

2017

Sustainability Data and Trends Report

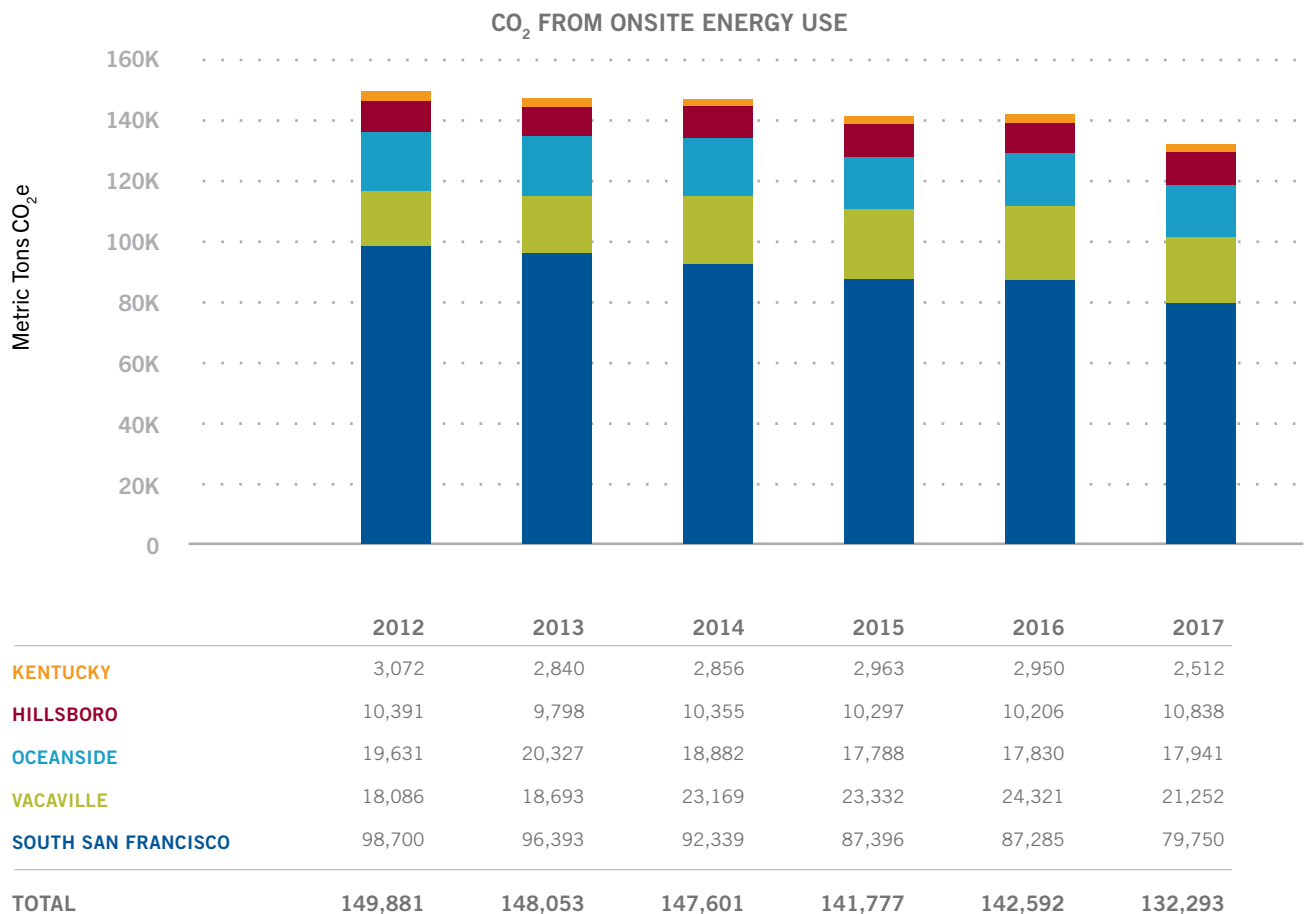


INTRODUCTION

This report provides data and supporting information on Genentech’s company-wide sustainability performance trends, including greenhouse gas emissions from onsite

energy and transportation, water use, and waste to landfill. We also describe our methods and assumptions underlying the reported data.

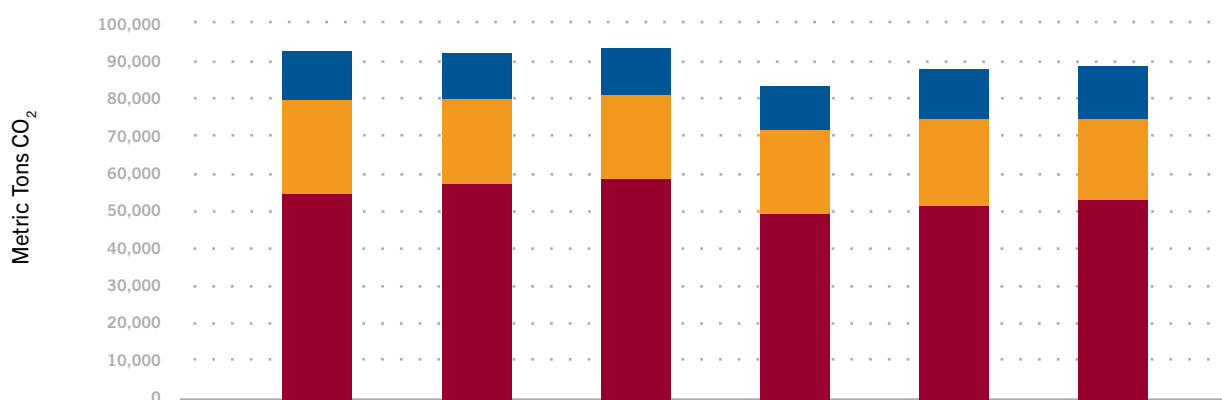
PERFORMANCE TRENDS



Onsite energy use is responsible for almost 90% of Genentech’s Scope 1 and 2 greenhouse gas (GHG) emissions. Since 2012, GHG emissions from onsite energy use have decreased by 12%. This has resulted from a combination of energy efficiency efforts, a “greening” of the electricity we purchase and onsite solar generation at our Californian sites. In 2017, GHG emissions from onsite energy use were down 7%, compared with 2016. While we experienced a small (1%) increase in our total onsite energy demand, this increased demand was met through the expansion of our onsite solar generation capacity which helped drive the reduction in total GHG

emissions. Our Vacaville site reduced total energy use by 2% and met 16% of its total 2017 electricity demand through new onsite solar generation, which helped drive a 13% reduction in its scope 1 and 2 emissions. During 2017, our South San Francisco campus transitioned to a lower carbon electricity contract provided by Peninsula Clean Energy to meet a significant portion of its purchased electricity demand. Genentech as a whole reduced total use of electricity by 3% from 2016 to 2017, increasing the percentage from renewable sources from 30% to 50%.

CO₂ FROM TRANSPORTATION



	2012	2013	2014	2015	2016	2017
VEHICLE FLEET	13,008	12,321	12,457	11,798	13,402	13,748
EMPLOYEE COMMUTE (SSSF)	25,034	22,584	22,556	22,899	22,979	21,996
AIR TRAVEL	54,458	57,263	58,432	48,736	51,490	52,781
TOTAL	92,500	92,168	93,445	83,433	87,871	88,524

Our transportation emissions are an important component of our overall carbon footprint and we are committed to reducing transportation emissions where we can.

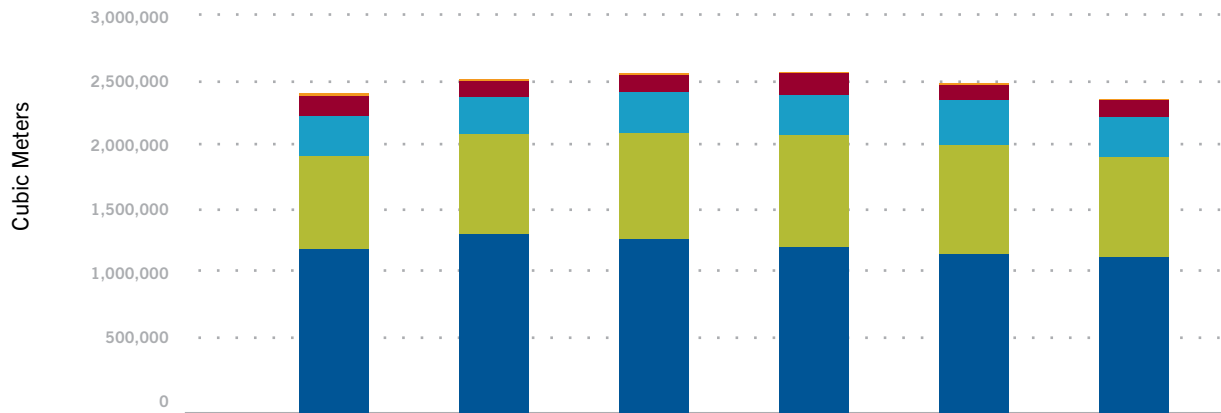
CO₂ emissions from transportation include, the vehicle fleet used by our sales employees, business air travel and our employees' commute activities. Business air travel is the biggest contributor to our transportation emissions (58% in 2017). We experienced increased air travel during the five years following the 2009 merger of Genentech with Roche, in large part due to related business integration activities. While we saw a reduction in air traveling and our total transportation emissions in 2015, we have seen air travel increase again by 6% in 2016 and another 3% in 2017. Reducing air travel is an important priority for our sustainability program - we are investing in virtual meeting technologies and training employees in strategies to reduce air travel while enhancing collaboration.

In 2017, we saw our SSSF campus total commute emissions drop by 4%. Emissions per employee

decreased by 3.6% from 2016 to 2017, continuing the trend since 2013 that has seen emissions per employee reduced by 12%. The 2016 to 2017 decrease in total emissions as well as the general downward trend of emissions per employee is due in large part to the popularity of our GenenBuses both as a primary means of commute and as a connection to other transit. In 2018, we will pilot four new double-decker electric buses to further reduce our commute emissions. Additionally, our vanpool and ferry programs continue to grow as more employees consider alternate commutes.

The small increase in vehicle fleet emissions in 2017 was driven by an increase in the overall distance traveled by our commercial sales fleet. While total distance increased by 8%, fuel consumption increased by only 4% thanks to continued improvement in the overall fuel efficiency of our vehicle fleet. Fuel efficiency is an important criterion for the group responsible for selecting vehicles for inclusion in our Leased Vehicle program and a range of hybrids have been made available to employees in this program.

WATER USE BY SITE

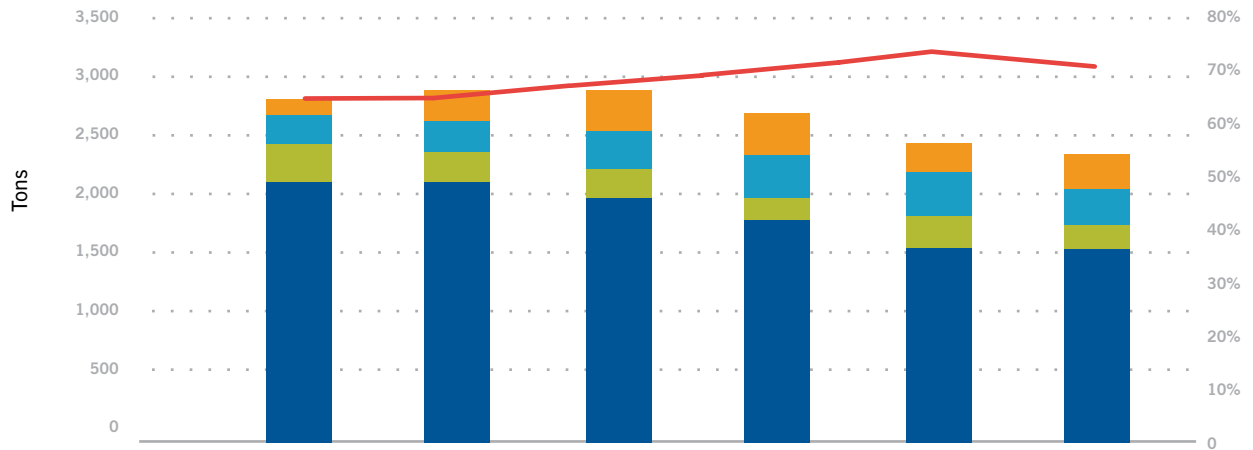


	2012	2013	2014	2015	2016	2017
KENTUCKY	12,004	8,816	7,768	6,678	8,740	5,549
HILLSBORO	158,855	121,204	137,922	161,873	111,761	119,855
OCEANSIDE	304,000	274,264	303,163	304,489	340,217	317,706
VACAVILLE	708,081	796,853	822,617	857,724	832,368	755,285
SOUTH SAN FRANCISCO	1,239,602	1,329,819	1,308,386	1,256,373	1,201,628	1,183,156
TOTAL	2,422,542	2,530,956	2,579,856	2,587,137	2,494,714	2,381,551

Manufacturing operations at our SSF, Vacaville and Oceanside facilities account for approximately 75% of our total water use. Following several years of increased water use driven largely by an increase in our manufacturing activity, we achieved an overall reduction in water use of 2% and 5% respectively in 2016 and 2017 thanks to a sustained effort to conserve water in the face of unprecedented drought conditions. All our manufacturing sites in California achieved potable water use reductions in 2017.

While we are pleased with the reductions we have achieved, we are committed to further reducing our potable water use. We are implementing longer-term solutions to reuse and recycle water internally and we expect the expansion of such solutions to drive water savings over the next several years, making us more resilient to a future that could feature longer and more severe periods of drought. For example, we are installing purple pipes throughout our SSF campus to enable reclaimed water to be transported for internal reuse in the future.

LANDFILL WASTE BY SITE



	2012	2013	2014	2015	2016	2017
KENTUCKY	123	253	347	349	235	301
HILLSBORO	5	2	0	0	0	0
OCEANSIDE	248	262	304	340	376	278
VACAVILLE	303	246	238	189	267	206
SOUTH SAN FRANCISCO	2,146	2,138	2,016	1,824	1,589	1,588
TOTAL	2,825	2,901	2,905	2,702	2,466	2,373
DIVISION RATE	64%	65%	68%	70%	73%	71%

In 2017 we sent 4% less waste to landfill than we did in 2016. Our SSF site, which is responsible for 70% of our total general waste, has decreased total landfill by 52% and 57% per employee since 2010, the baseline for its 10-year 80% per employee landfill reduction goal. Despite expanding compost collections to all non-warehouse buildings and starting a rigorous food waste reduction campaign in 2017, this site experienced some challenges including changes to the plastics recycling market. Consequently, SSF sent the same

amount of waste to landfill as 2016 and its overall waste diversion rate deteriorated slightly. This site is working on several fronts to achieve landfill reductions, including actively evaluating alternative options for its lab plastics. Our Oceanside site achieved a 35% reduction in landfill disposal in 2017 because of several initiatives including the elimination of paper cups and a new program to process domestically recyclable plastics from manufacturing.

2012–2017 ENVIRONMENTAL SUSTAINABILITY DATA

	Units	2012	2013	2014	2015	2016	2017
Onsite Energy Use	1000 GJ						
Stationary Combustion		1,197	1,183	1,164	1,125	1,158	1,173
Purchased Electricity		1,044	1,069	1,115	1,117	1,093	1,019
Onsite Renewables		-	-	2	2	16	62
Total Energy Use		2,241	2,252	2,282	2,244	2,267	2,254
Scope 1 & 2 GHG Emissions	Metric tons CO ₂ e						
Stationary Combustion		65,989	65,195	64,164	61,983	63,874	64,673
Purchased Electricity - Market		83,892	82,858	83,447	79,793	78,717	67,620
Vehicle Fleet		13,008	12,321	12,457	11,798	13,402	13,748
Emissions from HFC Refrigerants		2,200	2,303	2,937	1,777	3,883	1,712
Process Gases		1,178	1,178	1,178	1,178	1,178	1,178
Total Scope 1 & 2 GHG Emissions		166,267	163,856	164,173	156,530	161,054	148,931
Scope 3 GHG Emissions	Metric tons CO ₂ e						
Business Travel (Air)		54,458	57,263	58,432	48,736	51,490	52,781
Employee Commuting (SSF only)		25,034	22,584	22,556	22,899	22,979	21,996
Non-GHC Emissions to Air	Metric tons R-11e						
Ozone-Depleting Substances		0.03	0.02	0.01	0.01	0.02	0.02
Total Water Use	1000 m ³	2,423	2,531	2,580	2,587	2,495	2,382
General Waste	Metric tons						
Landfill		2,825	2,901	2,905	2,702	2,466	2,373
Recycling		3,042	3,016	3,580	3,547	3,453	3,185
Composting		1,712	2,187	2,326	2,453	2,909	2,119
e-waste		316	231	206	297	397	409
Incineration with energy recovery		-	-	6	7	7	13
Diversion Rate	%	64	65	68	70	73	71

NOTES TO SUPPORT OUR DATA

General Notes

The data presented in this report are for the following production and fill/finish facilities: South San Francisco, Vacaville and Oceanside, California, and Hillsboro, Oregon. The data also include the research, development, commercial and administrative offices at our South San Francisco headquarters and our Louisville, Kentucky distribution facility.

This report includes data from 2012 to 2017 for all facilities. The annual Roche internal reporting timeline is in November and requires reporting of Jan-Oct data, extrapolated to provide a full year estimate. In general, the reported data are extrapolated in line with Roche policy, with a few exceptions where forecasting is used in place of extrapolation¹ or 12 months of actual data is reported². This report does not include performance data for joint ventures or outsourced operations, nor does it include data for sales offices. No data are shown for buildings that Genentech leases out to other parties.

Data are reported for new owned facilities and buildings from the point at which Genentech becomes responsible for payment of utilities and other services, such as waste disposal. Data are reported for new leased buildings from the point at which the building becomes occupied by Genentech.

All figures in the data table, with the exception of figures less than 1, are rounded to the nearest whole number. Due to this rounding, the individual elements of the data table may not always add up to the totals. All electricity, natural gas and water data are based on meter readings provided by our utility vendors.

Greenhouse Gas Emissions

The greenhouse gases included in the reported data are carbon dioxide, methane, nitrous oxide and hydrofluorocarbons. The GHG emissions data are reported as CO₂ equivalents (CO₂e).

Small emission sources (i.e. those accounting for <1% of the total emissions) are held flat from 2012-2017.

Greenhouse Gas Emissions from Energy Use

In order to align with the WRI GHG Protocol Scope 2 guidance published in January 2015, we have calculated our 2012-2017 purchased electricity emissions per the location- and market-based methods. The data presented in our Data Table and in our GHG emissions graphs follow the market-based method. Our location-based emissions are presented in the table below.

Scope 2 Location-Based Emissions

	2012	2013	2014	2015	2016	2017
Scope 2 location-based emissions (metric tons CO ₂ e)	89,499	85,516	89,219	93,218	91,664	71,878

¹ South San Francisco electricity and natural gas use

² South San Francisco water use (actual data reported for full calendar year) and air travel (data is for 1 October - 30 September)

ELECTRICITY-RELATED EMISSION FACTORS — LOCATION-BASED EMISSION FACTORS

SITE	YEAR	EMISSION FACTOR	SOURCE
SOUTH SAN FRANCISCO, VACAVILLE, OCEANSIDE, CALIFORNIA	2017	527.9 lb CO ₂ /MWh .033 lb CH ₄ /MWh .004 lb N ₂ O /MWh	US EPA eGRID2016, Feb 2018. Regional emission factors for WECC California (CAMX).
	2015-2016	650.31 lb CO ₂ /MWh 0.031 lb CH ₄ /MWh 0.006 lb N ₂ O /MWh	US EPA eGRID2012, Oct 2015. Regional emission factors for WECC California (CAMX).
	2013-2014	610.82 lb CO ₂ /MWh 0.029 lb CH ₄ /MWh 0.006 lb N ₂ O /MWh	US EPA eGRID 9th Edition (2010 data). Regional emission factors for WECC California (CAMX).
	2012	658.68 lb CO ₂ /MWh 0.029 lb CH ₄ /MWh 0.006 lb N ₂ O /MWh	US EPA eGRID2012 v1.0 (2009 data). Regional emission factors for WECC California (CAMX).
HILLSBORO, OREGON	2017	651.2 lb CO ₂ /MWh .061 lb CH ₄ /MWh .009 lb N ₂ O /MWh	US EPA eGRID2016, Feb 2018. Regional emission factors for WECC Northwest (NWPP).
	2015-2016	665.75 lb CO ₂ /MWh 0.013 lb CH ₄ /MWh 0.010 lb N ₂ O/MWh	US EPA eGRID2012, Oct 2015. Regional emission factors for WECC Northwest (NWPP).
	2013-2014	842.58 lb CO ₂ /MWh 0.016 lb CH ₄ /MWh 0.013 lb N ₂ O/MWh	US EPA eGRID 9th Edition (2010 data). Regional emission factors for WECC Northwest (NWPP).
	2012	819.21 lb CO ₂ /MWh 0.015 lb CH ₄ /MWh 0.013 lb N ₂ O/MWh	US EPA eGRID2012 v1.0 (2009 data). Regional emission factors for WECC Northwest (NWPP).
LOUISVILLE, KENTUCKY	2017	1185.40 lb CO ₂ /MWh 0.093 lb CH ₄ /MWh 0.017 lb N ₂ O/MWh	US EPA eGRID2016, Feb 2018. Regional emission factors for SERC Tennessee Valley (SRTV).
	2015-2016	1337.15 lb CO ₂ /MWh 0.017 lb CH ₄ /MWh 0.021 lb N ₂ O/MWh	US EPA eGRID2012, Oct 2015 Regional emission factors for SERC Tennessee Valley (SRTV).
	2013-2014	1389.20 lb CO ₂ /MWh 0.018 lb CH ₄ /MWh 0.021 lb N ₂ O/MWh	US EPA eGRID 9th Edition (2010 data) Regional emission factors for SERC Tennessee Valley (SRTV).
	2012	1357.71 lb CO ₂ /MWh 0.017 lb CH ₄ /MWh 0.022 lb N ₂ O/MWh	US EPA eGRID2012 v1.0 (2009 data) Regional emission factors for SERC Tennessee Valley (SRTV).

³A significant methodology change was made for assigning plants to eGRID subregions in eGRID2014, resulting in large changes in subregion emission factors. Whereas, in eGRID2012 and earlier, plants were assigned based on the utility company/ territory that they supplied, in eGRID2014 plants were assigned based on geography where they are physically located. Because the U.S. EPA, at the time, was considering reverting back to the previous methodology, Genentech elected to use eGRID2012 to calculate 2015-2016 Scope 2 location-based emissions for all U.S. operations. In Feb. 2018, the EPA did revert back to the previous methodology for eGRID 2016.

MARKET-BASED EMISSION FACTORS

SITE	YEAR	LB CO ₂ /MWH	SUPPLIER SPECIFIC EMISSION FACTORS
South San Francisco, CA (PG&E Contract) and Vacaville, CA	2016-2017 2013-2015 2012	435 427 445	Pacific Gas & Electric
South San Francisco, CA (Peninsula Clean Energy)	2017	189	Peninsula Clean Energy
South San Francisco, CA (Silicon Valley Power)	2017	666	Silicon Valley Power
Oceanside, CA	2014-2017 2013 2012	630 729 750	San Diego Gas & Electric
Hillsboro, OR	2016-2017	897	Portland General Electric

SITE	YEAR	LB CO ₂ /MWH	RESIDUAL MIX EMISSION FACTORS
South San Francisco, CA (Direct Access contract)	2010-2017	961	Green-E - WECC NERC Region
Hillsboro, OR	2012-2015	961	Green-E - WECC NERC Region

Louisville, KY 2012-2017 Location based emission factors used as these are higher than the available residual mix emission factors. See Location Based Emission Factors table

SITE	YEAR	LB CO ₂ /MWH	ENERGY CONTRACT FACTORS
South San Francisco, CA (Fuel Cells)	2016-2017	754	Bloom Energy

NATURAL GAS-RELATED EMISSION FACTORS

SITE	YEAR	T CO ₂ / GJ	SOURCE
All Sites	2012-2017	0.055	Roche Safety, Health and Environment (SHE) Reporting Guidelines

DIESEL-RELATED EMISSION FACTORS

SITE	YEAR	T CO ₂ / GJ	SOURCE
All Site	2012-2017	0.074	Roche SHE Reporting Guidelines

In 2014, we updated the global warming potential (GWP) used to calculate CO₂ equivalents from CH₄ and N₂O. We did not update the GWPs used for calculating 2012-2013 emissions as the impact on the total GHG inventory was determined to be insignificant.

In 2017, we updated emission factors for stationary combustion (natural gas and diesel) back to 2012 to ensure that the associated GHG values reported internally via Roche, and that roll up into Roche’s external reporting are consistent with the data reported externally by Genentech. As a result, we have restated GHG emissions from natural gas and diesel back to 2012.

Greenhouse Gas Emissions from Vehicle Fleet

This category comprises emissions from the Genentech commercial fleet, onsite security vehicles and our SSF campus shuttle buses. Emissions from non-sales road business travel by employees (a scope 3 emission source) have not been included in the reported data.

The commercial fleet includes both employee-owned vehicles and vehicles leased by Genentech. In the case of employee-owned vehicles, fleet mileage is calculated from employee expense claims, and gallons are calculated using an average fuel economy. The average fuel economy value is obtained from annual employee surveys. In the case of leased vehicles and onsite vehicles, actual fuel use data is tracked in and extracted from a proprietary database.

2012-2017 greenhouse gas emissions were calculated using emission factors of 0.069 tons CO₂ / GJ for gasoline and 0.074 tons CO₂/GJ for diesel. These are the emission factors used across the Roche organization.

GWPs from methane and nitrous oxide from combustion of gasoline and diesel are as shown in the Greenhouse Gas Emissions from Energy Use section above.

Greenhouse Gas Emissions from HFC Gases

This category includes emissions from stationary air conditioning, cooling and fire suppression equipment.

For 2012-2017, the reported data are based on leak reports generated during servicing and maintenance. In 2014, we updated the global warming potentials (GWP) used to calculate CO₂ equivalents from HFCs. We did not update the GWPs used for calculating 2012-2013

emissions as the impact on the total GHG inventory was determined to be insignificant.

GLOBAL WARMING POTENTIALS (GWP) USED TO CALCULATE CO₂E FROM HFCS

YEAR	SOURCE
2014-2017	Intergovernmental Panel on Climate Change (IPCC) (2007); Fourth Assessment Report
2012-2013	US EPA Climate Leaders Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment

Greenhouse Gas Emissions from Process Gases

CO₂ emissions from dry ice and liquid and gas CO₂, were estimated in 2008 using purchase data from vendors. In the absence of standard calculation methods, Genentech assumes that 100% of the CO₂ used for these purposes is vented to the atmosphere. As these gases are a small source, the 2008 emissions have been held flat for 2012-2017.

GHG emissions from Genentech’s use of CH₄ and N₂O in manufacturing and research and development were also calculated in 2008 using vendor purchase data and US EPA Climate Leaders emission factors. Emissions are reported as CO₂ equivalents and have been held flat for 2012-2017 as they are also a small source.

Greenhouse Gas Emissions from Business Travel (Air)

Air travel includes the use of commercial aircraft for business travel. Genentech does not own, operate or charter private aircraft.

The air travel data present CO₂ emissions arising from flights made by Genentech employees, which were booked through Genentech’s official travel agencies. Travel booked through alternative means is not included. Air travel CO₂ values have been revised for 2015 and 2016 to remove double counting of rescheduled flights in the raw flight data originally used to calculate the values for these years. GWPs for methane and nitrous oxide are as shown in the Energy Use section above.

Air travel greenhouse gas emissions are calculated using an emission factor of 0.071 tons CO₂ / GJ which is the emission factor used across the Roche organization.

Greenhouse Gas Emissions for Employee Commute

Employee commuting emissions estimates are based on how Genentech employees travel to work. Employee mode splits were established using cordon counts at campus points of entry. These data are supported by additional information related to the Genentech shuttle fleet and data available from third parties, such as emission factors for local public transit providers including Bay Area Rapid Transit (BART), Caltrain, and the Oyster Point Ferry. The model used to estimate employee commute emissions is updated and refined as better data and more detailed information becomes available.

The 2017 estimates include:

- Updated commute mode share based on the 2017 Fall Commute Study at the South San Francisco campus
- Updated vehicle emissions factors based on updates to US Department of Energy guidance
- Updated number of employees – including those working on campus, working remotely, on business travel, or offsite for other reasons
- GenenBus annual fuel consumption for 2017

Non-GHG Emissions to Air

Ozone Depleting Substances (ODS)

This category includes emissions of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbon (HCFCs) gases from stationary air conditioning, cooling and fire suppression equipment.

GAS NAME	ODP	SOURCE
R-11	1.0	http://www.epa.gov/ozone/science/ods/classone.html
R-22	0.055	http://www.epa.gov/ozone/science/ods/classtwo.html
R-123	0.02	
R-502	0.25	http://www.uneptie.org/ozonaction/topics/hcfcbends.htm

The reported data are taken from leak reports generated during servicing and maintenance.

In accordance with the Global Reporting Initiative reporting guidelines, we have reported CFC and HCFC releases as R-11 equivalents, using the ozone depletion potentials below.

Water Use

Water use is the withdrawal of potable water from municipal sources. It would also include water withdrawn directly from surface and/or groundwater resources which is currently not applicable to Genentech.

Grey water sourced from internal and external sources as well as collected rainwater are not included.

General Waste

General waste includes landfill, recyclables, food waste and other compostable materials and used electronic and electrical equipment. Our recycling streams include lab plastics, paper, cardboard, bottles and cans, heavy plastics, amber glass, styrofoam, light ballasts, metals, and other materials. General waste excludes wastes that are managed by the Genentech Environmental, Health and Safety group, due to their regulated and/or hazardous nature.

Where available, the general waste data is based on actual weights provided by the vendor. Where this data is not available weights are estimated using a standard assumed weight per container multiplied by the number of container pick-ups during the reporting year.

We show reused/recycled electronic waste as an individual line item in the General Waste category. Included are electronic items such as computers, monitors, keyboards, lab equipment, cold storage units and cell phones.

We have revised landfill, compost and recycle data for our SSF site back to 2012 to exclude wastes generated in our childcare centers. This revision focuses our reported data on waste generated by employees, consistent with our 2010-2020 landfill reduction goal which is normalized by headcount.