



## Greenhouse Gas Emissions Calculation Methodology

Pfizer uses the World Resources Institute Greenhouse Gas Protocol's (GHG Protocol's) Corporate Accounting and Reporting Standard and associated Technical Guidance to calculate greenhouse gas emissions (GHG) for Scope 1, Scope 2, and Scope 3.

### Reporting Boundaries

Pfizer uses the operational control approach for reporting GHG emissions. Pfizer's corporate GHG inventory includes direct (Scope 1) and indirect (Scope 2) emissions from all facilities where Pfizer has full authority to introduce and implement operating policies as well as emissions associated with ancillary business activities which fall under Pfizer's control (e.g., fleet operations). Emissions associated with Pfizer's use of smaller leased office, research, and warehouse facilities are reported under the Scope 3 Upstream Leased Assets category.

Pfizer also reports additional relevant indirect (Scope 3) emissions from activities in our value chain outside our operational control. Reporting boundaries for Scope 3 categories vary and are described below.

### Baseline Adjustment

Emissions are baseline adjusted to reflect acquisitions and divestitures, reported absolute, using operational control boundaries per the WRI GHG Protocol. There may be differences in baseline and subsequent reporting year values reported due to changes in the business that require baseline adjustments conducted in accordance with the GHG Protocol. Historical estimates may periodically be subject to revision due to data source restatements and updates to methodology.

### Emission Factor Updates

Emission factors are updated annually to reflect any changes available from issuing bodies. Pfizer maintains a history of emission factor updates. Updates are applied from the effective date of the emission factor which may impact the calculated emissions for prior years.

### Emissions Quantification

Pfizer's GHG inventory, reported in metric tons of CO<sub>2</sub> equivalent (mtCO<sub>2</sub>e), includes Scope 1 and Scope 2 emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs and CO<sub>2</sub> resulting from the destruction of volatile organic compounds (VOCs) from both stationary and mobile sources. Pfizer's use of SF<sub>6</sub> is infrequent and in small quantities and therefore Pfizer reports emissions only when they occur. Pfizer does not use PFCs or NF<sub>3</sub> in equipment or operations and therefore does not include these emissions in reporting.

All sources of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O related to purchased electricity, steam, heating / cooling, and the burning of fossil fuels at sites are included. Pfizer uses standardized units of measurement conversions and GHG emissions factors to normalize the data into mtCO<sub>2</sub>e.

The inventory also includes estimated Scope 3 emissions for relevant upstream and downstream categories as defined by the GHG Protocol (purchased goods and services, capital goods, fuel- and energy-related activities not included in Scopes 1 & 2, upstream transportation and distribution, waste generated in operations, business travel, employee commuting, upstream leased assets, downstream transportation and distribution, and investments). Pfizer's Scope 3 inventory does not include emissions associated with the processing of sold products, use of sold products, end of life treatment of sold products, downstream leased assets, or franchises as emissions from these categories are not relevant to Pfizer's operations.

### **Direct Emissions (Scope 1)**

GHG emissions from stationary combustion are calculated by multiplying fuel consumption by the fuel-specific emissions factor. While CO<sub>2</sub> is the predominant GHG produced during combustion, smaller quantities of other GHGs (such as CH<sub>4</sub> and N<sub>2</sub>O) are also generated and are reported as CO<sub>2</sub>e emissions based on the total fuel consumed. Additionally, the quantity of CO<sub>2</sub> released by the thermal oxidation and/or biodegradation of VOCs is estimated based on data collected from manufacturing and research facilities. The calculation uses an empirically derived composite emissions factor (weighted for solvent composition of the VOC total) to convert VOC emissions reported to a CO<sub>2</sub> emission equivalent.

Direct mobile GHG emissions resulting from the combustion of fuels in company owned or leased automobiles and aircraft, referred to as fleet emissions, are accounted for in Pfizer's inventory. Annual fleet CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions are calculated by multiplying the total fuel consumed by the appropriate emission factor.

HFC emissions released during the use and servicing of air conditioning equipment (stationary and mobile) is conservatively estimated based on corporate-wide square footage (stationary) and miles driven (mobile) and by applying CO<sub>2</sub> emission factors to more readily available data. Stationary HFC emissions are estimated by multiplying the total corporate-owned facility square footage (from real estate inventory records) by an emissions factor derived from assumed air conditioning equipment cooling capacities and leakage rates. Mobile HFC emissions are estimated by multiplying total corporate-operated fleet CO<sub>2</sub> emissions by an average mobile emissions factor.

Prior to Pfizer eliminating its use of coal in early 2021, coal pile fugitive emissions were calculated based on annual coal purchases as per The Climate Registry guidance and are included in the footprint for relevant years.

Although not material, other process emissions, e.g., those associated with fermentation and dry ice, are included in Scope 1 emissions where feasible.

### **Indirect (Scope 2) Emissions**

Indirect GHG emissions include CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions related to purchased electricity, steam, and heating/cooling. All sources are included in the inventory, and emissions are calculated using consumption data reported by sites multiplied by the appropriate emission factor.

Location-based GHG emissions in the US are calculated using emission factors from the US EPA Emissions & Generation Resource Integrated Database (eGRID) and US EPA GHG Emission Factors Hub. International emissions are calculated using the International Energy Agency (IEA) Emissions Factors or WRI GHG Protocol's Emissions Factors from Cross-Sector Tools.

Market-based emissions are calculated using emission factors obtained from Pfizer's electricity suppliers. Emission factors used for market-based Scope 2 calculations follow the quality criteria defined in GHG Protocol's Scope 2 Guidance.

### **Value Chain Emissions (Scope 3)**

The calculation method for each Scope 3 category is summarized in the following subsections.

- **Scope 3 - Purchased Goods & Services**

Cradle-to-grave emissions for purchased goods and services are estimated based on spend using secondary emission factors. Spend data is extracted from Pfizer's accounting systems (i.e., SAP and E1) by material category and material group (e.g., material category: IT Hardware, Supplies & Software; material group: Software and Licenses). Spend associated with purchased goods

and services with an associated GHG footprint is segregated by product or service type and multiplied by the most appropriate emission factor to estimate emissions (CO<sub>2</sub>e). Spend not considered to have a significant Scope 3 GHG footprint (e.g., colleague wages, customer rebates, taxes, etc.) is excluded from the calculation.

Two sets of emission factors are used:

- Emission factors estimated by an outside consultant (ERM). ERM's approach to estimate Emission Factors for Purchased Goods and Services follows the average-data method and the spend-based method, as outlined in the GHG Protocol Technical Guidance.<sup>1</sup>
  - DEFRA 2011 Table 13 Emission Factors converted to USD and adjusted for inflation as explained in the DEFRA appendix.
- **Scope 3 - Capital Goods**

Cradle-to-grave emissions for capital goods are estimated based on spend using secondary emission factors. Spend data is extracted from Pfizer's accounting systems (i.e., SAP and E1) by category. Spend associated with capital goods is segregated by product type (e.g., air & spacecraft and related machinery, computer, electronic & optical products; machinery and equipment; motor vehicles) and multiplied by an emission factor estimated by an outside consultant (ERM) to estimate emissions (CO<sub>2</sub>e). ERM's approach to estimate Emission Factors for Capital Goods follows the spend-based method, as outlined in the GHG Protocol Technical Guidance.
  - **Scope 3 - Fuel- and Energy-related Activities Not Included in Scope 1 or 2**
    - a. Emissions associated with the production of stationary and mobile fuels.

Emissions associated with the production of stationary and mobile fuels are calculated by multiplying consumption by fuel type (gross CV in MWh) by appropriate emission factors. The emission factors used for this subcategory are the UK Government GHG Conversion Factors for Company Reporting (current year) and include CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (CO<sub>2</sub>e).
    - b. Emissions associated with production of electricity (i.e., WTT-Generation and WTT-Transmission and Distribution (T&D)).

Emissions associated with the production of electricity (i.e., WTT-Generation and WTT-T&D) for all countries are calculated using UK Government GHG Conversion Factors for Company Reporting (current year) and include CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (CO<sub>2</sub>e).

Emissions associated with electricity T&D losses for the UK sites are calculated using UK Government GHG Conversion Factors for Company Reporting (current year) and include CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (CO<sub>2</sub>e). Emissions associated with electricity T&D losses for non-UK sites are calculated using IEA Emission Factors (current year) and include CO<sub>2</sub> emissions only.
    - c. Emissions associated with the production as well as T&D losses of heat and steam.

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<sup>1</sup> Pfizer Scope 3 Carbon Footprint. Standard Operating Procedure for Selected Categories. 25th January 2021. Project No.: 0574485

Emissions associated with the production (i.e., WTT-Generation and WTT-T&D) as well as transmission and distribution (T&D) losses of heat and steam are calculated for all countries using UK Government Conversion Factors for Company Reporting (current year) and include CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (CO<sub>2</sub>e).

- d. T&D losses associated with chilled water.

T&D losses associated with chilled water are excluded from reporting due to unavailability of an emission factor but are anticipated to be <0.1% of the total emissions for this category.

- **Scope 3 - Upstream Transportation and Distribution**

Emissions estimates for upstream transportation and distribution include international transportation, market (i.e., domestic) transportation in the US (Pfizer's largest market) and emissions associated with the use of dry ice in COVID-19 vaccine transportation globally.

- a. Data for international transportation and distribution services in Europe is collected by Pfizer's Intercompany Operations (IO) team and includes shipment mode, origin and destination, mass of goods, and total distance travelled. Emissions are calculated using distance, shipment weight and average emission factors from GHG Protocol Cross-Sector Tools (latest edition) for each mode of transport for the US, UK, and rest of world. Emissions associated with the transportation of goods purchased from our Tier 1 suppliers (e.g., raw materials, packaging materials) are excluded as they are included in Category 1, Purchased Goods and Services.
- b. COVID-19 vaccine transportation data (not including market US vaccine transport) is provided by the vaccine transportation team and includes shipment mode, country of origin and city of destination and weight of goods (estimated based on box size). Approximately 85% of the boxes used to transport the vaccine are returned to Pfizer so the transportation of the empty boxes is included as well. The IO calculates distances and GHG emissions using the same methodology used for international transportation described above.
- c. Emissions associated with US market transportation are obtained directly from the three main vendors (FedEx-Parcel, UPS-Parcel and CH Robinson). Additionally, for full truckload providers, fuel surcharge data is used to estimate gallons of diesel fuel consumed and 2022 US EPA GHG Emission factors are applied to estimate GHG emissions. For less than truckload providers, weight, average distance/shipment and average freight emission factors from the GHG Protocol Cross Sector Tools are used. Activity data is provided by the US market logistics team.
- d. Pfizer's sites report liquid CO<sub>2</sub> used and dry ice purchased in Pfizer's internal EHS reporting system. Emissions are calculated using emission factors developed by an external engineering firm.

- **Scope 3 - Waste Generated in Operations**

Emissions (CO<sub>2</sub>e) associated with the disposal of waste generated by Pfizer are calculated using waste disposal and wastewater discharge data reported by operations within Pfizer's control and UK Government GHG Conversion Factors for Company Reporting (current year). Emission factors include collection, transportation, and landfill emissions ('gate to grave') for waste sent to landfill. For combustion and recycling, the factors consider transport to an energy recovery or material reclamation facility only. Pfizer's data collection does not differentiate between

open and closed loop recycling and therefore uses emission factors for closed loop recycling as most representative of typical operations. Other treatment is typically a mixture of treatments, however, because most waste reported as "other disposal" by Pfizer locations is sent to wastewater treatment, the wastewater treatment emission factor is used to estimate emissions for all waste reported in this category.

- **Scope 3 - Business Travel**

Emissions associated with air travel, hotel stays, car use (rental and personal, excluding the use of personal cars by US sales colleagues) and rail travel booked within Pfizer's travel system are calculated by the consulting arm of Pfizer's travel agency using detailed primary data such as distance, aircraft type, cabin class, etc., plus secondary data when primary data is not available. Air travel emission factors include radiative force. Personal and rental car travel emissions include WTT emissions.

Emissions associated with the use of personal cars for business by sales colleagues in the US are calculated using data from the company's reimbursement service provider and US EPA emission factors.

Pfizer is currently working to develop our methodology for estimating emissions associated with travel booked outside Pfizer's travel system.

- **Scope 3 - Employee Commuting**

Emissions associated with employee commuting are estimated using the average annual employee headcount by region and country reported by human resources. These calculations exclude remote colleagues (i.e., colleagues that work from home 5 days a week or are field-based and not affiliated with a Pfizer site).

Commuting distance for all colleagues is estimated based on data published by NationMaster<sup>2</sup>; for countries not included in the NationMaster list, the median distance per region was estimated.

Commuting methods for North American colleagues are estimated based on a study published by Bloomberg in 2019<sup>3</sup>. Commuting method assumptions for colleagues outside North America are made based on general knowledge of the region.

Average commute distance, number of commute days, and type of transportation are estimated. Emissions associated with employee commuting in North America are calculated using US EPA Climate Leaders GHG emission factors (current year). Emissions for all other regions are calculated using DEFRA emission factors (average car, unknown fuel type; national rail; light rail and tram; and average local bus).

Incremental increases in emissions resulting from employees working from home are estimated using a methodology developed from information provided in the "Homeworking Emissions Whitepaper" published by EcoAct. Incremental emissions due to use of office equipment at home are calculated for all countries. Incremental emissions due to use of heating are calculated for US and Europe. Incremental emissions due to cooling are calculated for the US

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<sup>2</sup> NationMaster Commuting Distances:

<https://www.nationmaster.com/countryinfo/stats/Transport/Commute/Distance>

<sup>3</sup> Bloomberg: [www.bloomberg.com/news/articles/2019-01-22/how-americans-commute-to-work-in-maps](http://www.bloomberg.com/news/articles/2019-01-22/how-americans-commute-to-work-in-maps)

only. EPA emission factors (current year) are used for the US. DEFRA emission factors (current year) are used for UK; and IEA emission factors (current year) are used for the rest of the world.

- **Scope 3 - Upstream Leased Assets**

Emissions associated with Pfizer's occupancy of leased building areas not covered by Scopes 1 & 2 are calculated based on occupied square footage obtained from Pfizer's real estate database using the GHG Protocol/Quantis Scope 3 Evaluator.

- **Scope 3 - Downstream Transportation and Distribution**

Data for downstream US domestic transportation and distribution services is obtained from Pfizer's Network and Site Analytics team and includes origin and destination, mass of goods, and total distance travelled. Emissions are calculated using the distance, shipment weight and average GHG Protocol emission factor for truck transportation averages for the US, UK and all other European countries.

- **Scope 3 - Processing of Sold Products**

Not relevant. Pfizer products are not typically subjected to further processing.

- **Scope 3 - Use of Sold Products**

Not relevant. Pfizer products are not likely to create significant emissions in normal use.

- **Scope 3 - End-of-life Treatment of Sold Products**

Not relevant. GHG emissions associated with the normal use of Pfizer products are negligible. Products returned to Pfizer for destruction by Pfizer are accounted for in waste treatment estimate.

- **Scope 3 - Downstream Leased Assets**

Not relevant. Pfizer is not a significant lessor of real estate. Emissions from real estate assets within Pfizer sites that are leased to third parties are included in Scope 1+2 emissions and are therefore not reported under Scope 3.

- **Scope 3 - Franchises**

Not relevant. Pfizer does not operate franchises.

- **Scope 3 - Investments**

Pfizer has an interest in a joint venture (ZHOPL) located in India. The site reports energy consumption data directly in Pfizer's internal EHS reporting system and the system is used to calculate Scope 1+2 emissions for the site.

Emissions associated with other Pfizer investments are not considered significant and are not included in the calculation.

### External Assurance/Verification

Pfizer's GHG emissions (excluding Scope 3 downstream transportation and distribution) are verified annually by an independent consultant. Assurance is undertaken in accordance with methodology aligned with the International Standard for Assurance Engagements ISA3000 (Revised).