

Advancing Climate Solutions

Progress Report
GHG Data Supplement
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ExxonMobil

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CAUTIONARY STATEMENT WARNING

CAUTIONARY STATEMENT RELEVANT TO FORWARD LOOKING INFORMATION FOR THE PURPOSE OF THE “SAFE HARBOR” PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

Statements of future ambitions, goals, events or conditions in this supplement and the underlying publication, including projections, plans to reduce emissions and emissions intensity, sensitivity analyses, expectations, estimates, the development of future technologies, and business plans, are forward-looking statements. Similarly, emission-reduction roadmaps to drive toward net zero are dependent on future market factors, such as continued technological progress and policy support, and represent forward-looking statements. Actual future results, including the achievement of ambitions to reach Scope 1 and 2 net zero from operated assets by 2050, to reach Scope 1 and 2 net zero in Upstream Permian Basin unconventional operated assets by 2030, to eliminate routine flaring in-line with World Bank Zero Routine Flaring, to reach near zero methane emissions from operated assets, to meet greenhouse gas emission reduction plans or goals, divestment and start-up plans, and associated project plans; technology efforts such as timing and outcome of projects to capture and store CO₂, produce biofuels, integrate hydrogen projects, and use plastic waste as feedstock for advanced recycling; future cash flows; and reserve or resource changes could vary depending on the ability to execute operational objectives on a timely and successful basis; policy and consumer support for emission-reduction products and technology; changes in laws and regulations including international treaties and laws and regulations regarding greenhouse gas emissions, plastics, and carbon costs; government incentives; trade patterns and the development and enforcement of local, national and regional mandates; unforeseen technical or operational difficulties; the outcome of research efforts and future technology developments, including the ability to scale projects and technologies such as advanced recycling on a commercially competitive basis; changes in supply and demand and other market factors affecting future prices of oil, gas, and petrochemical products; availability of feedstocks for biofuels or advanced recycling; changes in the relative energy mix across activities and geographies; the actions of competitors; changes in regional and global economic growth rates and consumer preferences; actions taken by governments and consumers resulting from a pandemic; changes in population growth, economic development or migration patterns; military build-ups or conflicts; and other factors discussed in this release and in Item 1A. “Risk Factors” in ExxonMobil’s Annual Report on Form 10-K for 2021 and subsequent Quarterly Reports on Forms 10-Q, as well as under the heading “Factors Affecting Future Results” on the Investors page of ExxonMobil’s website at www.exxonmobil.com. This supplement includes 2022 greenhouse gas emissions performance data and Scope 3 Category 11 estimates for full-year 2022 as of March 1, 2023. The greenhouse gas intensity and greenhouse gas emission estimates include Scope 2 market-based emissions. We do not undertake to provide any further updates or changes to any data or forward-looking statements in this document. Neither future distribution of this material nor the continued availability of this material in archive form on our website should be deemed to constitute an update or re-affirmation of these figures or statements as of any future date. Any future update will be provided only through a public disclosure indicating that fact.

This supplement and the underlying document are shareholder-requested publications and are purposefully focused on unknown future events. They are not intended to communicate any material investment information. The statements and analysis in these documents represent a good faith effort by the Company to address these requests despite significant unknown variables and, at times, inconsistent market and government policy signals. Energy demand modeling aims to replicate system dynamics of the global energy system, requiring simplifications. The reference to any scenario, including any potential net zero scenario, does not imply ExxonMobil views any particular scenario as likely to occur. In addition, energy demand scenarios require assumptions on a variety of parameters. As such, the outcome of any given scenario using an energy demand model comes with a high degree of uncertainty. For example, the IEA describes its NZE scenario as extremely challenging, requiring unprecedented innovation, unprecedented international cooperation, and sustained support and participation from consumers. Third-party scenarios discussed in this report reflect the modeling assumptions and outputs of their respective authors, not ExxonMobil, and their use or inclusion herein is not an endorsement by ExxonMobil of their underlying assumptions, likelihood, or probability. Investment decisions are made on the basis of ExxonMobil’s separate planning process but may be secondarily tested for robustness or resiliency against different assumptions, including against various scenarios. Any reference to ExxonMobil’s support of a third-party organization within this supplement and the underlying document does not constitute or imply an endorsement by ExxonMobil of any or all of the positions or activities of such organization. References to projects or opportunities may not reflect investment decisions made by the corporation or its affiliates. Individual projects or opportunities may advance based on a number of factors, including availability of supportive policy, technology for cost-effective abatement, company planning process, and alignment with our partners and other stakeholders. Capital investment guidance in lower-emissions investments is based on plan; however, actual investment levels will be subject to the availability of the opportunity set and focused on returns.

ExxonMobil reported emissions, including reductions and avoidance performance data, are based on a combination of measured and estimated data. Calculations are based on industry standards and best practices, including guidance from the American Petroleum Institute (API) and Ipieca. Emissions reported are estimates only, and performance data depends on variations in processes and operations, the availability of sufficient data, the quality of those data and methodology used for measurement and estimation. Emissions data is subject to change as methods, data quality, and technology improvements occur, and changes to performance data may be updated. Emissions, reductions and avoidance estimates for non-ExxonMobil operated facilities are included in the equity data and similarly may be updated as changes in the performance data are reported. ExxonMobil’s plans to reduce emissions are good-faith efforts based on current relevant data and methodology, which could be changed or refined. ExxonMobil works to continuously improve its approach to identifying, measuring, and addressing emissions. ExxonMobil actively engages with industry, including API and Ipieca, to improve emission factors and methodologies, including measurements and estimates.

References to “resources,” “resource base,” “recoverable resources” and similar terms refer to the total remaining estimated quantities of oil and natural gas that are expected to be ultimately recoverable. The resource base includes quantities of oil and natural gas classified as proved reserves, as well as quantities that are not yet classified as proved reserves, but that are expected to be ultimately recoverable. The term “resource base” is not intended to correspond to SEC definitions such as “probable” or “possible” reserves. For additional information, see the “Frequently Used Terms” on the Investors page of the Company’s website at www.exxonmobil.com. References to “oil” and “gas” include crude, natural gas liquids, bitumen, synthetic oil, and natural gas. The term “project” as used in this supplement or the underlying publication can refer to a variety of different activities and does not necessarily have the same meaning as in any government payment transparency reports. Exxon Mobil Corporation has numerous affiliates, many with names that include ExxonMobil, Exxon, Mobil, Esso, and XTO. For convenience and simplicity, those terms and terms such as “Corporation,” “company,” “our,” “we,” and “its” are sometimes used as abbreviated references to one or more specific affiliates or affiliate groups. Abbreviated references describing global or regional operational organizations, and global or regional business lines are also sometimes used for convenience and simplicity. Nothing contained herein is intended to override the corporate separateness of affiliated companies. Exxon Mobil Corporation’s goals do not guarantee any action or future performance by its affiliates or Exxon Mobil Corporation’s responsibility for those affiliates’ actions and future performance, each affiliate of which manages its own affairs.

Greenhouse gas emissions performance data⁸

We assess our performance to support continuous improvement throughout the organization. The reporting guidelines and indicators of Ipieca, the American Petroleum Institute (API), and the International Association of Oil and Gas Producers Sustainability Reporting Guidance for the Oil and Gas Industry (2020) informed the selection of the data included in this performance table. These guidelines are based on the GHG Protocol. The performance data in the July 2022 Advancing Climate Solutions Progress Report was based upon IPCC AR4. The following data table is based upon IPCC AR6.⁹⁰ [Lloyd's Register Quality Assurance](#) has provided their independent limited level of assurance that the 2021 ExxonMobil greenhouse gas emissions inventory meets ISO 14064-3 expectations.

Managing the risks of climate change

	Units	2016	2018	2019	2020	2021	2022
Operated basis							
Net GHG (excludes exported power and heat)⁷¹	(million metric tons CO ₂ e)	114	112	107	100	100	97
Scope 1 GHG emissions⁷²	(million metric tons CO ₂ e)	109	106	100	95	96	96
CO ₂	(million metric tons CO ₂)	99	97	94	90	91	91
CH ₄	(million metric tons CO ₂ e)	9	9	7	5	5	4
Other gases	(million metric tons CO ₂ e)	<1	<1	<1	<1	<1	<1
Emissions from exported power and heat	(million metric tons CO ₂ e)	3	3	2	2	2	2
Scope 2 GHG emissions (location-based)⁷³	(million metric tons CO ₂ e)	8	9	9	7	7	7
Scope 2 GHG emissions (market-based)⁷⁴	(million metric tons CO ₂ e)	8	9	9	7	7	4
Energy attribute certificates (RECs, GOOs)	(million metric tons CO ₂ e)	0	0	<1	<1	1	3
Methane (CH₄)	(million metric tons CH ₄)	0.30	0.31	0.22	0.16	0.16	0.14
Methane (CH₄) intensity*	(metric tons CH ₄ per 100 metric tons of throughput or production)	0.07	0.07	0.05	0.04	0.04	0.03
GHG emission intensity (Scope 1 + Scope 2)	(metric tons CO ₂ e per 100 metric tons of throughput or production)	26.5	26.5	25.6	25.0	24.0	23.2
Upstream*	(metric tons CO ₂ e per 100 metric tons production)	29.3	30.1	26.7	24.8	22.9	21.9
Downstream	(metric tons CO ₂ e per 100 metric tons of throughput)	20.0	19.4	19.8	20.2	20.1	19.5
Chemical	(metric tons CO ₂ e per 100 metric tons production)	52.6	52.0	53.1	51.2	49.0	48.0
By-division GHG emissions (Scope 1 + Scope 2)	(million metric tons CO ₂ e)	117	115	109	102	102	100
Upstream	(million metric tons CO ₂ e)	53	51	47	44	41	39
Downstream	(million metric tons CO ₂ e)	46	44	42	40	41	41
Chemical	(million metric tons CO ₂ e)	19	20	19	19	19	19
ENERGY - OPERATED BASIS							
Energy use	(billion gigajoules)	1.5	1.5	1.5	1.5	1.5	1.5
Upstream energy intensity	(gigajoules per metric tons production)	2.4	2.5	2.5	2.5	2.4	2.1
Downstream energy intensity	(gigajoules per metric tons throughput)	2.9	3.0	3.1	3.3	3.4	3.3
Chemical energy intensity	(gigajoules per metric tons product)	10.3	9.7	10.2	11.3	10.0	11.1
FLARING - OPERATED BASIS							
Hydrocarbon flaring (worldwide activities)	(million standard cubic feet per day)	530	410	430	320	280	250
Africa/Europe/Middle East	(million standard cubic feet per day)	400	250	230	170	170	130
Americas	(million standard cubic feet per day)	70	100	160	120	80	80
Asia Pacific	(million standard cubic feet per day)	60	50	40	30	30	30
Hydrocarbon flaring (worldwide activities) intensity*	(m ³ per metric tons of throughput/production)	12	10	10	8	7	6
Scope 1 - Greenhouse gas emissions from flaring	(million metric tons CO ₂ e)	15	12	12	9	8	7
CO₂ - captured for storage	(million metric tons of CO ₂)	6	7	6	6	6	6
Equity basis							
Net GHG (excludes exported power and heat)⁷¹	(million metric tons CO ₂ e)	125	125	120	112	113	110
Scope 1 GHG emissions⁷²	(million metric tons CO ₂ e)	120	120	114	108	110	109
CO ₂	(million metric tons CO ₂)	111	111	107	102	104	104
CH ₄	(million metric tons CO ₂ e)	9	9	7	6	5	5
Other gases	(million metric tons CO ₂ e)	<1	<1	<1	<1	<1	<1
Emissions from exported power and heat	(million metric tons CO ₂ e)	3	3	3	3	3	3
Scope 2 GHG emissions (location-based)⁷³	(million metric tons CO ₂ e)	8	8	8	8	7	7
Scope 2 GHG emissions (market-based)⁷⁴	(million metric tons CO ₂ e)	8	8	8	7	7	4
Energy attribute certificates (RECs, GOOs)	(million metric tons CO ₂ e)	0	0	<1	<1	1	3
Methane (CH₄)	(million metric tons CH ₄)	0.29	0.30	0.24	0.19	0.18	0.16
Methane (CH₄) intensity	(metric tons CH ₄ per 100 metric tons of throughput or production)	0.06	0.06	0.05	0.04	0.04	0.03
GHG emission intensity (Scope 1 + Scope 2)	(metric tons CO ₂ e per 100 metric tons of throughput or production)	26.0	26.2	25.8	25.7	25.2	24.6
Upstream	(metric tons CO ₂ e per 100 metric tons production)	26.6	27.4	25.7	24.8	24.0	23.6
Downstream	(metric tons CO ₂ e per 100 metric tons of throughput)	20.2	19.6	19.8	20.3	20.6	20.0
Chemical	(metric tons CO ₂ e per 100 metric tons production)	54.7	54.6	55.8	54.7	51.9	50.9
By-division GHG emissions (Scope 1+Scope 2)	(million metric tons CO ₂ e)	128	128	123	115	117	113
Upstream	(million metric tons CO ₂ e)	59	59	56	52	51	48
Downstream	(million metric tons CO ₂ e)	47	44	43	40	42	42
Chemical	(million metric tons CO ₂ e)	22	24	24	23	23	23
CO₂ - captured for storage	(million metric tons CO ₂)	6	7	7	7	7	7

*ExxonMobil announced greenhouse gas emission-reduction plans⁷ compared to 2016 levels

Scope 3 emissions



The table below provides Scope 3 estimates associated with the use of our natural gas and crude production in alignment with Category 11 of Ipieca’s methodology, which contemplates accounting for products at the point of extraction, processing, or sales. Scope 3 estimates represent three approaches for accounting and are not meant to be aggregated, as this would lead to duplicative accounting.

Estimated Scope 3 emissions from the use of ExxonMobil’s crude and natural gas production for the year ending Dec. 31, 2022, as provided under Ipieca’s Category 11 were 540 million metric tons.

For example, for completeness, the Scope 3 estimates associated with the combustion of the crude processed, produced, or sold from our refineries are provided; however, to avoid duplicative accounting, these Scope 3 estimates are not included in our Scope 3 Category 11 total, since the associated Scope 3 emissions would have been reported by the producer of those crudes.

Applied CO₂ emission factors were obtained from EPA or derived from API calculations; where applicable, emission factors for specific fuel products were applied. Non-fuels products are not combusted by the end user and therefore are not included in these Scope 3 estimates. Ipieca’s Scope 3 methodology includes 15 categories of activities along each product’s value chain. Due to lack of third-party data, Scope 3 emissions for categories other than Category 11 could not be estimated. Scope 3 guidelines are based on the GHG Protocol.

ExxonMobil 2022 Scope 3 estimates

(Million metric tons CO₂-equivalent)

Ipieca Category 11 Scope 3 potential estimates		Upstream production	Refining throughput	Petroleum product sales
Natural gas production	170	540	640	720
Crude production	370			



Footnotes

Footnote ordering consistent with 2023 ACS Progress Report, <https://corporate.exxonmobil.com/-/media/global/files/advancing-climate-solutions-progress-report/2023/2023-ac-progress-report.pdf>.

- 07** ExxonMobil's 2030 GHG emission reduction plans, https://corporate.exxonmobil.com/News/Newsroom/Newsreleases/2021/1201_ExxonMobil-announces-plansto-2027-doubling-earnings-and-cash-flow-potential-reducing-emissions.
- 08** ExxonMobil's reported emissions, reductions, and avoidance performance data are based on a combination of measured and estimated emissions data using reasonable efforts and collection methods. Calculations are based on industry standards and best practices, including guidance from the American Petroleum Institute (API) and Ipieca. There is uncertainty associated with the emissions, reductions, and avoidance performance data due to variation in the processes and operations, the availability of sufficient data, quality of those data and methodology used for measurement and estimation. Performance data may include rounding. Changes to the performance data may be reported as part of the company's annual publications as new or updated data and/or emission methodologies become available. We are working to continuously improve our performance and methods to detect, measure and address greenhouse gas emissions. ExxonMobil works with industry, including API and Ipieca, to improve emission factors and methodologies, including measurements and estimates.
- 90** IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2391 pp. doi:10.1017/9781009157896.
- 91** The net GHG metric includes Scope 1 GHG emissions and Scope 2 GHG emissions (market-based), excluding emissions from exported power and heat.
- 92** Scope 1 (direct emissions) include emissions from exported power and heat.
- 93** Includes indirect emissions from imported electricity, heat, steam, and cooling.
- 94** Includes indirect emissions from imported electricity, heat, steam, and cooling; incorporates the purchase of energy attribute certificates (RECs, GOOs).