



Greenhouse Gas (GHG) Protocol Disclosure Report

Management of Dow is responsible for the completeness, accuracy and validity of the Environmental, Social and Governance (ESG) disclosures referenced or included in the GHG Protocol Disclosure Report for the year ended December 31, 2021. Management is also responsible for the collection, quantification and presentation of the information included in the 2021 ESG Report and for the selection of the criteria, which management believes provide an objective basis for measuring and reporting on the ESG disclosures.

Management of Dow asserts that the ESG disclosures referenced or included in the GHG Protocol Disclosure Report for the year ended December 31, 2021, are presented in accordance with GHG Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), published by the World Resources Institute/World Business Council for Sustainable Development. Any information relating to Scope 3 was not subject to Deloitte & Touche LLP's review; and accordingly they do not express a conclusion or any form of assurance on such information.

Dow Disclosures – GHG Protocol Disclosure Report

Reporting Policy and Scope for Greenhouse Gas Emissions

Scope 1 and 2 GHG emissions are collected and accounted for in accordance with the World Resources Institute/World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition).

The GHG emissions covered by this inventory are based on the calendar year January 1 to December 31, 2021. Dow reports GHG emissions under the operational control approach criteria described in this standard. The company reports GHG emissions at approximately 100 sites globally with approximately 25 of those sites accounting for over 95% of our total GHG emissions. In cases where asset ownership is shared, a company has operational control over an asset if they have the full authority to introduce and implement its operating policies at the facility. For operations where Dow is a 50-50 partner or less and does not have full authority to implement our policies, emissions are excluded from this inventory.

Scope 3 emissions data are prepared according to the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, as well as the WBCSD's Guidance for Accounting and Reporting Corporate GHG Emissions in the Chemical Sector Value Chain. Scope 3 GHG emissions data is reported for 13 of the 15 categories. Dow continues to work to develop data collection methodologies aligned with Scope 3 reporting for categories not currently being reported.

Current Global Emissions in CO₂e

The following accounting includes four of the seven GHG emissions covered by the UNFCCC/Kyoto protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and hydrofluorocarbons (HFCs). Dow does not have emissions of perfluorocarbons (PFCs), sulfurhexafluoride (SF₆), or nitrogen trifluoride (NF₃). GHG emissions are reported in metric tons of carbon dioxide equivalents (CO₂e).

GHG Emissions (Millions of Metric Tons CO ₂ e)	2021	2020 (Base Year)	Amount Change 2021/2020	% Change 2021/2020
Scope 1	28.29	28.49 ¹	-0.23	-0.8%
Scope 1 Emissions from Power Sold to Third Party/Grid	5.74	5.56	+0.18	+3.2% ²
Scope 2 (Market)	5.68	6.07	-0.39	-6.4%
Scope 2 (Location)	3.94	3.95	-0.01	-0.3%
Gross Scope 1&2 (Market)	33.97	34.56	-0.62	-1.8%
Scope 3	77.64	69.26	+8.38	+12% ³

¹ Updates to the 2020 Scope 1 GHG baseline were completed in 2021 to account for facilities and emissions not previously reported and corrections in calculation methodologies.

² Emissions associated with sold power increased in 2021 vs 2020 due to excess electric power generated at one of our North American facilities which was sold to the GRID

³ For additional information on 2020/2021 changes see 305-3 Other indirect (Scope 3) GHG emissions



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Other GHG Emissions

GHG Emissions (Millions of Metric Tons CO ₂ e)	2021	2020 (Base Year)	Amount Change 2021/2020	% Change 2021/2020
Biomass CO ₂ ¹	0.54	0.45	+0.08	+17.4%
“Other” GHG Emissions ²	0.06	0.09	-0.03	-33.3%

¹ In 2021, our purchased steam energy calculation was updated to use the work potential method. Previous reporting utilized the energy content method. 2020 value has been updated in this report to reflect the work potential method.

² Other GHG Emissions includes bromomethane, carbon monoxide, carbon tetrachloride, dimethyl ether and methylene bromide.

Calculation Methodologies

When calculating Scope 1 GHG emissions, source data is collected within multiple systems following internal processes. Calculation methodologies vary based on a hierarchical approach. Permit-specific or regulatory-required emissions factors are prioritized and, where these do not exist, other published emissions factors and calculation methodologies are used. Some sources for these factors include [Intergovernmental Panel on Climate Control \(IPCC\)⁷ Guidelines for National Greenhouse Gas Inventories](#); U.S. Resources ([U.S. EPA State Inventory and Projection Tools⁷](#); [U.S. Emissions Factor Resources⁷](#), or [AP-42⁷](#)); and German Environmental Authority (12/2016).

For the purposes of tracking against our targets to reduce GHG emissions, Dow utilizes the market-based methodology for Scope 2 accounting. Emissions are calculated by multiplying the amount of company-purchased steam and electricity consumed by supplier-specific emissions factors or factors denoted through energy attribute certificates, when available. When these factors are not available, Dow utilizes location-based emission factors rather than utilizing the residual mix emission factors. The impacted portion of electricity purchases is insignificant to overall Scope 2 emissions. Dow also reports Scope 2 emissions using the location-based method in which quantities of company-purchased steam and electricity are multiplied by the appropriate emissions factors for that geographic area, rather than supplier-specific factors. EPA EGrid factors are used for U.S.-based locations and International Energy Agency (IEA) factors are used for non-U.S. locations.

GHG emissions calculations for Scope 3 follow the Greenhouse Gas Protocol and use recognized methodologies that leverage Dow’s primary data from purchasing, logistics, and sales records to build robust inventories. Most emissions are estimated using best available GHG emissions factors from sources like Ecoinvent v3.8, economic input-output models, and the Global Logistics Emissions Council (GLEC) Framework, although primary data from the value chain was used wherever possible.

Base Year

Dow measures our progress toward our current reduction target by our baseline year, 2020. If changes occur in the configuration of Dow assets or if significant emission changes are found that make a material impact to our global footprint, the baseline year will be recalculated to include the new configuration. These changes include, but are not limited to, transfer of ownership, improvement of calculation methodologies or the accuracy of emissions factors, and discovery of significant errors, singly or collectively.

Baseline emissions for 2020 Scope 1 GHG emissions were updated in 2021 in accordance with our business rules to include previously not reported emissions from landfills and wastewater treatment facilities and improvements in calculation methodologies. Baseline emissions for 2020 Scope 2 GHG emissions are calculated using the market-based method.

Targets

For GHG emissions targets, see GRI 302-103 Energy Management Approach 2016 and 305-103 Emissions Management Approach 2016. For additional information on method’s used, see 305-2 Energy indirect (Scope 2) GHG emissions.

Global Warming Potential (GWP)

To compare the global warming impacts of different greenhouse gases, a universal unit of measurement is needed. Global warming potential (GWP) factors were developed to measure the amount of energy the emissions of one ton of gas will absorb relative to one ton of carbon dioxide. For Scope 1 emissions, in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, Dow uses the most recent IPCC assessment report (AR6) 100-year GWP values for all data, including the baseline, to maintain consistency across time. For Scope 2 emissions, Dow requests, but does not verify, the factors used when data is received from our suppliers. We will continue to improve our understanding of the factors used by our suppliers to represent the information as accurately as possible in the future.



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Scope 1 Emissions by GHG

GHG Emissions	2021 Scope 1 (MT)	2021 Scope 1 Total (MT CO ₂ e)	2020 Scope 1 (Base Year) Total (MT CO ₂ e)
Carbon Dioxide	27,470,000	27,470,000	27,630,000
Methane	19,000	570,000 ¹	519,000 ¹
Nitrous Oxide	580	159,000	251,000
HFCs	60	94,000	85,000

¹ Assumes all methane emissions are “fossil” and uses associated emissions factors provided in the IPCC AR6 report. Conservative method as non-fossil methane emissions has a lower GWP factor.

Note: Numbers are rounded for reporting purposes. Dow does not have emissions of PFCs, SF₆, or NF₃. Speciated emissions data is not available for Scope 2 accounting as suppliers provide the data to Dow in carbon dioxide equivalents. Dow will continue to work with suppliers to improve the information provided so the data can be reported in future reports.

To include a complete and comparable emissions disclosure relevant to users of this information, Dow will continue to work with suppliers to improve the information provided so that speciated emissions data can be reported for both market-based and location-based Scope 2 accounting in future reports.

Scope 3 Emissions by Activity

Category (Millions of Metric Tons CO ₂ e)	2021	2020	Amount Change 2021/2020	% Change 2021/2020
Category 1: Purchased Goods & Services	39.65	38.17	+1.48	3.88%
Category 2: Capital Goods	1.97	1.76	+0.21	11.93%
Category 3: Fuel & Energy Related Activities	5.22	4.75	+0.47	9.89%
Category 4: Upstream Transportation & Distribution ¹	2.01	4.14	-2.13	-51.45%
Category 5: Waste Generated in Operations	1.04	1.75	-0.71	-40.57%
Category 6: Business Travel	0.0045	0.0051	-0.0006	-11.76%
Category 7: Employee Commuting	0.051	0.046	+0.0049	10.61%
Category 8: Upstream leased Assets	0.014	0.017	-0.0029	-17.47%
Category 9: Downstream Transportation & Distribution ¹				
Category 10: Processing of Sold Products ²				
Category 11: Use of Sold Products	11.13	6.44	+4.69	72.83% ³
Category 12: End-Of-Life Treatment of Sold Products	11.96	7.27	+4.69	64.51% ⁴
Category 13: Downstream Leased Assets ⁵	0	0	0.00	0
Category 14: Franchises ⁵	0	0	0.00	0
Category 15: Investments	4.59	4.92	-0.33	-6.71%

¹ Emissions from Category 9: Downstream Transportation & Distribution have been re-aligned to Category 4: Upstream Transportation & Distribution to comply with the GHG Protocol.

² Dow is currently developing a methodology to report this category in the future.

³ The increase in emissions in category 3.11 was primarily tied to the growth in sales of hydrocarbon-based byproducts from Dow’s manufacturing processes that are used in fuel by downstream customers. In addition, we included a carbon black feed in this category, which contributed a small but significant increase in downstream emissions.

⁴ The End-of-Life emissions in category 3.12 are due to an increase in revenue, which was used as a proxy to estimate the end-of-life emissions for sold products.

⁵ Dow does not currently have any downstream leased assets or franchises therefore these categories are not relevant for Scope 3 accounting.



GHG Protocol Assurance Statement



INDEPENDENT ACCOUNTANTS' REVIEW REPORT

**Management of
Dow Inc. and The Dow Chemical Company
Midland, MI**

We have reviewed management of Dow Inc.'s and its consolidated subsidiaries, including The Dow Chemical Company (collectively, "Dow" or the "Company") assertion that the GHG Protocol Disclosure Report referenced or included within the accompanying Dow 2021 Environmental, Social and Governance Report (the "2021 ESG Report") for the year ended December 31, 2021 is presented in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), published by the World Resources Institute/World Business Council for Sustainable Development (the "GHG Protocol"). The Company's management is responsible for its assertion. Our responsibility is to express a conclusion on management's assertion based on our review.

Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA) in AT-C section 105, *Concepts Common to All Attestation Engagements*, and AT-C section 210, *Review Engagements*. Those standards require that we plan and perform the review to obtain limited assurance about whether any material modifications should be made to management's assertion in order for it to be fairly stated. The procedures performed in a review vary in nature and timing from, and are substantially less in extent than an examination, the objective of which is to obtain reasonable assurance about whether management's assertion is fairly stated, in all material respects, in order to express an opinion. Accordingly, we do not express such an opinion. Because of the limited nature of the engagement, the level of assurance obtained in a review is substantially lower than the assurance that would have been obtained had an examination been performed. We believe that the review evidence obtained is sufficient and appropriate to provide a reasonable basis for our conclusion.

We are required to be independent and to meet our other ethical responsibilities in accordance with the *Code of Professional Conduct* issued by the AICPA. We applied the *Statements on Quality Control Standards* established by the AICPA and, accordingly, maintain a comprehensive system of quality control.

The procedures we performed were based on our professional judgment. In performing our review, we conducted inquiries and performed analytical procedures. For a selection of amounts, we performed tests of mathematical accuracy of computations, compared the amounts to underlying records, or observed the data collection process in regard to the accuracy of the data in the GHG disclosures.

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The preparation of the GHG disclosures in the GHG Protocol Disclosure Report included within the 2021 ESG Report requires management to interpret the criteria, make determinations as to the relevancy of information to be included, and make estimates and assumptions that affect the reported information. Measurement of Scope 1 and Scope 2 GHG emissions includes estimates and assumptions that are subject to substantial inherent measurement uncertainty resulting, for example, from the accuracy and precision of greenhouse gas emission conversion factors. Obtaining sufficient, appropriate review evidence to support our conclusion does not reduce the inherent uncertainty in the amounts and GHG disclosures. The selection by management of different but acceptable measurement methods, input data or assumptions may have resulted in materially different amounts or GHG disclosures being reported.

Information outside of the GHG Protocol Disclosure Report, including linked information, was not subject to our review, including the Alignment to U.N. Sustainable Development Goals, TCFD Disclosure Report, SASB Disclosures Report, WEF Disclosure Report, and Non-GAAP Financial Measures and, accordingly, we do not express a conclusion or any form of assurance on such information. Any information relating to Scope 3 was not subject to our review; and accordingly, we do not express a conclusion or any form of assurance on such information. Further, any information relating to Scope 3 and periods prior to the year ended December 31, 2021 or information relating to forward looking statements, targets, goals and progress against goals, was not subject to our review and, accordingly, we do not express a conclusion or any form of assurance on such information.

Based on our review, we are not aware of any material modifications that should be made to management of Dow's assertion that the GHG Protocol Disclosure Report included within the accompanying 2021 ESG Report for the year ended December 31, 2021 is presented in accordance with the GHG Protocol, in order for it to be fairly stated.

Deloitte & Touche LLP

June 15, 2022