%	-	-	0.00%
Steam	12,599		2	12,548	12,548	99.60%	24	1.16	0.19%	27	0.09	0.21%	-	-	0.00%
Engine	99,197		1	98,871	98,871	99.67%	84	4.01	0.08%	242	0.78	0.24%	-	-	0.00%
FlightOps	12,332		1	12,204	12,204	98.96%	7	0.34	0.06%	120	0.39	0.98%	-	-	0.00%
Ground Fleet	605,962		1	588,068	588,068	97.05%	2,414	114.94	0.40%	15,480	49.94	2.55%	-	-	0.00%
Portable Generators	7,182		1	7,159	7,159	99.67%	6	0.29	0.08%	17	0.06	0.24%	-	-	0.00%
Refrigerant	118,287		1	-	-	0.00%	-	-	0.00%	-	-	0.00%	118,287	118,287	100.00%
Air Travel	54,463		3	53,679	53,679	98.56%	60	2.86	0.11%	724	2.34	1.33%	-	-	0.00%
Rental Car	14,550		3	14,046	14,046	96.53%	29	1.38	0.20%	475	1.53	3.27%	-	-	0.00%
TOTAL	8,912,080			8,767,801	8,767,801		6,138	292.30		19,854.2184	64.05		118,287	118,287	

	Total		CO2			CH4			N2O			HFC		
	mt CO2-e	%	mt CO2-e	mt CO2	%	mt CO2-e	mt CH4	%	mt CO2-e	mt N2O	%	mt CO2-e	mt HFC	%
Scope 1	948,441	100.00%	811,655	811,655	85.58%	2,558	122	0.27%	15,941	51	1.68%	118,287	118,287	12.47%
Scope 2	7,894,626	100.00%	7,888,421	7,888,421	99.92%	3,491	166	0.04%	2,714	9	0.03%	0	118,287	0.00%
Scope 3	69,013	100.00%	67,725	67,725	98.13%	89	4	0.13%	1,199	4	1.74%	0	0	0.00%