2022 Novartis environmental performance indicators

Our reporting process: The 2022 environmental and resource data published in the Novartis in Society Integrated Report are actual data for the period from January through September and best estimates for the period October through December. This data has now been updated with actual data for the full year 2022, following the criteria set out by the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.

Energy [million GJ]	2020	2021	2022
Energy use - on site and purchased	10.9	9.8	**9.6**
Renewable energy generated on site	0.0	0.0	**0.0**
Purchased renewable energy[1]	2.8	2.9	**3.6**
Greenhouse Gas (GHG) emissions (1 000 tCO_2e)			
Total scope 1 emissions	378.3	352.8	**343.1**
Combustion and process	287.0	264.1	**244.8**
Vehicles	91.3	88.7	**98.3**
Total Scope 2 emissions (market-based)	335.5	292.7	**147.5**
Total Scope 2 emissions (location-based)[2]	487.2	439.4	**391.5**
Total Scope 1 and Scope 2 emissions	713.8	645.5	**490.6**
Total Scope 1 and Scope 2 from energy consumption (market-based excluding offsets)	700.8	632.8	**481.7**
Total Scope 3 emissions[3]	7,268.8	7,290.4	**7,663.1**
Purchased goods and services	5,754.0	5,958.4	**6,260.5**
Capital goods	278.7	303.8	**268.7**
Fuel and energy related activities	282.3	255.6	**249.6**
Upstream transportation and distribution	319.9	199.6	**177.0**
Waste generated in operations	27.9	26.4	**28.2**
Business travel[4]	68.3	36.2	**99.2**
Employee commute	103.5	127.2	**131.5**
Downstream transportation and distribution	145.7	62.5	**62.9**
Use of sold products[5]	164.0	199.2	**260.1**
End-of-life treatment of sold products	124.5	121.5	**125.4**
Total Scope 1, Scope 2 and Scope 3 emissions	7,982.6	7,935.9	**8,153.7**
Carbon offsets[6]	33.6	-34.7	**30.7**
Emissions intensity [tCO_2e]			
Scope 1 and Scope 2 per million USD sales	14.4	12.3	**9.7**
Scope 1 and Scope 2 per full-time equivalent position (FTE)	6.6	6.1	**4.6**
SO2 per million USD sales	0.0	0.0	**0.0**
NOx per million USD sales	0.0	0.0	**0.0**

Emissions to Air [t]	2020	2021	2022
Halogenated volatile organic compounds (VOCs)	11.6	0.8	**0.7**
Non-halogenated volatile organic compounds (VOCs)	443.0	304.7	**333.7**
Ozone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)	0.0	0.0	**0.0**
Sulfur Oxides (SO2)	4.3	3.1	**3.0**
Nitrogen Oxides (NOx)	212.0	190.6	**176.7**
Particulates	11.4	7.7	**6.2**
Water [million m^3]			
Total water withdrawal[7]	54.7	47.6	**50.6**
Surface water	7.0	6.5	**7.3**
Groundwater	41.7	35.3	**36.9**
Third-party water	5.9	5.7	**6.4**
Water collected from rain	0.0	0.0	**0.0**
Total water discharged[8]	54.5	46.6	**49.6**
Discharged directly to surface water (for cooling)	46.1	38.9	**41.8**
Water consumption[9]	8.4	7.7	**7.8**
Operational Waste [1000 t]			
Total waste generated	130.6	102.5	**99.3**
Total non-hazardous waste	68.7	65.6	**65.8**
Total hazardous waste	61.9	36.9	**33.5**
Total waste recycled	88.5	72.3	**69.5**
Waste recycled (%)	68%	71%	**70%**
Non-hazardous waste recycled	59.9	54.9	**54.9**
Hazardous waste recycled	28.7	17.4	**14.6**
Non-hazardous waste recycled (%)	87%	84%	**83%**
Hazardous waste recycled (%)	46%	47%	**44%**
Total waste not-recycled	42.1	30.2	**29.8**

Operational Waste [1000 t]	2020	2021	2022
Non-hazardous waste not-recycled	8.8	10.7	**10.9**
Incineration	5.3	5.7	**5.7**
Landfilling	3.0	4.7	**5.0**
Other disposal options	0.5	0.3	**0.2**
Hazardous waste not-recycled	33.3	19.5	**18.9**
Incineration	31.7	18.4	**17.4**
Landfilling	0.4	0.0	**0.0**
Other disposal options	1.6	1.1	**1.5**
Other			
Amount of significant health, safety & environment (HSE) fines or penalties [USD]	5,291.1	0.0	**0.0**

[1] Purchased renewable energy reflects energy reductions with energy attribute certificates (Renewable Energy Certificates / Guarantees of Origin).

[2] Using location-based emission factors published in 2014 or 2015 depending on geography and data source. We plan to update the emission factors in the future reporting periods with the latest available one.

[3] Scope 3 emissions are reported in accordance with the GHG Protocol, calculating categories which are considered relevant based on qualitative and quantitative analysis.

[4] Data includes indirect emissions from air travel, train travel, car rentals and hotel stay.

[5] For all disclosed years, the calculation for our inhaler is based on the IPCC 2015 GHG emission factor and assumes all hydrofluorocarbon (HFC) gas used in the production process is released upon use of the inhalers. We are in the process of determining if a portion of this gas is released during manufacturing and whether a portion also remains in the inhaler after its use, which would therefore need to be excluded from our calculation of Scope 3 use of sold products emissions.

[6] Carbon offsets are based on data provided by third parties. For further details, please see our Reporting criteria document.

[7] Water withdrawals includes water used for cooling and returned to the environment without the need for additional treatment.

[8] Water consumption and non-contact water withdrawn from the environment for cooling and returned directly to the environment after use.

[9] Water discharged via treatment and water lost.

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