Genentech Sustainability Data and Notes

2008 - 2011 Performance Data

	Units	2008	2009	2010	2011
Onsite Energy Use	1000 GJ				
Stationary Combustion		1,356	1,367	1,304	1,215
Purchased Electricity		1,120	1,153	1,125	1,081
Total Energy Use		**2,476**	**2,520**	**2,429**	**2,296**
Scope 1 and 2 GHG Emissions	Metric tons CO_2e				
Stationary Combustion		68,557	71,419	65,958	61,458
Purchased Electricity		104,139	108,324	99,529	92,569
Vehicle Fleet		12,097	27,820	22,635	18,157
Emissions from HFC Refrigerants		4,011	2,631	1,143	1,061
Process Gases		1,178	1,178	1,178	1,178
Total Scope 1 and 2 GHG Emissions		**189,983**	**211,372**	**190,444**	**174,423**
Scope 3 GHG Emissions	Metric tons CO_2e				
Business Travel (Air)		**28,160**	**40,841**	**49,900**	**46,658**
Employee Commuting (SSF only)		**33,551**	**32,829**	**25,829**	**23,906**
Non-GHG Emissions to Air	Metric tons R-11e				
Ozone Depleting Substances (ODS)		**0.13**	**0.06**	**0.04**	**0.12**
Total Water Use	Cubic meters	**2,478,578**	**2,577,595**	**2,450,582**	**2,393,128**
General Waste	Metric tons				
Landfill		2,991	3,691	3,380	2,930
Recycling		2,162	3,490	2,783	3,197
Composting		775	788	753	1,030
e-waste		258	81	272	426
Total General Waste		**6,186**	**8,049**	**7,188**	**7,583**
Diversion Rate (general waste)	%	**52**	**54**	**53**	**61**
Safety Metrics					
Injury/Illness Incident Rate		**1.2**	**1.4**	**1.2**	**1.3**
Days Away/Restricted Time Rate		**0.72**	**0.71**	**0.65**	**0.80**

NOTES TO SUPPORT THE DATA TABLE

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 2008 to 2011 for all facilities.

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 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 20, 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.

Energy Use

Each Genentech site has developed an Energy Action Plan to contribute to the Roche Corporate 2014 energy reduction goal, which has a 2009 baseline. The Energy Action Plans are based on the data reported to the Roche Group. The annual Roche internal reporting timeline is in November and requires reporting of Jan-Oct (and where this is not available, Jan-Sep) data, extrapolated to provide a full year estimate. The 2009 energy use values presented in the data table are based on this reporting approach in order to match the baseline for our energy goal. The 2010 and 2011 data are also based on this extrapolation approach. The 2008 energy use data are for the full year.

The 2009 and 2010 data were externally audited in December 2010 by PricewaterhouseCoopers as part of an annual Roche Group sustainability data verification process.

Greenhouse Gas Emissions (General)

As Genentech participated in the U.S. EPA Climate Leaders program as part of Roche North America before the program was discontinued in early 2011, the greenhouse gas emissions data are reported in line with the program's technical guidance.

The greenhouse gases included in the reported data are carbon dioxide, methane, nitrous oxide and hydrofluorocarbons. The GHG emissions data are reported as CO_2 equivalents (CO_2e).

The U.S. EPA Climate Leaders reporting guidance allows for small emission sources (e.g. accounting for <1% of the total emissions) to be held flat after the baseline year (2008 for Roche U.S.).

Electricity-Related Emission Factors

Site	Year	Emission Factor	Source
South San Francisco, Vacaville and Oceanside, California	2008-2009	0.72412 lb CO_2/kWh 0.0302 lb CH_4/MWh 0.0081 lb N_2O/MWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for WECC California (CAMX)
	2010	0.681 lb CO_2/kWh 0.0208 lb CH_4/MWh 0.006 lb N_2O/MWh	U.S. EPA eGRID2010 v1.1 Regional emission factors for WECC California (CAMX)
	2011	0.658 lb CO_2/kWh 0.0289 lb CH_4/MWh 0.006 lb N_2O/MWh	U.S. EPA eGRID2012 v1.1 Regional emission factors for WECC California (CAMX)
Louisville, Kentucky	2008 - 2009	1.509 lb CO_2/kWh 0.0201 lb CH_4/MWh 0.0256 lb N_2O/MWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for SERC Tennessee Valley (SRTV)
	2010	1.541 lb CO_2/kWh 0.02 lb CH_4/MWh 0.026 lb N_2O/MWh	U.S. EPA eGRID2010 v1.1 Regional emission factors for SERC Tennessee Valley (SRTV)
	2011	1.357 lb CO_2/kWh 0.0173 lb CH_4/MWh 0.022 lb N_2O/MWh	U.S. EPA eGRID2012 v1.1 Regional emission factors for SERC Tennessee Valley (SRTV)
Hillsboro, Oregon	2008-2009	0.902 lb CO_2/kWh 0.0191 lb CH_4/MWh 0.0149 lb N_2O/MWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for WECC Northwest (NWPP)
	2010	0.859 lb CO_2/kWh 0.016 lb CH_4/MWh 0.014 lb N_2O/MWh	U.S. EPA eGRID2010 v1.1 Regional emission factors for WECC Northwest (NWPP)
	2011	0.819 lb CO_2/kWh 0.015 lb CH_4/MWh 0.0125 lb N_2O/MWh	U.S. EPA eGRID2012 v1.1 Regional emission factors for WECC Northwest (NWPP)

Natural Gas-Related Emission Factors

Site	Year	Emission Factor	Source
All Sites	2007-2011	5.306 kg CO_2/therm 0.5 g CH_4/therm 0.01 g N_2O/therm	U.S. EPA Climate Leaders Stationary Combustion Protocol (May 2008)

Diesel-Related Emission Factors

Site	Year	Emission Factor	Source
All Sites	2007-2010	10.15 kg CO_2/gallon 0.0014 kg CH_4/gallon 0.0001 kg N_2O/gallon	U.S. EPA Climate Leaders Stationary Combustion Protocol (May 2008)
	2011	10.21 kg CO_2/gallon 0.0014 kg CH_4/gallon 0.00008 kg N_2O/gallon	U.S. EPA Emission Factors for GHG Inventories (November 2011)

Global Warming Potentials (GWP) Used to Calculate CO_2e

Gas Name	GWP	Source
CO_2	1	U.S. EPA Emission Factors for GHG Inventories (November 2011)
CH_4	21	
N_2O	310	

Greenhouse Gas Emissions from Energy Use

2008-2009 reported data are based on full year performance. 2010 and 2011 data combine the extrapolated fuel use data reported to Roche Group with emission factors from the U.S. EPA Climate Leaders technical guidance. In the case of purchased electricity, sub-region emission factors from the U.S. EPA eGrid database are used to calculate GHG emissions.

Greenhouse Gas Emissions from Vehicle Fleet

This category comprises emissions from the Genentech commercial fleet and on-site vehicles. The commercial fleet represents over 95% of the total vehicle fleet emissions. 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 values used for 2008-2009 were taken from the Energy Information Administration's annual Transportation Energy Year Book. For 2010, a value of 20.5 mpg was used based on a vehicle survey of employees conducted during March 2010. For 2011 a value of 21.16 mpg was used based on an updated employee survey. In the case of leased vehicles and onsite vehicles, actual fuel use data is tracked in and extracted from a proprietary database.

As part of the integration of Genentech with Roche, the entire US commercial organization and associated vehicle fleet transitioned to Genentech SSF's responsibility early in 2010. The vehicle emissions arising from the entire US commercial organization have been included in the 2009-2011 data presented in the Data Table in order to align with the baseline for the Roche Group energy goal.

Vehicle Fleet Emission Factors (Gasoline)

GHG	Year	Emission Factor	Source
CO_2	2008-2010	8.81 kg/gallon	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 5 (May 2008)
	2011	8.78 kg/gallon	U.S. EPA Emission Factors for GHG Inventories (November 2011)
CH_4	2008-2011	0.0051 g/mile	U.S. EPA Emission Factors for GHG Inventories (November 2011) Weighted Emission Factor for 2008 – present based on an assumed SUV: passenger car mix.
N_2O	2008-2011	0.0168 g/mile	

Vehicle Fleet Emission Factors (Diesel)

GHG	Year	Emission Factor	Source
CO_2	2008-2010	10.15 kg/gallon	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 5 (May 2008)
	2011	10.21 kg/gallon	U.S. EPA Emission Factors for GHG Inventories (November 2011)
CH_4	2008-2011	0.0015 g/mile	U.S. EPA Emission Factors for GHG Inventories (November 2011) Emission factor for 1996-present for advanced light trucks.
N_2O	2008-2011	0.001 g/mile	

Global Warming Potentials (GWP) for methane and nitrous oxide are as shown in the Greenhouse Gas Emissions from Energy Use section above.

Greenhouse Gas Emissions from HFC Use

This category includes emissions from stationary air conditioning, cooling and fire suppression equipment. 2009 and 2010 data are based on the extrapolated data reported to the Roche Group.

For 2008 either an estimated upper bounds leak rate or changes over the year in the onsite inventory of HFC gases (including the addition of HFCs brought on site by contractors and HFC disposal) was used as the basis for estimating releases to atmosphere from stationary equipment. Both of these methods led to an overestimate of releases. For 2009[1]-2011, the reported data are based on leak reports generated during servicing and maintenance, providing for a more accurate estimate of HFC releases.

The table below shows the HFC gases included in the emissions calculations, and their GWPs.

Gas Name	GWP	Source
R-134a	1,300	U.S. EPA Climate Leaders Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment
R-404A	3,260	
R-410A	1,725	
R-507	3,300	
ISCEON MO89	3,038	
R508B	10.530	
R23	11,700	
R407C	1,526	

Greenhouse Gas Emissions from Process Gases

2008 CO_2 emissions from dry ice and liquid and gas CO_2, were estimated using purchase data from the vendor. In the absence of standard calculation methods, Genentech assumes that 100% of the CO_2 used for these purposes is vented to the atmosphere.

2008 GHG emissions from Genentech's use of CH_4 and N_2O in manufacturing and research and development were also calculated using vendor purchase data and U.S. EPA Climate Leaders emission factors; emissions are reported as CO_2 equivalents.

In line with EPA Climate Leaders guidance, process gas emissions have been held flat from 2008 going forward.

Greenhouse Gas Emissions from Business Travel (Air)

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

The air travel data present CO_2e 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. 2009 is the first year for which meeting travel, booked through specialist travel agencies, is included in the reported data. Full year data are reported for 2008-2011.

As part of the integration of Genentech with Roche, the entire U.S. commercial organization transitioned to Genentech SSF's responsibility early in 2010. The air travel emissions arising from the entire U.S. commercial organization have been included in the 2009-2011 data presented in the Data Table in order to align with the baseline for the Roche Group energy goal.

The raw data we received on air travel miles for 2008-2010 have been broken down into short, medium, and long haul flights. GWPs for methane and nitrous oxide are as shown in the Energy Use section above.

In line with the DEFRA GHG Conversion Factor Guidelines, all emission factors below are combined with a 109% uplift factor in order to estimate total GHG emissions. All emission factors are for coach class travel.

Air Travel Emission Factors, 2008-2009

Flight Type/Gas	Emission Factor	Source
Short Haul (<300 miles)		
CO_2	0.171 kg/km	2009 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from CH_4	0.00013 kg/km	
CO_2e from N_2O	0.00168 kg/km	
Medium Haul (300 - 2,300 miles)		
CO_2	0.0098 kg/km	2009 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from CH_4	0.00001 kg/km	
CO_2e from N_2O	0.00097 kg/km	
Long Haul (>2,300 miles)		
CO_2	0.112 kg/km	2009 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from CH_4	0.00001 kg/km	
CO_2e from N_2O	0.0011 kg/km	

The 2010 emission factors are the same as for 2008-2009 with the following exceptions.

Air Travel Emission Factors, 2010

Flight Type/Gas	Emission Factor	Source
Short Haul (<300 miles)		
CO_2	0.175 kg/km	2010 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from N_2O	0.00169 kg/km	
Medium Haul (300 - 2,300 miles)		
CO_2	0.0097 kg/km	2010 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from N_2O	0.00095 kg/km	
Long Haul (>2,300 miles)		
CO_2	0.113 kg/km	2010 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6

[1] With the exception of the South San Francisco site which used the same method as for 2008

Air Travel Emission Factors, 2011

Flight Type/Gas	Emission Factor	Source
Short Haul (<300 miles)		
CO_2	0.163 kg/km	2011 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from CH_4	0.0001 kg/km	
CO_2e from N_2O	0.00161 kg/km	
Medium Haul (300 - 2,300 miles)		
CO_2	0.0096 kg/km	2011 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from CH_4	0.00001 kg/km	
CO_2e from N_2O	0.00094 kg/km	
Long Haul (>2,300 miles)		
CO_2	0.11 kg/km	2011 Guidelines to DEFRA GHG Conversion Factors for Company Reporting, Annex 6
CO_2e from CH_4	0.0000 1kg/km	
CO_2e from N_2O	0.001 kg/km	

Greenhouse Gas Emissions from Employee Commute

Employee commuting emissions estimates are based on the results of cordon counts to establish modal split at the points of entry to Genentech's South San Francisco facility. 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) and Caltrain. The study makes several assumptions such as the average distance traveled by Genentech employees traveling alone and the composition of the Genentech employees' vehicle fleet, and some portions of multimodal commutes. The WRI/WBSCD Employee Commute tool was used as the starting point for the CO_2 emissions model conversion factors. The model used to estimate employee commute emissions is updated and refined as better data and more detailed information becomes available. The 2011 estimates, and where appropriate, recalculations of the 2007-2010 estimates incorporate the following model refinements made during 2011:

- Updated emission factors for BART, taken from the BART Greenhouse Gas Inventory Report (Arup, 2008)
- Updated drive alone emissions factors from the 2011 US Department of Energy Transportation and Energy Data Book (30th Edition)
- The commute distance for all modes was recalculated from gRide registration data for October 2011. The new GIS data indicates that the average commute distance for most modes did not change significantly from 2010.

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.

For 2008 either an estimated upper bounds leak rate or changes over the year in the onsite inventory of gases, the addition of gases brought on site by contractors and CFC/HCFC disposal was used as the basis for estimating CFC and HCFC releases to atmosphere from the equipment. For 2009-2011, the data reported were based on leak reports generated during servicing and maintenance, providing for a more accurate estimate of releases. 2009-2011 data are extrapolated in line with the Roche approach to reporting.

In accordance with the Global Reporting Initiative reporting guidelines, we have reported CFC and HCFC releases as R11 equivalents, using the ozone depletion potentials below.

Gas Name	ODP	Source
R-12	1.0	Montreal Protocol Handbook
R-22	0.055	
R-502	0.221	http://www.refrigerant-supply.com/references/r-502.htm

General Waste

General waste includes trash, recyclables, food waste and other compostable materials and used electronic and electrical equipment. General waste excludes wastes that are managed by the Genentech Environmental, Health and Safety group, due to their regulated and/or hazardous nature.

Before 2011, most categories of waste from the SSF facility had been estimated using a standard weight per container multiplied by the number of container pick-ups during the reporting year. In 2011 SSF began to receive actual weight data from its waste vendor for the landfilled waste stream and several of the recycling streams. SSF estimates for 2009 and 2010 have been updated based on the average per container weight calculated in 2011. 2009 and 2010 landfill data have also been updated to include waste from the Dixon site (an ancillary site to SSF), which is also included in the 2011 data set.

Due to a lack of reliable information during the transition from construction to operation, the general waste data for Hillsboro are not included in the 2008 data.

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.

Diversion rate (%) is the total weight of recycled and composted waste divided by the total weight of all waste x 100.

Health and Safety

Injury and Illness Rate (IIR)

IIR is measured as the number of injuries/illness cases per 100 employees that resulted in medical treatment beyond first aid. The equation for calculating the IIR is:

$$\frac{\text{Number of injuries/illnesses that resulted in medical attention beyond first aid}}{\text{Total hours worked by all employees in the past year}} \times 200{,}000$$

Days Away/Restricted Time Rate (DART)

The DART rate is measured as the number of injuries and illness cases per 100 employees that resulted in missing one or more days of work or working with restrictions for one or more days. The equation for calculating the DART is:

$$\frac{\text{Number of injuries/illnesses that resulted in an employee losing one or more days of work or working one or more days with restrictions}}{\text{Total hours worked by all employees in the past year}} \times 200{,}000$$