Genentech Sustainability Data and Notes

2007 - 2010 Performance Data

	Units	2007	2008	2009	2010
Onsite Energy Use	1000 GJ				
Stationary Combustion		1,286	1,356	1,373	1,300
Purchased Electricity		1,017	1,120	1,108	1,125
Total Energy Use		2,303	2,476	2,481	2,425
Scope 1 and 2 GHG Emissions	Metric tons CO ₂ e				
Stationary Combustion		65,137	68,557	70,800	65,776
Purchased Electricity		112,839	104,139	107,480	99,529
Vehicle Fleet		11,865	12,097	27,820	22,540
Emissions from HFC Refrigerants		NR	4,011	2,631	1,143
Process Gases		877	1,178	1,178	1,178
Total Scope 1 and 2 GHG Emissions		190,718	189,983	209,910	190,166
Scope 3 GHG Emissions	Metric tons CO ₂ e				
Business Travel (Air)		20,584	28,160	40,841	49,900
Employee Commuting (SSF only)		39,426	33,312	32,621	25,699
Non-GHG Emissions to Air					
Volatile Organic Compounds (VOCs)	Metric tons	22	24	30	35
Ozone Depleting Substances (ODS)	Metric tons R-11e	NR	0.13	0.06	0.04
Total Water Use	Cubic meters	2,544,198	2,557,484	2,492,582	2,469,322
Chemical Waste	Metric tons				
Incineration		505	558	608	631
Landfill		222	164	370	269
Total Chemical Waste		727	722	978	900
General Waste	Metric tons				
Landfill		2,723	2,991	3,170	3,066
Recycling		2,377	2,162	3,050	3,132
Composting		628	775	926	900
e-waste		172	258	74	272
Total General Waste		5,900	6,186	7,220	7,370
Diversion Rate (general waste)	%	54	52	56	58
Safety Metrics					
Injury/Illness Incident Rate		1.3	1.2	1.4	1.2
Days Away/Restricted Time Rate		0.59	0.72	0.71	0.65

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 (SSF), 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 2007 to 2010 for all facilities except for our newest facility in Hillsboro, Oregon for which 2008 through 2010 data are reported.

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 which 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 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 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 data are also based on this extrapolation approach. The 2007 and 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 Roche was a member of the U.S. EPA Climate Leaders program before it 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_2 e).

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 US). Emissions associated with the use of process gases have been kept flat from 2008 through 2010.

Greenhouse Gas Emissions from Energy Use

2007 - 2009 reported data are based on full year performance. 2010 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 U.S. EPA eGrid2010 v1.1 (2007) were used to calculate GHG emissions.

Electricity-Related Emission Factors

Site	Year	Emission Factor	Source
South San Francisco, 20	2007	0.879 lb CO ₂ /kWh	U.S. EPA eGRID2006 v2.1 Regional emission factors for
Vacaville and		0.0366 lb CH ₄ /MWh	WECC California (CAMX)
Oceanside, California		0.0085 lb N ₂ 0/MWh	
	2008-2009	0.72412 lb CO ₂ /kWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for
		0.0302 lb CH ₄ /MWh	WECC California (CAMX)
		0.0081 lb N ₂ 0/MWh	
	2010	0.681 lb CO ₂ /kWh	U.S. EPA eGRID2010 v1.1 Regional emission factors for
		0.0208 lb CH ₄ /MWh	WECC California (CAMX)
		0.006 lb N ₂ 0/MWh	
Louisville, Kentucky	2007	1.495 lb CO ₂ /kwh	U.S. EPA eGRID2006 v2.1 Regional emission factors for
		0.0233 lb CH ₄ /MWh	SERC Tennessee Valley (SRTV)
		0.0237 lb N ₂ 0/MWh	
2008	2008 - 2009	1.509 lb CO ₂ /kWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for
		0.0201 lb CH ₄ /MWh	SERC Tennessee Valley (SRTV)
		0.0256 lb N ₂ 0/MWh	
	2010	1.541 lb CO ₂ /kWh	U.S. EPA eGRID2010 v1.1 Regional emission factors for
		0.02 lb CH ₄ /MWh	SERC Tennessee Valley (SRTV)
		0.026 lb N ₂ 0/MWh	
Hillsboro, Oregon	2008-2009	0.902 lb CO ₂ /kWh	U.S. EPA eGRID2007 v1.1 Regional emission factors for
2		0.0191 lb CH ₄ /MWh	WECC Northwest (NWPP)
		0.0149 lb N ₂ 0/MWh	
	2010	0.859 lb CO ₂ /kWh	U.S. EPA eGRID2010 v1.1 Regional emission factors for
		0.016 lb CH ₄ /MWh	WECC Northwest (NWPP)
		0.014 lb N ₂ O/MW	

Natural Gas-Related Emission Factors

Site	Year	Emission Factor	Source
All Sites	2007-2010	5.306 kg CO ₂ /therm	
		0.5 g CH ₄ /therm	US EPA Climate Leaders Stationary Combustion Protocol (May 2008)
		0.01 g N ₂ O/therm	(Way 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	US EPA Climate Leaders Stationary Combustion Protocol (May 2008)
		0.0001 kg N ₂ O/gallon	(Widy 2000)

Global Warming Potentials (GWP) Used to Calculate CO₂e

Gas Name	GWP	Source
CO ₂	1	U.S. EPA Climate Leaders Design
CH_4	21	Principles Protocol (May 2005)
N ₂ O	310	Table 6.3

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 2007-2009 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. 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 U.S. 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 and 2010 data presented in the Data Table in order to align with the baseline for the Roche Group energy goal.

Vehicle Fleet Emission Factors

Fuel/Gas Type	Emission Factor	Source
Gasoline		
CO2	8.81kg /gallon	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 5 (May 2008)
CH_4	0.0094g /mile	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 2 (May 2008). Weighted
N ₂ 0	0.0154g /mile	Emission Factor assuming fleet comprises 70% SUV:30% passenger cars.
Diesel		
CO2	10.15kg/gallon	U.S. EPA Climate Leaders Mobile Combustion Protocol Table 5 (May 2008)
CH_4	0.0015g/mile	U.S. EPA Climate Leaders Mobile Combustion Protocol
N ₂ 0	0.001g/mile	Table 2 (May 2008). Emission factor for advanced light trucks.

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 Gases

This category includes emissions from stationary air conditioning, cooling and fire suppression equipment. Reported data for 2008 are based on full year performance. 2009 and 2010 data are based on the extrapolated data reported to Roche Corporate.

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) were used as the basis for estimating releases to atmosphere from stationary equipment. Both of these methods led to an overestimate of releases. For 2009¹ and 2010, 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	
R-404A	3,260	
R-410A	1,725	
R-507	3,300	U.S. EPA Climate Leaders Direct HFC and PFC Emissions from Use of
ISCEON MO89	3,038	Refrigeration and Air Conditioning
R508B	10.530	Equipment
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 CO₂ used for these purposes is vented to the atmosphere.

2008 GHG emissions from Genentech's use of CH₄ and N₂O 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 CO₂ equivalents.

In line with EPA Climate Leaders guidance, process gas emissions have been held flat from 2008 in 2009 and 2010.

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 2007-2010.

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 US commercial organization have been included in the 2009 and 2010 data presented in the Data Table in order to align with the baseline for the Roche Group energy goal.

From 2008 onwards, the raw data on air travel miles have been categorized into short, medium and long haul. As the raw data we have for 2007 are not broken down in the same way, we assumed that all travel during this year was medium haul for the purpose of the 2007 Sustainability Report. In 2009, we used the 2008 air travel data to estimate the short, medium and long haul mileage breakdown for 2007 and revised the greenhouse gas emissions estimates accordingly. GWPs for methane and nitrous oxide are as shown in the Greenhouse Gas Emissions from 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, 2007-2009

Flight Type/Gas	Emission Factor	Source	
Short Haul (<300	miles)		
CO ₂	0.171kg/km	2009 Guidelines to DEFRA	
$\rm CO_2 e \ from \ CH_4$	0.00013kg/km	GHG Conversion Factors for Company Reporting, Annex 6	
$CO_2 e$ from N_2O	0.00168kg/km		
Medium Haul (30	Medium Haul (300 - 2,300miles)		
C0 ₂	0.0098kg/km	2009 Guidelines to DEFRA	
$\rm CO_2 e \ from \ CH_4$	0.00001kg/km	GHG Conversion Factors for Company Reporting, Annex 6	
$CO_2 e$ from N_2O	0.00097kg/km		
Long Haul (>2,300miles)			
CO ₂	0.112kg/km	2009 Guidelines to DEFRA	
$\rm CO_2 e \ from \ CH_4$	0.00001kg/km	GHG Conversion Factors for Company Reporting, Annex 6	
$CO_2 e$ from N_2O	0.0011kg/km		

The 2010 emission factors are the same as for 2007-2009 with the following exceptions.

Air Travel Emission Factors, 2010

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

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 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. 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 2010 estimates, and where appropriate, recalculations of the 2007-2009 estimates incorporate the following model refinements:

- Updated drive alone emissions factor taken from the 2010
 U.S. Department of Energy Transportation Energy Data Book
- The GenenBus CO₂ per passenger mile factor was recalculated based on updated data on fuel consumption.
- The commute distance for all modes was recalculated from gRide registration data for October 2010. The new GIS data indicates that the average commute distance for all modes decreased compared to previous calculations.

Non-GHG Emissions to Air

Volatile Organic Compound (VOC) Emissions

VOC emissions are reported for solvent wipe cleaning activities. Other sources of VOCs (such as boilers and generators) are excluded.

The products included in the data are alcohol wipes, solution (70% alcohol/30% water) and reagent alcohol (100% alcohol). The solvent types represented are ethanol, methanol and isopropanol.

The methods for calculating VOC emissions vary by site to align with the local air quality management district's regulatory procedures. For South San Francisco and Vacaville, the data are based on an assumption that 100% of the solvent used is emitted to air. In practice the actual VOC emissions are likely to be lower because some solvent will be retained on used wipes. For Oceanside, the VOC emissions calculations take into account the amount of solvent retained on used wipes, and removed from the facility as drummed waste.

Reported data for 2007-2009 are based on full year performance. 2010 data are based on the extrapolated data reported to Roche Group.

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 were used as the basis for estimating CFC and HCFC releases to atmosphere from the equipment. In 2009² and 2010, the data reported were based on leak reports generated during servicing and maintenance, providing for a more accurate estimate of releases. 2009 and 2010 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	
R-22	0.055	Montreal Protocol Handbook
R-502	0.221	http://www.refrigerant-supply.com/ references/r-502.htm

Waste

In previous Sustainability Reports, Genentech has categorized waste as either non-hazardous or hazardous waste regulated under federal and state law. Roche distinguishes between chemical and general wastes as defined in the individual sections below. To ensure alignment with the Roche corporate reporting approach, we have reported 2010 data in this way, and have also updated 2007-2009 reported waste data using the chemical/general waste definitions.

For both chemical and general waste, reported data for 2007-2009 are based on full year performance. 2010 data are based on the extrapolated data reported to Roche Corporate.

Chemical Waste

Chemical waste is any waste that is removed from a site for landfilling or incineration by waste vendors managed by the Environment, Health and Safety group. Included are:

- Wastes regulated for their hazardous properties under federal or state legislation (e.g., solvents, medical waste, asbestoscontaminated materials)
- Non-regulated chemical waste, such as urea
- Universal waste, including batteries, fluorescent tubes, and mercury-containing equipment

The following types of wastes are NOT included in the definition of chemical waste and are included in general waste:

- Used electronic and refrigeration equipment
- Empty, clean, non-contaminated drums

Roche does not separately track chemical wastes that are sent offsite for recycling or other forms of recovery. The volumes of such wastes produced by Genentech are minimal.

Roche does not include liquid waste that is shipped off-site for special wastewater treatment as chemical waste but instead includes it in a water consumption mass balance that Genentech sites are required to completed and report to the corporate group. Consequently, we no longer show an 'Other Treatment' category under Chemical Waste.

In addition to the 269 metric tons of chemical waste that was landfilled during 2010 and shown in the data table, the SSF site generated 656 metric tons of excavated soil material that was also landfilled.

General Waste

General waste includes all waste types that are not captured in the chemical waste category.

The data are based on actual weights where these are available, and estimates elsewhere. In previous years, most categories of waste in SSF had been estimated using a standard weight per container multiplied by the number of container pick-ups during the reporting year. The standard weights were based on the National Recycling Coalition Measurement Standards and Reporting Guidelines; EPA; FEECO and CIWMB 2006. In 2010 we obtained actual weights from our waste hauler for a sample of landfill, recycling, and food waste bins, which enabled us to update our weight factors per pick-up to be more accurate. All years' data for SSF have been adjusted for these more accurate weights.

Due to a lack of reliable information during the transition from construction to operation, 2008 data for Hillsboro and 2010 data for Dixon (an ancillary site to SSF) are not included.

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

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.

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:

Number of injuries/illnesses that resulted in medical attention beyond first aid

200,000

Х

Total hours worked by all employees in the past year

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:

Number of injuries/illnesses that resulted in an employee losing one or more days of work or working one or more days with restrictions

X 200,000

Total hours worked by all employees in the past year