

CARBON FOOTPRINT

CO₂ EMISSIONS – FULL SCOPE

G4 indicators : G4-DMA, G4-EN15, G4-EN16, G4-EN17, GA-EN18, G4-EN19

GRI Standards :

302-1: Energy

305-1, 305-2, 305-3, 305-4, 305-5: Emissions

We have committed to an ambitious policy aimed at limiting the direct and indirect impacts of our activities on the environment, throughout the life cycle of our products. We have identified five major environmental challenges relating to our businesses: greenhouse gas emissions and climate disruption; water; pharmaceuticals in the environment; waste; and biodiversity.

The initiatives already implemented since 2010 are ongoing, and we have been keen to give them fresh impetus through the Planet Mobilization program. Reflecting our environment strategy out to 2025, the program sets more ambitious targets for reducing environmental impacts across the entire value chain. Planet Mobilization is a global project that involves all the company's resources in defining objectives and engaging with external partners.

Based on 2015 figures, we are undertaking to halve our carbon emissions by end 2025 and reach carbon-neutral status by 2050 on our scope 1 & 2 (industrial, R&D and tertiary sites, including the medical rep fleet).

Objectives	2017 Progress and actions	Status
	In 2017, excluding emissions from sales representatives vehicles, we achieved a 22.5 % reduction in our Scope 1 and Scope 2 CO ₂ emissions compared to 2010.	Completed
2010-2020: Achieve a 20% reduction in the combined Scope 1 and Scope 2 CO ₂ emissions for industrial and R&D sites (excludes medical reps fleet)	Regarding Planet Mobilization objectives, we achieved 7% reduction by end 2017 vs 2015 baseline	On track
<p>New target : Planet Mobilization Program</p> <ol style="list-style-type: none"> 2015-2025: achieve a 50% reduction in the combined Scope 1 and scope 2 CO₂ emissions for industrial, R&D , administrative sites and sales force fleet. Become Carbon Neutral on Scope 1 & 2 by 2050. 	<ul style="list-style-type: none"> A global energy reduction program in all sites (including HVAC management program, led light program, etc...), A refrigeration unit was built at our Sisteron site. We installed cogeneration units at our Origgio (Italy) and Cologne (Germany) sites as well as a trigeneration unit at our Scoppito (Italy) site. A total of 24 sites obtained ISO 50001 certification. We implemented a carbon footprint approach for our Maalox manufacturing process in Italy. We made efforts to improve our buildings' environmental efficiency. We reduced CO₂ emissions due to the transport of medicines. We encourage employees to use car-pooling, electric cars and public transportation. We took steps to encourage the use of low carbon emitting cars by our medical sales force. We promote the use of virtual meetings as per our global travel policy. 	

For more information, see our [Documents Center](#):

- *Sanofi's Risks and Opportunities related to Climate Change Factsheet*
- *Health and Climate Change Factsheet*

I. GREENHOUSE GAS EMISSIONS RELATED TO SCOPE 1 & 2

1. Key figures

Scope 1 and 2 CO₂ emissions

Greenhouse Gases (Tonnes CO ₂ e) ^(a)	2017	2016
Direct emissions : scope 1	426 598	438 893
Indirect emissions : scope 2	473 430	473 430
Total	869 796	912 323

(a) CO₂e = CO₂ equivalent

Sanofi's energy consumption

Energy consumption (MWh)	2017	2016
Natural Gas	2 263 258	2 313 091
Electricity	1 653 561	1 697 853
Fuel (without methanol)	56 020	70 140
Renewable energies ^(a)	10 792	40 989
Others (steam, fluids, chilled water, compressed air)	310 408	264 290
Total	4 294 039	4 307 654

(a) Renewable energies are only relevant for biomass, hydrogen, and other renewable fuels purchased and burnt on-site.

2. Highlights

We have been able to reduce our combined scope 1 and 2 CO₂ emissions by 22.5% since 2010 thanks to our efforts to limit CO₂ emissions.

Compared to 2015 with the new perimeter of Planet Mobilization Program (Manufacturing sites, R&D sites and Administrative sites and sales force fleet), CO₂ emissions have been decreased by 7% by 2017.

Improving energy efficiency at our sites

Working with energy sector leaders: a strategic partnership

The Global Industrial Affairs Department, in close collaboration with the sites, procurement and HSE teams have set up specific partnerships with Schneider Electric and ENGIE since 2013 to improve the energy efficiency of facilities at our sites.

Since we consider energy, water and waste to be interconnected challenges, we established a global EWW (Energy, Water and Waste) program centralized by Industrial Affairs and cascaded to Sanofi's business units and sites worldwide.

In 2015, Sanofi took an important step when we signed a global agreement with *Suez Environnement* aimed at optimizing the economic and environmental performance of Sanofi's manufacturing sites worldwide. Among its main objectives, *Suez Environnement* will develop tailor-made solutions designed to:

- Improve the environmental efficiency of our sites by optimizing the operation of water and wastewater treatment systems and recovering energy from waste

- Preserve water resources, mainly by optimizing water management, wastewater treatment and recycling at production sites, as well as enhancing control of emissions and their treatment (e.g. VOCs)

Within the framework of this agreement, a new project is underway at our Sisteron (France) site to build a waste-to-energy plant. This new unit will treat liquid waste (solvents and aqueous phase), which represents 40% of the Sisteron site's total waste. The steam produced will be used for two purposes: to heat processes for chemical synthesis, and for Heat, Ventilation and Air-Conditioning (HVAC) systems and air treatment.

Within the framework of these partnerships, numerous studies are ongoing and many action plans are being implemented.

For more information, see our [Documents Center](#):

- *Water Management Factsheet*
- *Waste Management Factsheet*

Cogeneration and trigeneration units in Italy and Germany

In 2015, thanks to the Cofely partnership and initiatives carried out in Italy – at Anagni in 2014 and Brindisi in 2013 – we invested about €10 million to set up two new cogeneration units (combining heat and power) at our Cologne (Germany) and Origgio (Italy) sites.

Also in Italy, we have built a trigeneration unit at our Scoppito site. The term trigeneration refers to the simultaneous production of three forms of energy: electricity, hot water and cold water. The plant provides a major opportunity to reduce energy costs in Italy where there is a significant gap between electricity prices and natural gas prices. The performance of this new trigeneration plant reduces the site's energy costs by 36% and CO₂ emissions by 12%, which will enhance our competitiveness and bring us closer to achieving our environmental and sustainable production targets.

Trigeneration represents an important milestone for the Scoppito site. This plant is just one of four such facilities being built in Italy, and exemplifies Sanofi's efforts to preserve the environment and have a positive impact on local communities.

A new refrigeration unit for our Sisteron site

Within the scope of the Sanofi-Cofely partnership, we have installed a centralized refrigeration unit at our Sisteron (France) site using the most advanced techniques. This new unit reduces electricity consumption by 7.6 GWh annually, which represents around 15% of the site's electricity consumption. This new plant is using ammoniac and CO₂ instead of freons with high Global Warming Potential.

Energy audits and ISO 50001 certifications

Sanofi has expanded its program with Schneider Electric to help improve energy performance – which to date has focused on research for energy efficiency opportunities like cogeneration and refrigeration units – to include wide-ranging audits of energy and management systems at our sites.

In 2017, 24 sites are certified ISO 50001, compared to 21 in 2016. Such certification attests to the efficiency of our sites' energy management systems.

Reducing our carbon footprint: the Maalox case study

At our Scoppito site, we carried out a carbon footprint analysis of the production of Maalox 400 mg tablets for sale on the Italian market. This study was designed to identify activities that could be modified to reduce energy consumption and CO₂ emissions. Sanofi received a carbon footprint certification following this study, conducted in compliance with the ISO/TS 14067 standard. This is the first time this type of certification has been granted for a pharmaceutical product – indeed, no similar studies have been conducted in the pharmaceutical industry to date. The findings are expected to help us lower production costs and thereby enhance the company's competitiveness.

Making our buildings and facilities more environmentally friendly

Since Sanofi introduced our Sustainable Building Charter in 2013, we have sought to make our tertiary buildings more eco-friendly. To date, a total of 15 administrative buildings for our R&D and production activities have received LEED (Leadership in Energy and Environmental Design) certification, and four administrative buildings in France are HQE-certified, located at the Campus Sanofi Val de Bièvre (CSVB), Lyon Carteret, Toulouse and La Boétie sites.

For instance, in 2015, we inaugurated our new administrative site at the Campus Sanofi Val de Bièvre near Paris. To ensure high-energy performance as part of an eco-responsible approach, the new building is **bioclimatic*** in design. At the site, a specific energy policy supports this approach by strongly encouraging the control of energy consumption, energy-efficient purchasing and the replacement of equipment by identical energy-performing equipment. In addition, the CSVB site received two certifications:

- BREEAM (Building Research Establishment Environmental Assessment Method), with a rating of “very good”
- High Environmental Quality (HQE : Haute Qualité Environnementale), with a rating of “exceptional”

* **Bioclimatic** indicates that a building's location and design take into account the local climate and environment to reduce energy required for heating, cooling and lighting. The design of a bioclimatic building is based in particular on selecting suitable materials and using air circulation, solar radiation and geothermal techniques, as well as rainwater recovery.

For more information, see our [Documents Center](#): The Sustainable Building Charter

Our medical sales vehicle fleet

In 2017 the progressive renewal of the company's fleet was carried out with a focus on improving the fuel efficiency of our fleet and bringing it into line with the limit set at 120g CO₂/km. So far, around 59.1% of our total vehicle fleet is compliant with this limit, including two wheel vehicles in several Asian countries (India, Indonesia, Vietnam, etc.). These results have been achieved partly thanks to the “eco-driving” technique promoted among our affiliates, which helps limit fuel consumption. Eco-driving techniques are part of road safety training in many of the countries where we operate (including Australia, Brazil, Egypt and France). In addition, Sanofi continues to promote the use of low-carbon cars and now uses a total of nearly 3,200 such cars worldwide: 2,111 cars running on biofuel (mostly in Brazil); 1,081 hybrid cars (mostly in Japan); and 2 fully electric cars.

II. GREENHOUSE GAS EMISSIONS RELATED TO SCOPE 3

Scope 3 greenhouse gas (GHG) emissions are the other indirect emissions (vs. Scope 1&2) associated with other functions of the value chain (including transportation, purchased goods and services, waste generation, etc...).

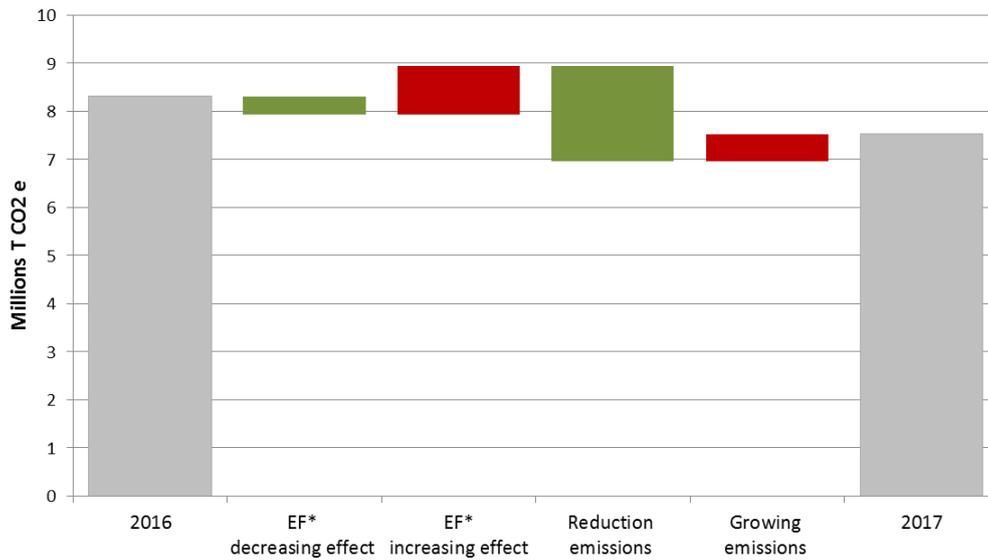
1. Context

Sanofi worked in collaboration with a third party expert to estimate the company's Scope 3 emissions based on a robust methodology. Sanofi has assessed the specific categories listed in the GHG Protocol by:

- Focusing on the most representative and manageable emissions, within a comprehensive framework;
- Using robust datasets, emissions factors and methodologies to convert those data into powerful and relevant values.

2. Key figures

In 2017, Sanofi's total scope 3 CO₂ emissions amounted to 7,5 Millions tonCO₂e, representing 90% of its global emissions (8,4 Millions ton CO₂e).



*Emission factors (EF) from
ECOINVENT database V3.3 2016 and 2017 emissions calculation.

Figure 3 - CO₂ Scope 3 emission trends (2016-2017).

III. EMISSIONS PER CATEGORY

Category	Description of the method	Source of information	2017 tCO ₂ e ⁽¹⁾	2016 tCO ₂ e	
Upstream GHG emissions					
1	Purchased goods	Calculation based on reliable activity data for the goods purchased	Activity data from the purchase database	2,883,850 ^{(b)&(c)}	4,746,971
2	Capital goods	Expenses for all items of the indirect procurement: Manufacturing Capex and services	Economic data from the purchase database	708,993 ^(d)	696,634
3	Fuel- and energy-related activities	Use of data related to energy consumption from industrial and R&D sites and assumptions to calculate emissions from the tertiary sites	Environmental database	377,687 ^{(b)&(d)}	605,035
4	Upstream transportation and distribution	Calculation based on reliable activity data such as distance between Sanofi sites, center sites and their main suppliers, and Emissions data directly provided by suppliers	Supply chain database	172,395 ^(c)	213,194
5	Waste generated in operations	Raw data reported by industrial and R&D sites, in metric tons broken down for each waste categories	Environmental database	417,021 ^{(b)&(d)}	454,633
6	Business travel	Based on global distance travelled by type of transport, and including hotel nights incurred during business travel	Purchase database and mileage sent by travel agencies	111,439 ^{(b)&(d)}	110,259
7	Employee commuting	Details on the number of employees per site combined with a survey	International social report and facility management mapping	167,823 ^(b)	102,811
8	Upstream leased assets	Included in Scope 1 & 2 (for energy use)		N.A. ^(e)	NA
Downstream GHG emissions					
9	Downstream transportation and distribution	Estimate of the distances and transportation modes for patients to buy Sanofi products		1,021,046 ^{(b)&(d)}	452,584
10	Processing of sold products	Amount of APIs and semi-finished products sold to other companies has been used, modeled, and evaluated thanks to several steps of calculation and hypothesis	Sanofi third party sales	111,722 ^(b)	184,211
11	Use of sold products	Assumptions based on primary data, including distances travelled, energy consumption for refrigeration, and the nurse's injection habits		1,359,430 ^{(b)&(d)}	904,707
12	End-of-life treatment of sold products	French collection efficiencies have been used and extrapolated worldwide since information on other countries are difficult to gather	Purchase database	198,853 ^(c)	261,253
13	Downstream leased assets	Not relevant for year 2015		N.A. ^(e)	N/A
14	Franchises	Sanofi does not operate franchises	Sanofi turnover	N.A. ^(e)	N/A
15	Investments	Included in other categories when relevant		N.A. ^(f)	N/A
Total Scope 3				7,530,260	8,732,292

(1) Published full Scope 3 emissions, completed in 2018 on 2017 data. New tool for Scope 3 emissions calculation based on recognized methodology and developed by an expert third party.

(b) change in the calculation methodology

(c) qualitative measurement improvement

(d) activity variation

(e) not significant

(f) This category applies to investors. Sanofi owns actions in companies that are customers or suppliers of Sanofi. The emissions generated by the products and services from those collaborations are already accounted for in other categories. In 2016 and 2017, in order to avoid double counting, the 15th category is considered as not applicable.

IV. RELIABILITY OF THE DATA AND METHODOLOGY USED FOR THE DIFFERENT CATEGORIES:

Scope 3 category	Level of contribution	Quality of data sources	Quality of the modeling & calculations	Exhaustiveness
1. Purchased goods	+++	+++	++	+++
2. Capital goods	++	+++	++	+++
3. Fuel- and energy-related activities (not included in Scope 1 or 2)	++	+++	++	+++
4. Upstream transportation and distribution	+	+++	++	++
5. Waste generated in operations	++	++	++	++
6. Business travel	+	++	++	++
7. Employee commuting	+	++	++	+++
8. Upstream leased assets	N.A.	N.A.	N.A.	N.A.
9. Downstream transportation and distribution	++	+	++	++
10. Processing of sold products	+	++	++	++
11. Use of sold products	++	++	++	+++
12. End-of-life treatment of sold products	+	++	++	+++
13. Downstream leased assets	N.A.	N.A.	N.A.	N.A.
14. Franchises	N.A.	N.A.	N.A.	N.A.
15. Investments	N.A.	N.A.	N.A.	N.A.

Captions:

- Level of contribution: Relative contribution of the category to the total Scope 3 emissions
 +++: Very high contribution
 ++: Significant contribution
 +: Small contribution
- Quality of data sources: Robustness of the data used for the calculation of Scope 3 emissions
 +++: Excellent quality (primary data mostly)
 ++: Good quality (primary data when possible, estimations/hypotheses for other aspects)
 +: Fair quality (mainly based on assumptions or public information)
- Quality of the modeling and calculations: Robustness of the hypothesis and emission factors used for the calculation of Scope 3 emissions
 +++: Excellent quality (almost no simplification, very precise modelling, adequate emission factors)
 ++: Good quality (adapted modelling, some simplification when necessary, proxies used for some of the calculations)
 +: Fair quality (mainly based on assumptions or public information)
- Exhaustiveness: Representativeness and relevance of the calculations to the overall category of the Scope 3 emissions
 +++: Very good exhaustiveness (calculations represent the overall category, for the most part without any gaps)
 ++: Good exhaustiveness (fairly complete representativeness of calculations for the category; some simplification)
 +: Fair exhaustiveness (the completeness of the modelling may not be optimal at all times)

Cat 1. Purchased goods and services: 2,883,850 tCO₂ e

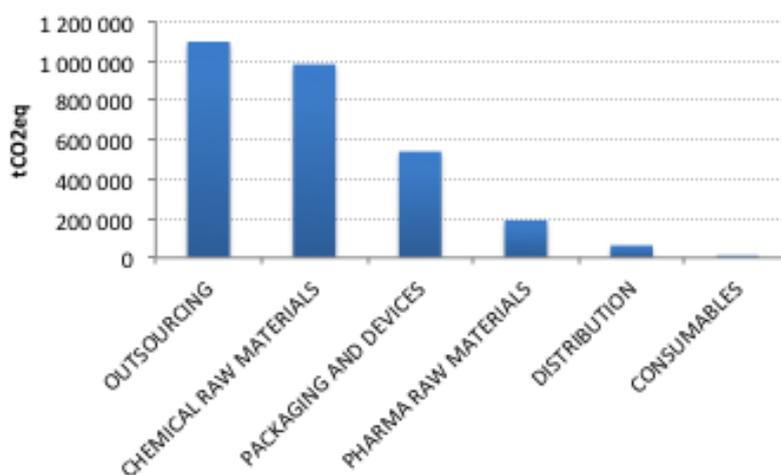
Definition: This category includes all upstream (i.e., cradle-to-gate) emissions from the manufacture of products purchased or acquired by the reporting company: active pharmaceutical ingredients, intermediates, reactive compounds and excipients, chemical raw materials, packaging materials, other industrial purchases, office supplies, services.

Status and methodology: The purchased items, sorted in 2 390 families, are modelled using a pool of 94 different emission factors coming from the Ecoinvent V3.3 database. The collected information has been focused on the type and mass of each product purchased for the reference period. Units of data gathered have been converted into adequate units for the calculation of the carbon footprint, using assumptions and internal Sanofi knowledge. A specific model for items related to subcontracting has been built based on internal Sanofi data.

The overall quality of the results for this category is considered as medium to high. The exhaustiveness is indeed extremely comprehensive; however, some improvements can still be done on the conversion factors applied to the reported quantities, and the emission factors chosen.

Significant improvements have been made during this year's reporting, especially with regards to the classification of the purchased goods.

Graph: Breakdown of Sanofi emissions by purchase category



Cat 2. Capital goods: 708,993 tCO₂ e

Definition: This category includes all upstream (i.e., cradle-to-gate) emissions from the production of capital goods purchased or acquired by Sanofi. The method used here is the average spend-based method, which involves estimating emissions for goods by collecting data on the economic value of goods purchased and multiplying by relevant emission factors (average emissions per monetary value of goods).

Status and methodology: Expenses for all indirect procurement (Capex, services, etc) have been collected through the procurement databases. Financial amounts (in EUR) are reported according to categories, sub-categories and HACAT types, themselves being associated with the adequate emission factor. Forty models have been used to represent all HACAT types.

The overall quality for this category is considered as medium to high. This quality can be upgraded by improving the database used for the modelling, as well as with a work in collaboration with the procurement department in order to match the best factors to the data.

Cat 3. Fuel- and energy-related activities: 377,687 tCO₂ e

Definition: This category includes emissions related to the production of fuels and energy purchased and consumed by the reporting company in the reporting year, that are not included in the direct emissions (Scope 1) and indirect emissions (Scope 2) categories.

Status and methodology: Scope 3 emissions in this category integrate all emissions of the life cycle of fuels, except the ones related to combustion: extraction, production and transportation of fuels that are combusted at Sanofi's sites, as well as transmission losses during distribution.

Sanofi consolidates data related to energy consumption on its industrial and R&D sites in their internal reporting software, and uses this data to compute scope 1 and 2. Sanofi also consolidates data related to fuel consumption for vehicles. For tertiary sites, assumptions have been made to calculate the emissions. The energy consumption data used for this calculation is consolidated at a corporate level and then validated by an external auditor. Emission factors for this category are a combination of LCA (full life cycle assessment) emission factors and GHG Protocol or IEA 2015 (direct only) emission factors.

The overall quality for this category is considered as medium to high. Levers of improvement would be to use primary energy consumptions for all tertiary sites, and to improve the robustness of some emission factors.

Cat 4. Upstream transportation and distribution: 172,395 tCO₂ e

Definition: This category includes emissions from the transportation and distribution of products (excluding fuel and energy products) purchased or acquired by Sanofi in vehicles and facilities not owned or operated by Sanofi, as well as other transportation and distribution services purchased by Sanofi (including inbound and outbound logistics).

Status and methodology: For emissions related to the transportation of sold products paid by Sanofi (inbound logistic and outbound logistic to wholesalers), the model relies on GHG-emissions provided by the top 5 forwarders, as well as the GHG-emissions tracking performed by the Supply Chain department, which estimates GHG emissions based on primary activity data such as tons per kilometre travelled by products. Additional estimates are made to cover some data gaps, especially regarding raw materials supply.

The overall quality of this assessment is considered as medium to high. Some levers of improvements could be applied to help fix these limitations, such as obtaining primary data for other parts of the Supply, or other activities of Sanofi.

Cat 5. Waste generated in operations: 417,021 tCO₂ e

Definition: This category includes emissions from third-party disposal and treatment of waste that is generated in Sanofi-owned or controlled operations. This category includes emissions from disposal of both solid waste and wastewater. Only waste treatment in facilities owned or operated by third parties is included in Scope 3 emissions.

Status and methodology: The information consolidated for this category is the amount of waste produced by each site, and type of treatment performed. This information is directly consolidated in Sanofi reporting for industrial and R&D sites.

The overall quality of this evaluation is considered as medium. Some improvements could be obtained by getting a better assessment of the waste generated on tertiary sites, as well as wastewater treatment options, and by getting more details on the type of waste in order to adapt the emission factors.

Cat 6. Business travel: 111,439 tCO₂ e

Definition: This category includes emissions from the transportation of employees for business-related activities in vehicles owned or operated by third parties, such as aircrafts, trains, buses, and passenger cars.

Status and methodology: For all Sanofi entities (incl. Genzyme and Pasteur), distances and associated CO₂ emissions for air travels for 14 Sanofi countries have been consolidated, representing 90% of all Sanofi air travelling. Distances and associated CO₂ emissions for rail travels have also been obtained. The number of hotel nights have been collected for some countries, to cater for an environmental impact for those overstays. Lastly, the number of car rentals has been obtained for some countries also.

Moreover, sales representatives' travels other than by cars have been included using assumptions in terms of transportation modes and estimates of distances travelled.

The overall quality of this evaluation is considered as medium. Some improvements could be obtained by collecting non-consolidated data, data from other countries when relevant, as well as more specific data regarding sales representatives.

Cat 7. Employee commuting: 167,823 tCO₂ e

Definition: This category includes emissions from the transportation of employees between their homes and their workplaces. Employee commuting at Sanofi consists in car, bus and rail travels.

Status and methodology: The number of employees per site, for all Sanofi sites worldwide, has been used and combined with a survey specifically conducted for the purpose of this study. 35 sites, over 17 countries, and 5 continents, have answered to the questionnaire, making it possible to represent the commuting habits of 105 550 Sanofi employees. Distinction between Sales representatives and other types of employees has been made, since no employee commuting is associated with sales representatives. The non-country specific emission factors used come from the Ecoinvent database, V3.3.

The overall quality of this evaluation is considered as medium. Some improvements could be obtained by collecting other answers from the survey.

CAT 8. Upstream leased assets: N/A

Definition: This category includes emissions from the operation of assets that are leased by the company and not already included in our Scope 1 or Scope 2 inventories. This category is mostly applicable to companies that operate leased assets (i.e., lessees), but can also be applicable to all companies leasing assets.

Status and methodology: Sanofi includes all leased assets in Scope 1 & 2 emissions inventory, even leased cars used by sales representatives. This category is not relevant for Sanofi.

Cat 9. Downstream transportation and distribution: : 1,021,046 tCO₂ e

Definition: This category includes emissions from transportation and distribution of products sold by the reporting company between the company's operation and the end consumer, if not paid for by the reporting company, in vehicles and facilities not owned or controlled by the reporting company. Transportation of finished products to the final customers is considered paid by Sanofi, hence integrated in category 4.

Status and methodology: Sanofi emissions accounted for in this category are emissions from customer travels to and from hospitals/doctors/pharmacies in order to get the products, and refrigeration during distribution and storage.

Hypotheses have been made to evaluate the distances and transportation mode for the patients to go to the pharmacy/hospital, and the energy consumption related to refrigeration of some types of products. Emission factors used come from the Ecoinvent V3.3 database.

The overall quality of this calculation is considered as low to medium. Some improvements could be obtained by gathering more primary data, and more information about some steps of the distribution.

Cat 10. Processing of sold products: 111,722 tCO₂ e

Definition: This category includes emissions from processing of intermediate products by third parties (e.g., manufacturers) after being sold by the reporting company. Intermediate products are products that require further processing, transformation, or inclusion in another product before use, and therefore result in emissions from processing after being sold by the reporting company and before its use by the end consumer.

Status and methodology: Sanofi produces APIs that are sold to other pharmaceutical companies, which manufacture final medicines using those APIs. The GHG emissions related to the processing of these APIs into final medicines at clients' plants is part of this category. Sanofi also produces semi-finished products that are sold to other pharmaceutical companies, which package these semi-finished products before selling the final products to end-users.

Number of APIs and semi-finished products sold to other companies have been collected from Sanofi and combined with the emissions that occur when processing API and semi-finished products into final medicines, obtained from Sanofi as a proxy.

The overall quality of this evaluation is considered as medium. Some improvements could be obtained by finding even more appropriate proxies while still using Sanofi data (country, type of product...), or even collecting primary data directly from third parties.

Cat 11. Use of sold products: 1,359,430 tCO₂ e

Definition: This category includes emissions from the use of goods and services sold by the reporting company in the reporting year. The scope 3 emissions from use of sold products include at least the scope 1 and 2 emissions of end users. End users include both consumers and business customers that use final products.

Status and methodology: Sanofi products may result in GHG emissions during use in three main cases: refrigeration of some products before use (all injectable products from pharma and Genzyme and all vaccines from Pasteur), direct emissions of propellant gases during the use of inhalers, nurse travels to deliver products to patients

Several assumptions based on primary data collected within Sanofi have been made, including travelled distances, energy consumptions for refrigeration, and injection habits regarding the nurse. All the emission factors used are taken from LCA database Ecoinvent.

The overall quality of this category is considered as medium, and the main levers of improvement would arise from having more specific data to avoid the combination of different assumptions.

Cat 12. End-of-life treatment of sold products: 198,853 tCO₂ e

Definition: This category includes emissions from the waste disposal and treatment of all products sold by the reporting company at the end of their life, during the reporting year. For Sanofi, this category includes the emissions related to the end of life of both packaging and unused medicines.

Status and methodology: Information related to unused medicines is difficult to gather since it depends on the country and consumers' habit. In France, Cyclamed is responsible for collecting and appropriately treating unused medicines. Similar organizations might exist in other countries, but not in every country. French collection efficiencies have been used and extrapolated worldwide to estimate how much unused medicines end up in public waste collection systems.

Regarding packaging end-of-life, procurement data have been used and 1 of 6 types of waste is attributed. The waste treatment scenario is a fair mix of incineration and landfilling, since the country of use of medicines is not known. The Ecoinvent emission factors are chosen depending on the packaging material and the type of treatment.

The quality of this category is considered as medium. Potential levers of improvement would be to have better insights on which purchased packaging are indeed sold as part of final products, as well as national statistics regarding medicine end-of-life treatment and disposal.

Cat 13. Downstream leased assets : N/A

Definition: This category is applicable to lessors, i.e., companies that receive payments from lessees. This category includes emissions from the operation of assets that are owned by the reporting company, acting as lessor, and leased to other entities in the reporting year that are not already included in Scope 1 or Scope 2.

Status and methodology: Sanofi includes all leased assets, if any, in the Scope 1 & 2 emissions inventory. Therefore, this category is not relevant for 2016.

Cat 14. Franchises: N/A

Definition: This category includes emissions from the operation of franchises not included in Scope 1 or Scope 2 emissions. A franchise is a business operating under a license to sell or distribute another company's goods or services within a certain location. This category is applicable to franchisors, i.e., companies that grant licenses to other entities to sell or distribute its goods or services in return for payments, such as royalties for the use of trademarks and other services. Franchisors should account for emissions that occur from the operation of franchises (i.e., the Scope 1 & 2 emissions of franchisees) in this category.

Status and methodology: Sanofi does not operate franchises. Therefore, this category is not relevant in 2017.

Cat 15. Investments: N/A

Definition: This category includes emissions associated with the reporting company's investments in the reporting year, not already included in Scope 1 or Scope 2. This category is mostly applicable to investors, i.e., companies that invest in order to make a profit, and companies that provide financial services.

Status and methodology: Sanofi has acquired shares in various other companies. However, the companies in which Sanofi owns shares are also suppliers or customers, which means that these companies' emissions in connection with Sanofi's activities are already accounted for in other categories (purchased goods and services, energy, processing of sold products, etc.). In order to avoid double counting, this category is considered not relevant.

V. HIGHLIGHTS

1. Reducing CO₂ emissions due to business travel and employee commuting

CO₂ emissions from business travel and employee commuting are part of our Scope 3 CO₂ emissions.

As part of our commitment to reduce our CO₂ emissions, Sanofi has taken steps to encourage employees to use lower-carbon means of transportation. For example, at our Campus Sanofi Val de Bièvre site, electric buses are provided to take employees from the site to the subway. Employees are strongly encouraged to choose public transportation and the site is equipped with a room for bikes and reserved spots for electric vehicles. To promote carpooling, a mobile application called "Smart Autostop" makes it easy for employees to locate nearby passengers and drivers for the work-home commute.

In addition, in order to limit emissions from business travel, a global internal travel policy, which applies to all Sanofi sites worldwide, sets criteria when preparing a business trip. Those criteria are automatically set within the booking tool used internally, depending on the duration of travel. Moreover, Sanofi promotes green meetings by encouraging the use of telepresence and high-definition video-teleconference equipment at several of our sites. Such rooms allow participants to avoid traveling to different sites and significantly reduce travel-related CO₂ emissions. As recommended by our global travel policy, virtual meetings option must be assessed and preferred before taking any decision to travel for business.

2. Supply chain as lever for reducing CO₂ emissions

Every day nearly 15 million medicines are distributed worldwide. Our supply chain is designed to deliver treatment while ensuring product quality. Aware of the impact that its medicine distribution activities can have on the climate, Sanofi has been providing solutions for over 10 years. Sanofi is committed to reducing our carbon footprint by adopting responsible practices to reduce our greenhouse gas emissions throughout the world.

Solutions to reduce the carbon footprint:

- Sanofi has been working on its international transport network significantly by reducing use of air transport and increasing maritime transports which is less polluting.
- Thereby maritime transport avoids the emission of 260,000 tons of CO₂ annually.

Other actions to create a more efficient and environmentally friendly multimodal transport chain were organized:

- Decrease air transport, and prioritize rail and waterways transports;
- Increase the fill levels of trucks and sea containers;
- Develop rail for intra-European deliveries;
- Experiment with electric and natural gas vehicles for in-town deliveries;
- Design packaging to reduce volume and optimize transport;
- Group product shipments and pool transport to reduce the number of trucks on the road.

Key figures:

- 80% of reduction of CO₂ emissions over 10 years;
- 86% of the intercontinental expeditions are made by sea route.

More efficient transport and environment-friendly, such is the new challenge that we settled.

For more information, see our [Documents Center](#):

- *Transporting Medicines Factsheet*
- *Sustainable Building Charter*
- *HSE Policy*
- *HSE Management System Factsheet*
- *Circular economy Factsheet*
- *Waste Management Factsheet*