Arch Capital Group Ltd.

Task Force on Climate-Related Financial Disclosures

For the year ended Dec. 31, 2022

Important Legal Information

The inclusion of information contained in this report should not be construed as a characterization regarding the materiality or financial impact of that information. For a discussion of information that is material to Arch, please see our 2022 Annual Report on Form 10-K for the fiscal year ended Dec. 31, 2022, filed with the SEC on Feb. 24, 2023 ("2022 Annual Report"). Moreover, this report may use certain terms, including those that TCFD or others may refer to as “material,” to reflect the issues or priorities of the Company, its subsidiaries and its stakeholders. Used in this context, however, these terms are distinct from, and should not be confused with, the terms “material” and “materiality” as defined by or construed in accordance with securities, or other, laws or as used in the context of financial statements and reporting.

This report may include forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 (“PSLRA”), which reflect our current views with respect to future events, risks and uncertainties. All statements other than statements of historical fact included in or incorporated by reference in this report are forward-looking statements. Forward-looking statements, for purposes of the PSLRA or otherwise, can generally be identified by the use of forward-looking terminology such as “may,” “will,” “expect,” “intend,” “estimate,” “anticipate,” “believe” or “continue” and similar statements of a future or forward-looking nature or their negative or variations or similar terminology. Actual events and results may differ materially from those expressed or implied in these statements. Important factors that could cause actual events or results to differ materially from those indicated in such statements include, among other things, those factors discussed in Item 1A, pages 57-77 of our 2022 Annual Report, and our quarterly reports on Form 10-Q filed with the SEC. These forward-looking statements speak only as of the date of this report. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

This report may contain links to or information from other internet sites. Such links and information are not endorsements of any products or services in such sites, and no information in such site has been endorsed or approved by the Company.

ARCH CAPITAL GROUP LTD.: TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

As a leading (re)insurer, Arch Capital Group Ltd. (together with its consolidated subsidiaries, "ACGL," "Arch" or "the Company"), offers specialty risk solutions, property and casualty (re)insurance, and housing sector products in communities across the globe.

Our approach to property-casualty underwriting integrates a comprehensive assessment of risks to provide solutions to protect our clients' employees, assets, property and business. Applied across our underwriting units, our risk management process monitors and manages climate risk and catastrophic events worldwide.

Climate change presents potentially far-reaching implications for our business, customers and the broader global economy. We are committed to improving our understanding of the short-, medium- and long-term implications of climate change and providing products and services that appropriately address evolving climate-related risks and opportunities.

Last year we announced our commitment to improving our energy efficiency and carbon footprint. In furtherance of this commitment, we set a target for reducing our absolute Scope 1 and Scope 2 emissions by 42% by 2030 and achieving net zero operations by the same year.

This report, in conjunction with the climate-related disclosures in our Sustainable Accounting Standards Board Report(s) and our Sustainability Report(s) (together, "Sustainability Reports"), discusses our approach to managing the risk and opportunities associated with changing climate conditions. View our Sustainability Reports here.

This report is designed to align with the reporting framework set forth by the Financial Stability Board's Task Force on Climate-related Financial Disclosures ("TCFD") and includes the following disclosure categories:

I. Governance
II. Strategy
III. Risk Management
IV. Metrics & Targets

I. Governance

The TCFD recommends that insurance companies disclose the organization's governance around climate-related risks and opportunities, including the roles of the Board of Directors and management.

Our Approach. Our holistic approach to risk management involves analyzing risk from a top-down and bottom-up perspective. The Company's risk management framework includes both our:

1. Risk philosophy and policies to address the material risks confronting the Company; and
2. Compliance, approach and procedures to control and/or mitigate these risks.

The actions and policies implemented to meet Arch's business management and regulatory obligations are at the core of this framework. Climate change risk is embedded in our existing risk management framework.

Three Lines of Defense. Risk management responsibilities are delegated across our organization through a "Three Lines of Defense" approach to risk governance. This risk management framework, supported by key controls, is embedded within our operations and enables us to limit risk and evaluate opportunities. We view environmental, social and governance ("ESG") -related risks not as standalone risks but as enterprise-wide in their scope.

ESG Oversight. Our Board of Directors ("Board") oversees and monitors enterprise risk to support our long-term financial strategies and objectives. Per its charter, our Board's Nominating and Governance Committee ("N&G Committee") provides oversight for ESG matters, including the establishment and management of our ESG initiatives. Our Chief ESG Officer meets with the N&G Committee at least twice a year and provides substantive quarterly updates.

The ESG Steering Committee, established in 2019, is comprised of executive leadership that oversees ESG topics and practices across the organization and helps drive the execution of the ESG strategy. Chaired by the Chief ESG Officer, the ESG Steering Committee holds regular communications with leaders throughout our operations to ensure ESG topics are integrated into business processes. Our dedicated ESG team works to enhance our management of ESG factors and coordinate our sustainability efforts across our businesses, including the assessment of climate change risk in our corporate strategy.

Our oversight structure incorporates committees at the business and operating levels to manage specific ESG integration initiatives. For example, in 2020, we established a committee to outline and implement an approach to integrating environmentally sensitive considerations into underwriting risks associated with the thermal coal industry. This committee, comprised of senior underwriting officers, risk professionals and the ESG team, continues to meet and monitor submissions. See page 8 of our 2022 Sustainability Report for more information about our approach to underwriting thermal coal. See also our Thermal Coal Policy .

In 2022, our primary insurance operations in the U.K. formed an ESG Steering Committee (U.K. ESG Committee) to incorporate an ESG framework and strategy into their existing management and committee structures and to promote Arch's long-term sustainability success in alignment with the Company's overall ESG strategy. The U.K. ESG Committee meets quarterly, is chaired by the U.K. CEO and comprises senior leaders throughout our U.K. operations and the Chief ESG Officer. In addition to embedding ESG considerations into the U.K. business, the group built on our Thermal Coal Policy framework and developed principles based policies for sensitive underwriting factors applicable to accounts covering oil sands and arctic energy exploration and production.

For our investments, in 2021, we formed the Investment Group ESG Steering Committee ("ESG Investments Steering Committee") to oversee the assessment of ESG risk in our investment strategy. See "ESG Investment Governance" below for additional detail.

Risk Identification and Assessment. Our Board's Finance, Investment and Risk ("FI&R Committee"), Audit and Underwriting Oversight Committees oversee the top-down and bottom-up review of risks. These committees provide a forum for discussion among management and the Board as they consider insurance, investments, operational, liquidity, credit, group and strategic risks. Our Chief Risk Officer ("CRO") assists these committees in identifying and assessing all key risks, including physical risks arising from climate change and how these risks may affect weather patterns and potentially impact our business and operations.

Risk Monitoring, Control and Reporting. Our CRO is responsible for maintaining the Company's Risk Register and continually reviewing and challenging risk assessments, including the impact of climate change. The Risk Register includes ESG factors and the risks associated with severe weather events. Please also see this report's "Risk

Management" section for additional information on the Risk Register process. Quarterly, the CRO compiles the key risk review process results into a report to the Board and relevant committees. The ACGL Risk Register is presented to the Board and relevant committees annually for review, followed by Board approval.

ESG Investment Governance. Our investment team is responsible for preserving and protecting over $28.1 billion in assets for our policyholders and shareholders (as of Dec. 31, 2022). As careful stewards of Arch's capital and invested assets, we manage the portfolio to ensure the ongoing ability to pay claims when due and to deliver asset growth over investment cycles. Through our fundamental analysis, we incorporate investee companies' ESG risk ratings, which include factors such as corporate governance, climate risk exposure, carbon reduction and workforce policies. We aim to deliver total return and income for Arch while potentially realizing added benefits when investing to create a positive benefit for society.

Per its charter, the FI&R Committee oversees the Board's responsibilities relating to the Company's investment policy, including reviewing investment allocation, manager selection, benchmarks and investment performance. Our Chief Investment Officer (CIO) reports to the FI&R Committee quarterly and assists the committee in assessing our approach to long-term sustainable value creation and incorporating ESG factors in the investment process.

Our investment team has a designated ESG Officer who is responsible for ESG oversight and oversees the ESG Investments Steering Committee. This Committee sets forth the investment team's ESG strategy and focuses on managing ESG-related risks in our investment portfolio with sustainability-themed investments. Comprised of our CIO, CRO, Chief ESG Officer and key investment team members, the ESG Investments Steering Committee meets quarterly.

In early 2022, we adopted a Responsible Investing Policy that provides a framework for governance and strategy and outlines our approach to engagement, reporting, training and communications regarding our responsible investing practices. See pages 18-19 of our 2022 Sustainability Report for more detail regarding our Responsible Investing Policy.

Monitoring Exposure to Climate Impact and Carbon-Intensive Industries. Responsible investing necessitates that we measure carbon metrics and other ESG factors in carbon-intensive industries. We consider investing in companies whose business strategies make positive progress towards energy transition, allowing us to capture the benefits of the value creation of these efforts while reducing our overall risk. See page 19 of our 2022 Sustainability Report for more information on our portfolio exposure to fossil fuels and thermal coal.

II. Strategy

The TCFD recommends that insurance companies disclose the actual and potential impacts of climate-related risks and opportunities on their businesses, strategy and financial planning where such information is material.

Arch has undertaken steps to integrate climate factors and considerations across our business. Starting at the corporate level, we completed a high-level assessment to determine the climate factors most relevant to our worldwide business over the short-, medium- and long-term. As part of our assessment, we incorporated direct feedback from our global risk management leadership, underwriters and actuaries with our CRO's ultimate oversight. Included in this feedback were evaluations of natural catastrophe loss trends over the short-, medium- and long-terms that in some instances led us to adjust the premium we require for assuming risk.

We focused on identifying climate-related risks and opportunities across our key business units and developing strategic responses for our underwriting and investment management activities.

Provided below, "Our Identified Climate-Related Business Risks" table outlines relevant climate-related considerations and potential business risks.

Our Identified Climate-Related Business Risks.

Time Horizon	Climate Change Risks (Transition[1]/Physical[2]/Liability[3])	Business Risk
Short Term (1–5 years)	Increased stakeholder expectations and regulatory requirements/mandates related to climate-related issues.	Underwriting and exposure selection risk.
		Exposure monitoring and reporting risk.
		Reputational risk related to reporting requirements.
		Impact on investments; adverse effect on the fair value of investments.
		Regulatory risk related to non-compliance.
	Increased uncertainty and unpredictability of frequency and severity of natural catastrophes such as extreme weather events, including the aggregation of such events.	Pricing and reserving risk.
		Product profitability and demand risk.
		Accumulation management and CAT losses risk.
Medium Term (5–10 years)	Shifting market dynamics tied to climate change risk (e.g., risk profiles, technological innovation, regulatory scrutiny, rating agency requirements and evolving consumer preferences).	Risk profile uncertainty for carbon-intensive assets, firms or sectors, including revenue and/or income loss.
		Reputational risk associated with failing to transition to and/or meeting new market environment, customer expectations and regulatory requirements.
		External influences impact Arch's strategic plan.
		Changes in security-asset-prices risk may impact the value of our fixed income, real estate and other investments.
	Change in risk profiles of insurance product exposures.	Underwriting exposure and selection risk including property, general liability, financial lines, professional liability, business interruption, agriculture, and mortgage insurance.
		Accumulation management risk.
		Model risk from increased claims frequency and severity not included in historical data.
	Regional economic hardship due to climate change events and regulation.	Underwriting exposure and selection risk.
		Product design and demand risk.
		Pricing, reserving and regulatory risk.
		Potential loss of investment income and risk to capital.
	Increased capital requirements and/or reduced returns on equity	Increased capital charges for climate change from ratings agencies or regulators.
		Inability to execute new capital market risk transfer transactions.
Long Term (10+ years)	Stringent regulatory mandates such as government policies and sustainable reforms on climate change restricting insuring/investing in carbon-intensive sectors.	Revenue and/or business risk due to government policies and/or influence from external pressure groups.
	Increased frequency and/or severity of natural catastrophe and extreme weather events.	Underwriting exposure and selection risk.
		Accumulation management and CAT losses risk.
		Product design and demand risk.
		Potential loss of investment income and risk to capital.
	Substantial change in economic activities and risk profiles due to climate change.	Product design and demand risk.
		Reduction in reinsurer financial strength and risk transfer appetite or capacity.
	Physical impact of climate change on business operations.	Increased business interruption and operational costs

(1) *Transition Risk Factors:* resulting from the global transition to a carbon-neutral or low-carbon economy.
(2) *Physical Risk Factors:* resulting from the direct damages caused by climate events.
(3) *Liability Risk Factors:* relating to climate-related insurance claims under liability insurance policies and direct legal claims against insurers for failing to manage climate risks.

Climate Opportunities for Our Underwriting and Services. The physical impacts of climate change may result in increased frequency and/or intensity of weather patterns, severe weather and natural catastrophic events. These impacts broaden the scope for our business solutions. Below are examples of climate-related opportunities across our identified time horizons. These examples should not be construed as a characterization regarding the materiality or financial impact of these opportunities.

Time Horizon	Climate-related Opportunities
Short Term (1-5 years)	Increased economic activity related to clean energy, renewable energy and clean technology may generate new revenue.
	Regulations driving increased demand for products and services in the transition to renewable energy.
	Construction projects requiring a focus on renewable energy and LEED®-certified construction design may require specialized insurance products.
	Demand in service contracts for individuals generating renewable energy.
	Increase risk control offerings as awareness increases around climate-change and mitigation risk.
Medium Term (5-10 years)	Innovation driving development of product/services for renewable energy business.
	Changes in weather patterns may prompt customers to increase insurance coverage.
	Work with insureds to improve their environmental preservation and safety approach.
	Expand protection to underdeveloped markets through sovereign lending and other risk transfer instruments.
Long Term (10+ years)	Protect our customers from consequences of weather-related events.

Climate change presents new opportunities for our underwriting business. Decarbonization efforts driven by market demand for clean energy, renewable energy and clean technology may present Arch with an opportunity to generate more revenue. An increase or expansion in legislation and regulation related to energy use, including solar energy, could increase demand for insurance products relating to such regulations. Our specialized insurance products are well-positioned to address the specific aspects involved in renewable energy projects. For example, we offer end-to-end coverage on LEED®-certified (Leadership in Energy and Environmental Design) construction design, research and development of renewable energy construction and liability of owners, energy consultants, property managers, architects and engineers.

Through our risk and loss-control service platform, "Arch Risk Control," we work with insureds to improve their environmental preservation and safety approach. We help our U.S. insurance customers better understand and manage their environmental exposures. Our comprehensive services include dedicated training, technical information and consulting solutions for reducing the risk of fire, carbon emissions, emergency response planning, flood emergency response plan development, hurricane preparedness and avoidance of risks commonly associated with solar panel installations. Our annually renewed non-mortgage (re)insurance contracts can offer increasing natural catastrophe coverage to help our customers cope with climate risks. In addition, we undertake special efforts to help expand (re)insurance protection, through our sovereign lending products in underdeveloped markets and through other innovative risk transfer instruments. Arch is active in the renewable energy (re)insurance business and has focused on brokers and companies specializing in the clean energy sector. We anticipate new opportunities that may necessitate (re)insurance protection in many of our business units, including property, liability, construction and workers' compensation. For our onshore energy group, we are focused on growing our portfolio in energy-efficient and low-carbon technology markets, including renewable power generation, nuclear power generation, hydro, biofuel or geothermal power generation and biofuel production.

We see underwriting opportunities in construction projects as public and private entities address changing climate patterns, including projects to address flood control, infrastructure adaptability, water-proofing, fire safety and susceptibility. For our mortgage insurance business, because climate trends can develop over long periods, this time horizon allows our risk control team to assist customers with resources to conduct business impact analyses, prioritize and implement risk management action plans and physical improvements and improve resiliency over time. Similarly, we can provide education to help insureds adapt to the increased risks from climate change, including flooding and other natural disasters.

Climate Opportunities for Our Investing

Seeking opportunities to invest in companies committed to positive and measurable environmental outcomes. As a long-term asset manager and owner, we integrate ESG factors into investment analysis and decision-making. Through our fundamental analysis, we incorporate investee companies' ESG risk ratings, which include factors such as corporate governance, climate risk exposure, carbon reduction and workforce policies. We engage with our external asset managers to understand their ESG integration into investment decisions and portfolio construction. We continue to include responsible investments in both our alternative and liquid market investments. Through these investments, we aim to deliver total return and income for Arch while potentially realizing added benefits when investing to create a positive and sustainable outcome for society.

As of Dec. 31, 2022 we had invested $138 million in green bonds issued to fund green projects or activities that promote climate change mitigation or adaptation, or other environmental sustainability purposes. Our green bond investments increased 14% year-on-year.

Monitoring Exposure to Climate Impact and Carbon Intensive Industries. Responsible investing necessitates that we measure carbon metrics and other ESG factors in carbon-intensive industries. We consider investing in companies making positive progress toward energy transition allowing us to capture the benefits of the value creation of these efforts while reducing our overall risk. Portfolio exposures to thermal coal increased modestly in 2022, representing 1.3% ($359 million) of the total portfolio, while our exposure to fossil fuels increased slightly to 3.8% of the total portfolio ($1,067 million), both as of Dec. 31, 2022.

Assets with United Nations Principles of Responsible Investing Signatories (UN PRI). We recognize the material commitment that becoming a UN PRI signatory requires and highlight our asset owners or asset managers that have achieved this distinction. Our assets managed by UN PRI signatories remained stable year over year (i.e., 2021 and 2022) representing 25% of the total assets under management ("AUM") and 79% of the total externally managed assets, approximately $8.9 billion.

The transition to a low-carbon economy also creates opportunities for specific asset classes, described below in "Making Responsible Investments."

III. Risk Management

The TCFD recommends that insurance companies disclose how the organization identifies, assesses and manages climate-related risks.

The Risk Register and the Own Risk and Solvency Assessment ("ORSA") process are key elements of our risk management framework. Our Risk Register includes an analysis of all risks facing Arch and details the corresponding controls and/or mitigation concerning these risks. The ORSA process contemplates all risks facing the control group as articulated in the Risk Register and is designed to assist our Board in understanding and managing the Company's key risks. Material changes in the underlying risks, such as changes in business mix, reinsurance strategy and investment strategy, are evaluated for potential impact on the Company's capital requirements. This process ensures material risks are included within the Risk Register and in our ORSA report, feeds into the analysis of capital requirements and, in some cases, triggers further investigation through stress testing.

While risks tied to climate change have historically been embedded within other risks in our Risk Register and ORSA process, our current process is focused on identifying climate-change risk components in our risk universe and articulating these more specifically in our Risk Register and in our ORSA process. This initiative was a collaborative effort among our ESG, Risk Management, Investments and business teams to embed evaluations of climate-change risk into our already mature enterprise risk management processes. The current climate-change risk assessment summary is contained in this report in the "Our Identified Climate-Related Business Risks" table.

IV. Metrics & Targets

The TCFD guidance recommends insurance companies examine how resilient their strategies are to climate-related risks and describe risk exposure to weather-related catastrophes in their property insurance by jurisdiction.

Underwriting Resilience under Different Scenarios. For Arch's natural catastrophe-exposed business, we seek to limit the amount of exposure we assume from any single insured or reinsured, and the amount of exposure to catastrophe losses from a single event in any geographic zone. We monitor our exposure to catastrophic events, including earthquakes and windstorms, and periodically reevaluate the estimated probable maximum pre-tax loss for such exposures. We seek to limit the net probable maximum pre-tax loss from a severe catastrophic event in any geographic zone at the 1-in-250-year return period to approximately 25% of tangible shareholder's equity available to Arch (total shareholders' equity available to Arch less goodwill and intangible assets). We reserve the right to change this threshold at any time.

Based on in-force exposure estimated as of Jan. 1, 2023, our modeled peak zone catastrophe exposure is a windstorm affecting the Florida Tri-County area, with a net probable maximum pre-tax loss of $970 million, followed by windstorms affecting the Northeast U.S. and the Gulf of Mexico with net probable maximum pre-tax losses of $908 million and $903 million, respectively. As of Jan. 1, 2023, our modeled peak zone earthquake exposure (San Francisco, California, area earthquake) represented approximately 60% of our peak zone catastrophe exposure, and our modeled peak zone international exposure (U.K. windstorm) was substantially less than either our peak zone windstorm or earthquake exposures.

Net probable maximum loss estimates are net of expected reinsurance recoveries, before income tax and excess reinsurance reinstatement premiums. Catastrophe loss estimates reflect the zone indicated and not the entire portfolio. Because windstorms can affect more than one zone and make multiple landfalls, our catastrophe loss estimates include clash estimates from other zones.

By evaluating our modeled natural catastrophes across multiple global zones and differing return periods (i.e., likelihoods of occurrence), we can draw observations about the range of possible impacts on our portfolio. We evaluate the impact of single occurrences and study the impact of the aggregation of multiple losses over select periods as part of our corporate risk management.

Climate change may make modeled outcomes less certain or produce new, non-modeled risks. Consequently, we evaluate natural catastrophe models, tools, loss trends and data on a peril-by-peril and region-by-region basis. Evaluations of our clients' risk selection, the quality of the exposure data they provide to us and the tools and processes supporting their risk management are key fundamental components of our underwriting process. In 2022, detailed evaluations included U.S. hurricane, U.K. flood, Japan wind, and European windstorm. In addition, our natural catastrophe modeling teams performed a comprehensive climate-change study.

Our appetite for natural catastrophe risk is determined by estimated climate patterns and other important factors such as our overall mix of business, market conditions, our market share, regulatory constraints, corporate structure and costs of capital. The complex combination of these, among other factors, determines our appetite for assuming natural catastrophe-related risk.

A key tenet of our business approach is the diversification of risks across risk sources. To the extent that climate change leads to a greater proportion of our overall risk exposure coming from weather-related events, we could adjust our appetite or required economic returns for the risks we would be willing to (re)insure. In addition, climate change may lead to shifts in population densities and the location of physical assets, which could drive our exposure opportunities.

Based on our ongoing evaluation of climate-related risks, our current exposure remains within our risk appetite. We continually measure and monitor our evaluations and assumptions to adjust our views on risk for new information. Since most property/casualty (re)insurance contracts are one year long, we can adequately adjust the price and manage risk efficiently and effectively.

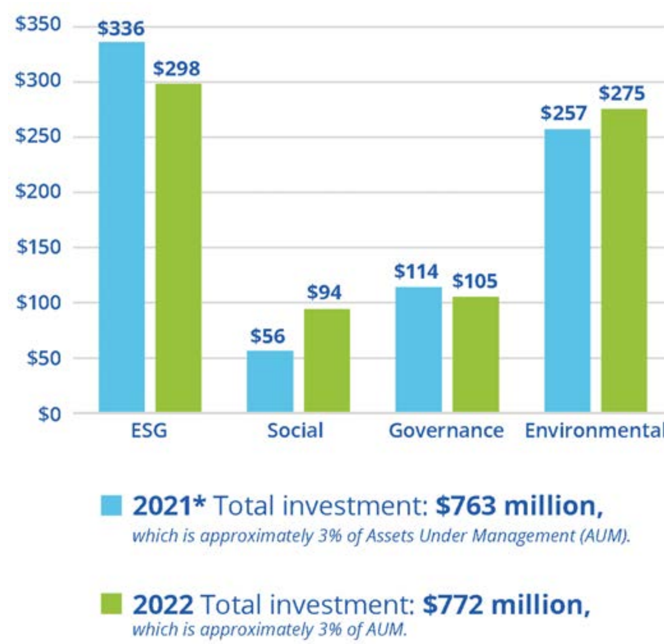
Investments. On an ongoing basis we assess the potential financial impacts of climate change on our investment portfolio. This analysis includes more fully understanding various climate-change factors, metrics and scenarios.

Our Investment team engages with data providers and uses third-party tools to help benchmark and understand our portfolio's climate impact profile. Analysis of the relevant climate risks and exposures, including scenario analysis across our portfolio, is a part of this process.

We also recognize the need to examine the portfolio's exposure to the transition and physical elements of climate risk. Future greenhouse gas ("GHG") emissions and controversial business practices can expose the portfolio to stranded asset risks over time. Our Portfolio Carbon Risk Rating can indicate how issuers are prepared for a transition over time and provide a forward-looking analysis. Physical risk metrics include analysis of the issuer's physical risk management plans and exposures to major hazards that might increase due to climate change.

Making Responsible Investments. A continued focus on ESG factors remains core to our decision-making and inclusion of responsible investments in the portfolio. We have made certain investments over time that reflect our consideration of ESG factors in internal and externally managed investments. Responsible investments currently total approximately 3% of our total AUM.

Responsible Investing ($M)



*Reflects the correct amount due to a data error in the 2021 TCFD Report.

Environmentally Efficient Operations. At Arch, we are working to reduce and responsibly manage the impacts our operations have on our world's natural environment. By applying our energy-efficient strategies to lower our emissions, we can improve our operational efficiency. In this report, we share the results of an assessment of our 2020, 2021 and 2022 GHG emissions and provide an overview of our approach to not only measure our carbon footprint, but also align on a go-forward strategy to address and reduce our carbon emissions.

Greenhouse Gas Emissions and Methodology. We continue to measure our global emissions across Scopes 1, 2 and 3 (select categories as reflected in the table). These figures were calculated using a verified methodology in line with the

Greenhouse Gas Protocol's[1] reporting standards. The data marks four years of GHG computations.

2022 Highlights of Our Emissions Data:

- Our 2022 total emissions increased by 41%, primarily driven by our return to pre-pandemic business travel activity.
- To progress towards our 2030 Scope 1 & 2 emissions reduction target in alignment with Science-Based Targets initiative (SBTi), we purchased 6,623 Renewable Energy Credits (RECs) from eligible renewable energy projects in the U.S. and Philippines, effectively reducing Scope 2 market-based emissions by 2,152 metric tons. This reduction puts Arch on track to meet its 2030 Scope 1 & 2 target. Arch expects that sourcing renewable energy will remain a key component of its decarbonization strategy in the coming years.
- To offset a significant portion of our calculated 2021 operational emissions, Arch identified two programs to support:
  - A Gold Standard-certified project in Uganda, centered on rehabilitating non-functioning boreholes to increase access to safe and clean water.
  - A Verra-certified project in Malawi, targeted on distributing improved fuel-efficient cook-stoves across households.
- Even as our operations grew by headcount, our operational emissions continue to fall in both absolute and intensity terms.

[1] World Resources Institute and the World Business Council for Sustainable Development. 2015. "The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard, Revised Edition." WRI and WBCSD. Available at: https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf

Arch Capital Group Ltd. 2020 - 2022 GHG Inventory Results* Scopes 1-3 Emissions		2020 Emissions (metric tonnes CO2e)	2021 Emissions (metric tonnes CO2e)	2022 Emissions (metric tonnes CO2e)	2022 vs 2021 %
Scope 1	Natural Gas	253	213	193	(10)%
	Diesel	18	24	46	95 %
	Gasoline	6	6	4	(36)%
	Jet Fuel	176	352	519	48 %
	Refrigerant Leakages	295	295	307	4 %
Total Scope 1 Emissions		749	890	1,069	20 %
Scope 2	Electricity	6,066	5,501	4,981	(9)%
	Natural Gas	280	217	232	7 %
	Diesel	3	3	14	433 %
	District Energy	0	0	0	**
	Steam	23	34	117	240 %
	Chilled Water	127	125	40	(68)%
Total Scope 2 Emissions (Market-based)		6,499	5,880	5,383	(8)%
Total Scopes 1+ 2 Emissions (Market-based)		**7,248**	**6,770**	**6,452**	**(5)%**
Scope 3	**Cat 1:** Purchased Goods and Services	29,295	27,470	22,776	(17)%
	Cat 2: Capital Goods	3,035	3,014	4,224	40 %
	Cat 3: Fueled- and Energy- Related Activities	1,482	2,115	2,476	17 %
	Cat 4: Upstream Transportation (Courier Services)	1,467	1,707	1,226	(28)%
	Cat 5: Waste	190	187	152	(19)%
	Cat 6: Business Travel	4,243	1,971	23,188	1077 %
	Cat 7: Employee Commuting	4,004	3,565	6,222	75 %
	Cat 13: Downstream Leased Assets	724	1,523	1,271	(17)%
Total Scopes 1, 2 and 3 Emissions (Market-based)		**51,688**	**48,322**	**67,987**	**41 %**
Total, adjusted for RECs purchase	**Purchase of RECs (in MWh)**	**n/a**	**6,624**	***	***
	Total Scope 1 and 2 (Market-based, adjusted for RECs)	**7,248**	**4,219**	***	***

*Emissions calculations are based on a combination of actual, estimated and extrapolated data. We are committed to the continual improvement of our data collection, management and calculation processes. Our 2020 and 2021 GHG emissions were retroactively calculated to reflect improved facility and vendor spend data. Our emissions reduction targets are now based on the recalculated 2020 baseline year emissions. As our calculation methodology is refined in future years, our emissions numbers are subject to change. Scope 3 emissions do not include the direct emissions of invested assets.

**De minimus value; the Scope 2 emissions associated with our district energy consumption across all years of reporting have been <1 mtCO2e.

***We are in the process of drafting our plans for REC procurement for the 2022 reporting period.

Improving Efficiency and Setting Targets for GHG Reduction. Over half of Arch's carbon emissions come from electricity powering our worldwide offices. Monitoring and reducing our office electricity and natural gas consumption levels are priorities for our global facilities team and our environmental sustainability committee, "Blue Goes Green." While we are an office-based company that primarily leases our building space, we still see strong value in analyzing our Scope 1 and Scope 2 emissions to identify the areas where we can work to improve efficiencies each year.

Aligning with the SBTi, we recently defined the activities, boundaries, timeline and scope of ambition for our GHG reduction targets. Going forward, we have set the following targets:

1. **Commit to reducing absolute Scope 1 and Scope 2 GHG emissions 42% by 2030, from a 2020 base year, and;**
2. **Commit to achieving net zero operations by 2030 by purchasing carbon removal offsets for our remaining Scope 1 and Scope 2 emissions.**

We are excited to take on these ambitious commitments to decarbonizing and offsetting Arch's direct climate impacts from our operations so we can achieve net zero operations (Scopes 1 and 2) by no later than 2030.