Risk Factors Comparison 2023-02-23 to 2022-02-24 Form: 10-K

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There are inherent risks associated with Alcoa' s business and industry. In addition to the factors discussed elsewhere in this report, the following risks and uncertainties could have a material adverse effect on our business, financial condition, or results of operations, including causing Alcoa' s actual results to differ materially from those projected in any forward- looking statements. Although the risks are organized by heading, and each risk is described separately, many of the risks are interrelated. You should not interpret the disclosure of any risk factor to imply that the risk has not already materialized. While we believe we have identified and discussed below the key risk factors affecting our business, there may be additional risks and uncertainties that are not presently known to Alcoa or that Alcoa currently deems immaterial **that** also may materially adversely affect us in future periods. See Part II Item 7 of this Form 10- K in Management' s Discussion and Analysis of Financial Condition and Results of Operations under caption Forward- Looking Statements. ~~Commodity~~ **Industry and Global Market** Risks The aluminum industry and aluminum end- use markets are highly cyclical and are influenced by several factors, including global economic conditions, the Chinese market, and overall consumer confidence. The nature of the industries in which our customers operate causes demand for our products to be cyclical, creating potential uncertainty regarding future profitability. The demand for aluminum is sensitive to, and impacted by, demand for the finished goods manufactured by our customers in industries, such as the commercial construction, transportation, and automotive industries, which may change as a result of changes in the global economy, foreign currency exchange rates, energy prices, or other factors beyond our control. The demand for aluminum is also highly correlated to economic growth, and we could be adversely affected by large or sudden shifts in the global inventory of aluminum and the resulting market price impacts. We believe the long- term prospects for aluminum and aluminum products are positive; however, we are unable to predict the future course of industry variables or the strength of the global economy and the effects of government intervention. Our business, financial condition, and results of operations may be materially affected by the conditions in the global economy generally **, including inflationary and recessionary conditions,** and in global capital markets, including in the end markets and geographic regions in which we and our customers operate ~~(including as a result of the COVID- 19 pandemic)~~. Many of the markets in which our customers participate are also cyclical in nature and experience significant fluctuations in demand for their products based on economic conditions, consumer demand, raw material and energy costs, and government actions. Many of these factors are beyond our control. The Chinese market is a significant source of global demand for, and supply of, commodities, including aluminum. Chinese production rates of aluminum, both from new construction and installed smelting capacity, can fluctuate based on Chinese government policy, such as the level of enforcement of capacity limits and / or licenses and environmental policies. In addition, industry overcapacity, a sustained slowdown in Chinese aluminum demand, or a significant slowdown in other markets, that is not offset by decreases in supply of aluminum or increased aluminum demand in emerging economies, such as India, Brazil, and several Southeast Asian countries, could have an adverse effect on the global supply and demand for aluminum and aluminum prices. Also, changes in the aluminum market can cause changes in the alumina and bauxite markets, which could also materially affect our business, financial condition, or results of operations. As a result of these factors, our profitability is subject to significant fluctuation. A decline in consumer and business confidence and spending, severe reductions in the availability and cost of credit, and volatility in the capital and credit markets could adversely affect the business and economic environment in which we operate and the profitability of our business. We are also exposed to risks associated with the creditworthiness of our suppliers and customers. If the availability of credit to fund or support the continuation and expansion of our customers' business operations is curtailed or if the cost of that credit is increased, the resulting inability of our customers or of their customers to either access credit or absorb the increased cost of that credit could adversely affect our business by reducing our sales or by increasing our exposure to losses from uncollectible customer accounts. These conditions and a disruption of the credit markets could also result in financial instability of some of our suppliers and customers. The consequences of such adverse effects could include the interruption of production at the facilities of our customers, the reduction, delay or cancellation of customer orders, delays or interruptions of the supply of raw materials we purchase, and bankruptcy of customers, suppliers, or other creditors. Any of these events could adversely affect our business, financial condition, and results of operations. **Market- driven balancing of global aluminum supply and demand may be disrupted by non- market forces. In response to market- driven factors relating to the global supply and demand of aluminum and alumina, including energy prices and environmental policies, other industry producers have independently undertaken to reduce or increase production. Changes in production may be delayed or impaired by the ability to secure, or the terms of long- term contracts, to buy energy or raw materials. The impact of non- market forces on global aluminum industry capacity, such as political instability or pressures or governmental policies in certain countries relating to employment, the environment, or maintaining or further developing industry self- sufficiency, may affect overall supply and demand in the aluminum industry. For example, the ongoing active conflict between Russia and Ukraine could adversely impact macroeconomic conditions and result in heightened economic sanctions from the U. S. and the international community in a manner that adversely affects our industry. The disruption of the market- driven balancing of the global supply and demand of aluminum, a resulting weak pricing environment and margin compression may adversely affect our business, financial condition, and results of operations.** We could be materially adversely affected by volatility and declines in aluminum ~~,~~ **and** alumina ~~, and bauxite prices~~, including global, regional, and product- specific prices, or by significant changes in production costs which are linked to LME or other commodities. The overall price of primary aluminum consists of several components: (i) the underlying base metal component, which is typically based on quoted prices from the LME; (ii) the regional premium, which comprises the incremental price over the base LME component that is associated with the physical delivery of metal to a particular region (e. g., the Midwest premium for metal sold in the United States); and (iii) the product premium, which represents the incremental price for receiving physical metal in a particular shape (e. g., foundry, billet, slab, rod, etc.) and / or alloy. Each of the above three components has its own drivers of variability. The LME price volatility is typically driven by macroeconomic factors (including political instability), global supply and demand of aluminum (including expectations for growth, contraction, and the level of global inventories), and trading activity of financial investors. LME cash prices reached the highest level in over a decade in ~~October~~ **March** ~~2021~~ **2022** at $ 3, ~~180~~ **985** per metric ton, with the low point of the year ~~coming~~ in ~~January~~ **September 2022** at $ ~~1~~ **2** , ~~952~~ **080 per metric ton** . While global inventories declined in ~~2021~~ **2022** , high LME inventories could lead to a reduction in the price of aluminum and declines in the LME price have had a negative impact on our business, financial condition, and results of operations. Regional premiums tend to vary based on the supply of and demand for metal in a particular region, associated transportation costs, and import tariffs. Product premiums generally are a function of supply and demand for a given primary aluminum shape and alloy combination in a particular region. Periods of industry overcapacity may also result in a weak aluminum pricing environment. A sustained weak LME aluminum pricing environment, deterioration in LME aluminum prices, or a decrease in regional premiums or product premiums could have a material adverse effect on our business, financial condition, or results of operations. Similarly, our operating results are affected by significant changes in key costs of production that are commodity or LME- linked. Most of our alumina contracts contain two pricing components: (1) the API price basis and (2) a negotiated adjustment basis that takes into account various factors, including freight, quality, customer location, and market conditions. Because the API component can exhibit significant volatility due to market exposure, revenues associated with our alumina operations are exposed to market pricing. **Our participation** ~~While the majority of our bauxite is directed to our refineries, our third- party bauxite contracts vary~~ in ~~pricing structure~~ **increasingly competitive** and ~~length~~ **complex global markets exposes us to risks** , **including legal** and **regulatory risks and** ~~can be impacted by~~ changes in **conditions beyond our control, that could adversely affect our business, financial condition, or results of operations. We have operations or activities in numerous countries and regions outside the United States, including Australia, Brazil, Canada, Europe, Guinea, and the Saudi Arabia. The risks associated with the Company' s** global **operations** ~~aluminum and alumina bauxite market prices, as well as changes in bauxite quality. Market- driven balancing of global aluminum supply and demand may be disrupted by non- market forces. In response to market- driven factors relating to the global supply and demand of aluminum and alumina, including~~ **include : • Geopolitical risks** ~~energy prices and environmental policies, other industry producers have independently undertaken to reduce or increase production. Changes in production may be delayed or impaired by the ability to secure, or the terms of long- term contracts, to buy energy or raw materials. The impact of non- market forces on global aluminum industry capacity~~ , such as political instability ~~or pressures or~~ **, coups d' états, civil unrest, strikes and work stoppages, expropriation, nationalization of properties by a** ~~governmental~~ -- **government, imposition of sanctions, changes to import or export regulations and fees, renegotiation, revocation or nullification of existing agreements, leases, licenses, and permits, and changes to mining royalty rules or laws; • Economic and commercial instability risks, including those caused by sovereign and private debt default, corruption, and changes in local government laws, regulations, and** policies ~~in certain countries relating~~ **, such as those related** to **tariffs and trade barriers, trade tensions, taxation, exchange controls,** employment **regulations** , ~~the environment, or maintaining or further developing industry self- sufficiency, may affect overall supply~~ and **repatriation of earnings; • Weakening** ~~demand in the aluminum industry. For example, active conflict between Russia and Ukraine could adversely impact~~ macroeconomic conditions **; • Contracting manufacturing activity, especially in the global automotive sector; • War or terrorist activities; • Major public health issues, such as** ~~and~~ - **an outbreak of a pandemic or epidemic, which could cause disruptions in our operations, supply chain, or workforce; • Information systems failures or disruptions, including due to cyber attacks; • Difficulties enforcing intellectual property and contractual rights, or limitations in the protection of technology, data, and intellectual property, in certain jurisdictions; and, • Unexpected events, accidents, or environmental incidents, including natural disasters. We have experienced some of these events, and while the impact of any of the foregoing factors is difficult to predict, any one or more of them could adversely affect our business, financial condition, or results of operations. Existing insurance arrangements may not provide sufficient coverage or reimbursement for significant costs that may arise from such events. Unexpected or uncontrollable events or circumstances in any of the foreign markets in which we operate, including actions by foreign governments such as changes in foreign policy or fiscal regimes, termination of our leases or agreements with such foreign governments, increased government regulation, or forced curtailment or continuation of operations, could materially and adversely affect our business, financial condition, or results of operations. We may be unable to obtain, maintain, or renew permits or approvals necessary for our mining operations, which could materially adversely affect our operations and profitability. Our mining operations are subject to extensive permitting and approval requirements. These include permits and approvals issued by various government agencies and regulatory bodies at the federal, state, and local levels of governments in the countries in which we operate. The permitting and approval rules are complex, are often subject to interpretations by regulators, which may change over time, and may be impacted by heightened levels of regulatory oversight and stakeholder focus on addressing environmental and social impacts of mining activities. Changing expectations and increased information required by regulators could make our ability to comply with the applicable requirements more difficult, inhibit or delay our ability to timely obtain the necessary approvals, if at all,** result in **approvals being conditioned** ~~heightened economic sanctions from the U. S. and the international community~~ in a manner that ~~adversely affects our industry. The disruption of the market- driven balancing of the global supply and demand of aluminum, a resulting weak pricing environment and margin compression~~ may **restrict the Company' s ability to efficiently and**

economically conduct its mining activities, require us to adjust our mining plans, or preclude the continuation of certain ongoing operations and mining activities or the development of future mining operations. Failure to obtain, maintain, or renew permits or approvals, or permitting or approval delays, restrictions, or conditions may impact the quality of the bauxite we are able to mine and could increase our costs and affect our ability to efficiently and economically conduct our operations, potentially having a materially adverse impact on our results of operations and profitability. In addition, the permitting processes, restrictions, and requirements imposed by conditional permits or approvals, and associated costs and liabilities, may be extensive and may delay or prevent commencing or continuing exploration or production operations, which could adversely affect **the Company' s mining operations and production, and consequently our refining and smelting operations, and could require us to curtail, close,** ~~our~~ **or** ~~business~~ **otherwise modify our production** , **operations** ~~financial condition~~ , and **sites. Additionally, the Company' s mining permits may be rescinded or modified, or our mining plans may be adjusted, to mitigate against adverse impacts to sites within or near our mining areas that have environmental, biodiversity, or cultural significance, potentially having a materially adverse impact on our** results of operations **and profitability. Due to mining plan approval delays in Western Australia, the Company is currently mining and processing lower grade bauxite, which has caused increased production costs** . Our operations and profitability have been and could continue to be adversely affected by **unfavorable** changes in the cost **, quality,** or availability of raw materials or other key inputs, or by disruptions in the supply chain. Our business, financial condition, and results of operations ~~are~~ **have been and could continue to be negatively** affected by **unfavorable** changes in the cost **, quality, or availability** of **energy,** raw materials, including ~~energy,~~ carbon products, caustic soda, and other key inputs **, such as bauxite** , as well as freight costs associated with transportation of raw materials **and key inputs** to refining and smelting locations. We may not be able to fully offset the effects of higher raw material ~~costs~~ or energy costs through price increases, productivity improvements, ~~or~~ cost reduction programs **, or reductions or curtailments to production at our operations. A decrease in the quality of raw materials or key inputs has in the past and could continue to cause increased production costs, which also has in the past and could continue to result in lower production volumes. For example, the Company is currently mining and processing lower grade bauxite in Western Australia, which has caused increased production costs. Changes in the costs of bauxite, alumina, energy and other inputs during a particular period may not be adequate to offset concurrent sharper decreases in the price of alumina or aluminum and could have a material adverse effect on our operating results** . In addition, due to global supply chain disruptions ~~stemming from the COVID- 19 pandemic~~ , we may not be able to obtain sufficient supply of our raw materials ~~or~~ **,** energy **, or other key inputs** in a timely manner, including due to shortages, inflationary cost pressures, or transportation delays, which could cause disruption in our operations or production curtailments ~~. For example, we have seen shortages in the supply chain of certain raw materials such as magnesium~~ . Though we have been able to source our raw materials **and other key inputs** in adequate amounts from other ~~supplies~~ **suppliers** or our own stockpiles to date, there can be no guarantee that our operations or profitability will not be adversely affected in the future ~~. Declines in the costs of alumina and energy during a particular period may not be adequate to offset sharp declines in metal price in that period. Increases in the cost of raw materials or decreases in input costs that are disproportionate to concurrent sharper decreases in the price of aluminum could have a material adverse effect on our operating results~~ . Our suppliers, vendors, and customers could experience similar constraints that could impact our operations and profitability. Our operations consume substantial amounts of energy and could be disrupted, and our profitability could decline, if energy costs rise or if energy supplies are interrupted or become uncertain. Our refineries and smelters consume substantial amounts of natural gas and electricity in the production of alumina and aluminum. The prices for and availability of energy are subject to volatile market conditions that can be affected by factors beyond our control such as weather, political, regulatory, and economic conditions. For example, significantly higher market power prices in Europe in ~~2021~~ **2022** have caused competitors' smelters to announce production cuts **, as well as the production cuts announced by Alcoa in 2022 due to rising energy costs (see Part 1 Item 1 of this Form 10- K)** . Though we have ownership in certain hydroelectricity assets, we rely on third parties for our supply of energy resources consumed in the manufacture of our products. Energy supply contracts for our operations vary in length and market exposure, and we could be, and have been, negatively impacted by: • ~~significant~~ **Significant** increases in LME prices, or spot electricity, fuel oil and / or natural gas prices; • ~~unavailability~~ **Unavailability** of or interruptions or uncertainty in energy supply or unplanned outages due to political instability, droughts, hurricanes, wildfires, other natural disasters, equipment failure, or other causes; • ~~unavailability~~ **Unavailability** of long- term energy from renewable sources in particular locations or at competitive rates; • ~~curtailment~~ **Curtailment** of one or more refineries or smelters due to the inability to extend energy contracts upon expiration or negotiate new arrangements on cost- effective terms, the unavailability of energy at competitive rates; ~~or~~ **and** , • ~~curtailment~~ **Curtailment** of one or more facilities due to high energy costs that render their continued operation uneconomic, discontinuation of power supply interruptibility rights granted to us under a regulatory regime in the country in which the facility is located, or due to a determination that energy arrangements do not comply with applicable laws, thus rendering the operations that had been relying on such country' s energy framework uneconomic. Events, such as those listed above, can result in high energy costs, the disruption of an energy source, finding a replacement energy source at a higher cost, the requirement to repay all or a portion of the benefit we received under a power supply interruptibility regime, or the requirement to remedy any non- compliance of an energy framework to comply with applicable laws ~~,~~ **. These events** could disrupt our operations or result in production curtailments ~~and~~ **that** could have a material adverse effect on our business, financial condition or results of operations. Business Strategy Risks We have incurred, and may incur in the future, significant costs associated with our strategy to be a lower cost, competitive, ~~sustainable,~~ and integrated aluminum production business and we may not be able to realize the anticipated benefits from announced plans, programs, initiatives **relating to our portfolio** , ~~and~~ capital investments **, and developing technologies** . We are executing a strategy to be a low cost, competitive ~~, sustainable~~ , and integrated aluminum production business by implementing productivity and cost- reduction initiatives, optimizing our portfolio of assets, ~~divesting non- core~~

~~assets,~~ and investing in technology to advance sustainably. We have been taking decisive actions to lower the cost base of our operations through procurement strategies for raw materials, labor productivity, improving operating performance, deploying Company- wide business process models, and reducing overhead costs. In ~~October~~ 2019, ~~we initiated~~ **the Company announced** a **five** ~~multi-~~ year **strategic** ~~review of our production assets to drive lower costs and sustainable profitability. The~~ portfolio review ~~included~~ **of smelting and refining capacity. Through 2021, Alcoa reached approximately 75 and 58 percent of its target to improve cost positioning, including curtailment, closure or divestiture of** 1. 5 **and 4** million metric tons of smelting ~~capacity, including evaluation of options for improvement, curtailment, closure, or divestiture; as of December 31, 2021, the Company has taken action on approximately 75 percent of its 1. 5 million tons of smelting capacity under review,~~ and ~~approximately 58 percent of alumina~~ refining capacity ~~under~~ **, respectively. While no actions were taken in 2022 related to these targets, the Company took actions in response to market conditions, and the strategic portfolio** review **is continuing** . Though we have made progress on this strategy, we may not be able to realize the expected benefits or cost savings from this strategy ~~. The Company met its target for net proceeds from non- core asset sales of $ 500 million to $ 1 billion within twelve to eighteen months of the target announced in October 2019. In 2021, we generated net cash proceeds of $ 966 million from sales of non- core assets. Such proceeds provide a source of funding for other portfolio actions including curtailment and closure decisions. There is no assurance that additional non- core asset sales will provide funding for future portfolio decisions~~ . We have made and may continue to plan and execute other actions to grow or streamline our portfolio. There is no assurance that anticipated benefits of our strategic actions will be realized. With respect to portfolio optimization actions such as divestitures, curtailments, closures, and restarts, we may face barriers to exit from unprofitable businesses or operations, including high exit costs or objections from various stakeholders, the lack of availability of buyers willing to purchase such assets at prices acceptable to us, delays due to any regulatory approvals or government intervention, continuing environmental obligations, and third parties unwilling to release us from guarantees or other credit support provided in connection with the sale of assets. In addition, we may retain liabilities from such transactions, have ongoing indemnification obligations, and incur unforeseen liabilities for divested entities if a buyer fails to honor all commitments. Our business operations are capital intensive, and portfolio optimization actions such as the curtailment or closure of operations or facilities may include significant costs and charges, including asset impairment charges and other measures. There can be no assurance that such actions will be undertaken or completed in their entirety as planned at the anticipated cost or will result in being beneficial to the Company. The effect of closures, curtailments, and divestitures over time will reduce the Company' s cash flow and earnings capacity and result in a less diversified portfolio of businesses, and we will have a greater dependency on remaining businesses for our financial results. Additionally, curtailing certain existing facilities, whether temporarily or permanently, may require us to incur curtailment and carrying costs related to those facilities, as well as further increased costs should production be resumed at any curtailed facility, which could have an adverse effect on our business, financial results, and results of operations. Our announced multi- year portfolio review of Company assets includes evaluating our portfolio to assess each facility' s strategic benefits, competitiveness, and viability. Following this review, we expect to be a low cost, first quartile producer across our product segments of bauxite, alumina, and aluminum, and have up to 85 % of smelting production from renewable energy sources, which aligns with our long- term goal of having the lowest carbon- producing ~~refiners~~ **refineries** and smelters in the industry **. Our announced roadmap of technologies under development to support our long- term goal of having the lowest carbon- producing alumina refineries and aluminum smelters includes investments to develop, implement, and commercialize new technologies to reduce carbon emissions in the aluminum production process** . We may not be able to implement, fully or in a cost- effective or timely way, the actions necessary to achieve this strategy **and goal** , which actions could include capturing, maintaining and / or expanding margins from new products, continued product innovation investment in research and development projects and new ~~technology~~ **technologies , successful deployment and commercialization of effective new technologies** , and cost- effective long- term energy solutions. We may not achieve the expected results from technology innovation or other benefits **, including certain emissions or environmental- related goals,** or expected profitability associated with this strategy ~~and~~ **. In addition, even if we are able to cost effectively develop our technologies, alternatives to technologies may be more acceptable to the market.** ~~executing~~ **Executing** ~~on~~ these actions also diverts senior management time and resources from our regular business operations, each of which could adversely affect the Company' s business, financial condition, and results of operations. Joint ventures, other strategic alliances, and strategic business transactions may not achieve intended results. We may experience operational challenges in integrating or segregating assets for such a venture or transaction, and such a venture or transaction could increase the number of our outstanding shares or amount of outstanding debt and affect our financial position. We participate in joint ventures, have formed strategic alliances, and may enter into other similar arrangements in the future. For example, AWAC is an unincorporated global joint venture between Alcoa and Alumina Limited. AWAC consists of a number of affiliated entities, which own, operate, or have an interest in, bauxite mines and alumina refineries, as well as an aluminum smelter, in seven countries. In addition, Alcoa is minority owner of a joint venture with the Saudi Arabian Mining Company (Ma' aden). Although the Company has, in connection with these and our other existing joint ventures and strategic alliances, sought to protect our interests, joint ventures, and strategic alliances inherently involve special risks. Whether or not the Company holds majority interests or maintains operational control in such arrangements, our joint venture and other business partners may take certain actions and positions, or experience difficulties, that may negatively impact the Company and / or its reputation, such as: • ~~advancing~~ **Advancing** economic, political, social, or business interests or goals that are inconsistent with, or opposed to those of, the Company and our stakeholders; • ~~exercising~~ **Exercising** veto rights to block actions that we believe to be in our or the joint venture' s or strategic alliance' s best interests; • ~~taking~~ **Taking** action contrary to our policies or objectives with respect to our investments; ~~or~~ **and** , • ~~as~~ **As** a result of financial or other difficulties, be unable or unwilling to fulfill their obligations under the joint venture, strategic alliance, or other agreements, such as contributing capital to expansion or maintenance projects. We continuously evaluate and may in the future enter into additional strategic business transactions. Any such transactions could happen at any time, could be material to our business, and could take any number of forms, including, for example, an acquisition, merger, sale or distribution of certain assets, refinancing, or other recapitalization or material strategic transaction. There can be no assurance that our joint ventures, strategic alliances, or additional strategic business transactions will be beneficial to us, whether due to the above- described risks, unfavorable global economic conditions, increases in costs, foreign currency fluctuations, political risks, government interventions, retained liabilities, indemnification obligations, or other factors. Evaluating potential transactions and integrating completed ones may divert the attention of our management from ordinary operating matters. In addition, to the extent we consummate an agreement for the sale and disposition of an asset or asset group we may experience operational difficulties segregating them from our retained assets and operations, which could impact the execution or timing of such dispositions and could result in disruptions to our operations and / or claims for damages, among other things. If we engage in a strategic transaction, we may require additional financing that could result in an increase in the number of our outstanding shares of stock or the aggregate amount and / or cost of our debt, which may result in an adverse impact to our credit ratings or adversely impact our business, financial condition, or results of operations. The number of shares of our stock or the aggregate principal amount of our debt that we may issue in connection with such a transaction could be significant. Global Operational Risks ~~The COVID- 19 pandemic has adversely affected, and in the future could adversely affect, the Company' s business, financial condition, or results of operations. In December 2019, there was an outbreak of a novel strain of coronavirus (COVID) in China that has since spread to all regions of the world. The outbreak was declared a pandemic by the World Health Organization in March 2020. The COVID- 19 pandemic and preventative measures taken to contain or mitigate the outbreak caused business slowdowns or shutdowns in affected areas and significant disruption in economies and the global financial markets. While the Company has maintained its operations since the onset of the pandemic, there can be no assurance that these trends will continue or not reverse. To date, the Company has experienced isolated interruptions from its supply sources but has identified alternate solutions to avoid any significant production impacts. In relation to the Company' s workforce, operating locations have experienced elevated levels of absenteeism but ultimately have had minimal contractor- and employee- related disruptions to operations. The COVID- 19 pandemic is continuing. Uncertainty around the magnitude and duration of a global public health crisis can affect our business in a multitude of ways and in varying magnitudes. Although the ultimate impact of the COVID- 19 pandemic on our business, financial condition, and results of operations is not yet known, it could adversely affect: • Global demand for aluminum, negatively impacting our ability to generate cash flows from operations; • Our operations, including causing interruptions, reductions, or closures of our operations, due to decreased demand for our products, government regulations and / or fewer workers in the facilities due to illness or public health restrictions; • Commercial sustainability of key vendors or transportation disruptions within our supply chain, which could result in higher inventory costs and / or inability to obtain key raw materials or fulfill customer orders; • The liquidity of our customers, which could negatively impact the collectability of outstanding receivables and our cash flows; • Alcoa' s ability to fund capital expenditures and required maintenance at our facilities, which could negatively impact our results of operations and profitability; • Global financial and credit markets and our ability to obtain additional credit or financing under acceptable terms or at all, which could negatively affect our liquidity and financial condition; • The Company' s ability to meet financial covenants in our outstanding debt and credit facility agreements; • Investment return on pension assets and interest rates, and contribution deferrals, resulting in increased required Company contributions or unfavorable contribution timing, negatively impacting future cash flows; • Alcoa' s ability to generate income in certain jurisdictions, negatively impacting the realizability of our deferred tax assets; • The recoverability of certain long- lived and intangible assets, including goodwill; • The financial condition of our investments and key joint venture partners, negatively impacting the results of operations, cash flows, and recoverability of investment balances; • The effectiveness of hedging instruments; • Legal obligations resulting from employee claims related to health and safety; and, • Our ability to efficiently manage certain corporate functions and other activities as a result of employees working remotely. Prolonged adverse conditions could negatively impact our business, financial condition, and results of operations, and result in asset impairment charges, including long- lived assets or goodwill, or affect the realizability of deferred tax assets. The situation surrounding COVID- 19 remains fluid and could cause renewed instability in the global markets and economies in the near term, particularly if there are surges in COVID- 19 cases globally and / or in the locations in which Alcoa operates before the pandemic reaches an endemic stage. The duration and magnitude of the impact depends on future developments that cannot be accurately predicted, such as additional outbreaks, the emergence and spread of variants, infection rates in areas where we operate, the extent and effectiveness of containment actions, including the timing, breadth of distribution, and availability and effectiveness of vaccination efforts in the markets where we operate, and the impact of these and other factors on our employees, customers, suppliers, joint venture partners, and equity method investments. In addition, further outbreaks causing renewed implementation or extension of existing or new government mandates or orders requiring vaccines or testing could also impact the availability of our employees or contractors and our ability to retain current workers, attract new workers, and could result in labor disruptions, which could impact our ability to manufacture our products and could have a material adverse effect on our business, financial condition, and results of operations. The impact of the COVID- 19 pandemic could have a material adverse effect on our business, financial condition, and results of operations, and may also have the effect of heightening many of the other risks and uncertainties described in this " Risk Factors " section. Our participation in increasingly competitive and complex global markets exposes us to risks, including legal and regulatory risks and changes in conditions beyond our control, that could adversely affect our business, financial condition, or results of operations. We have operations or activities in numerous countries and regions outside the United States, including Australia, Brazil, Canada, Europe, Guinea, and the Saudi Arabia. The risks associated with the Company' s global operations include: • geopolitical risks, such as political instability, coups d' états, civil unrest, strikes and work stoppages, expropriation, nationalization of properties by a government, imposition of sanctions, changes to import or export regulations and fees, renegotiation, revocation or nullification of existing agreements,~~

~~leases, licenses, and permits, and changes to mining royalty rules or laws; • economic and commercial instability risks, including those caused by sovereign and private debt default, corruption, and changes in local government laws, regulations, and policies, such as those related to tariffs and trade barriers, trade tensions, taxation, exchange controls, employment regulations, and repatriation of earnings; • weakening macroeconomic conditions; • contracting manufacturing activity, especially in the global automotive sector; • war or terrorist activities; • major public health issues, such as an outbreak of a pandemic or epidemic, which could cause disruptions in our operations, supply chain, or workforce; • information systems failures or disruptions, including due to cyber attacks; • difficulties enforcing intellectual property and contractual rights, or limitations in the protection of technology, data, and intellectual property, in certain jurisdictions; and, • unexpected events, accidents, or environmental incidents, including natural disasters. We have experienced some of these events, and while the impact of any of the foregoing factors is difficult to predict, any one or more of them could adversely affect our business, financial condition, or results of operations. Existing insurance arrangements may not provide sufficient coverage or reimbursement for significant costs that may arise from such events. Unexpected or uncontrollable events or circumstances in any of the foreign markets in which we operate, including actions by foreign governments such as changes in foreign policy or fiscal regimes, termination of our leases or agreements with such foreign governments, increased government regulation, or forced curtailment or continuation of operations, could materially and adversely affect our business, financial condition, or results of operations.~~ Our global operations expose us to risks related to economic, political, and social conditions, including the impact of trade policies and adverse industry publicity, which may negatively impact our business and our ability to operate in certain locations. We are subject to risks associated with doing business internationally, including foreign or domestic government fiscal and political crises, political and economic disputes and sanctions, social requirements and conditions, and adverse industry publicity. These factors, among others, bring uncertainty to the markets in which we compete, and may adversely affect our business, financial condition, and results of operations. In addition, we operate in communities around the world, and social issues in the communities where we operate could affect our ability to maintain our operations; furthermore, incidents related to our industry could generate negative publicity and impact the social acceptability of our operations in such locations, including by damaging our reputation, our relationships with stakeholders, and our competitive position. Growing expectations of hosting communities as well as increasing social activism pose additional challenges to us maintaining our social license to operate and expand our business. For example, community and stakeholder concerns in Juruti, Brazil have affected our ability to access certain mining areas at times. ~~Though Alcoa has systems in place to assess and manage risks, including risks associated with maintaining and protecting our social license to operate, expectations that the private sector play a significant role in promoting and supporting the delivery of the United Nation' s Sustainable Development Goals (SDGs) are escalating.~~ In certain jurisdictions, there are increasing regulatory developments to protect minority groups, such as Indigenous People in Australia. This could have an adverse effect on our ability to secure expansions to our operations at all or in the expected timeframe, could significantly increase our cost of doing business, and could disrupt our operations. In the United States, in recent years, the U. S. government has taken actions with respect to the implementation of significant changes to certain trade policies, including import tariffs and quotas, modifications to international trade policy, the withdrawal from or renegotiation of certain trade agreements, and other changes that have affected U. S. trade relations with other countries, any of which may require us to significantly modify our current business practices or may otherwise materially and adversely affect our business or those of our customers. The U. S. government continues to review trade policies and negotiate new agreements with countries globally that could impact the Company. For example, the U. S. government is negotiating agreements with countries in relation to the tariffs initially applied under Section 232 of the Trade Expansion Act of 1962 (Section 232) in 2018. In 2021, the U. S. and European Union (EU) reached agreement whereby the U. S. lifted the Section 232 duties and applied a tariff- rate- quota allowing duty- free importation of aluminum from the EU based on historical volumes, and the EU suspended its retaliatory tariffs that had been in place on certain U. S. products. To the extent that further agreements are reached on a broader range of imports, or these tariffs and other trade actions result in a decrease in international demand for aluminum produced in the United States or otherwise negatively impact demand for our products, our business may be adversely impacted, and could further exacerbate aluminum and alumina price volatility and overall market uncertainty. We are exposed to fluctuations in foreign currency exchange rates and interest rates, as well as inflation and other economic factors in the countries in which we operate. Economic factors, including inflation and fluctuations in foreign currency exchange rates and interest rates, competitive factors in the countries in which we operate, and volatility or deterioration in the global economic and financial environment, could affect our business, financial condition, and results of operations. Changes in the valuation of the U. S. dollar against other currencies, particularly the Australian dollar, Brazilian real, Canadian dollar, euro, and Norwegian kroner, which are the currencies of certain countries in which we have operations, may affect our profitability, as some important inputs are purchased in other currencies, while our products are generally sold in U. S. dollars. As the U. S. dollar strengthens, the cost curve shifts down for smelters outside the United States, but costs for our U. S. smelting portfolio may not decline. Changes in tax laws or exposure to additional tax liabilities could affect our future profitability. We are subject to income taxes in both the United States and various non- U. S. jurisdictions. Changes in foreign and domestic tax laws, regulations, or policies, or their interpretation and application by regulatory bodies, or exposure to additional tax liabilities could affect our future profitability. For example, in October 2021, a new framework for international tax was agreed to by 137 member countries and jurisdictions of the Organisation for Economic Co- operation and Development (OECD), with rules targeted to be finalized in ~~2022~~ **2023** and implemented by participating jurisdictions as early as ~~2023~~ **2024** . The impact to the Company of such **an** agreement is uncertain until applicable rules are promulgated and implemented by the participating jurisdictions **. In December 2022, the European Union Council formally adopted the Global Minimum Tax portion of this framework, requiring member states to implement certain tax rules for tax years beginning in 2024** . Our domestic and international tax liabilities are dependent upon the distribution of profits among these different jurisdictions. Our tax expense includes estimates of additional tax that may be incurred for tax exposures and reflects various estimates and assumptions. The assumptions include assessments of future earnings of the Company that could impact the valuation of our deferred tax assets. Our future results of operations could be adversely affected by changes in the effective tax rate as a result of a change in the mix of earnings in countries with differing statutory tax rates, changes in the overall profitability of the Company, changes in tax legislation and rates, changes in generally accepted accounting principles, and changes in the valuation of deferred tax assets and liabilities. Significant changes to tax laws or regulations and the positions of taxing authorities could have a substantial impact, positive or negative, on our effective tax rate, cash tax expenditures and cash flows, and deferred tax assets and liabilities. We are subject to tax audits by various tax authorities in many jurisdictions, such as Australia, Brazil, Canada, and Spain. For example, in July 2020, AofA received Notices of Assessment (the Notices) from the Australian Taxation Office (ATO) related to the pricing of certain historic third- party alumina sales. The Notices asserted claims for income tax payable by AofA of approximately $ ~~156~~ **143** (A $ 214), exclusive of interest and penalties. The Notices also include claims for compounded interest on the tax amount totaling approximately $ ~~516~~ **474** (A $ 707). In accordance with the ATO' s dispute resolution practices, AofA paid 50 % of the assessed income tax amount exclusive of interest and any penalties to the ATO during the third quarter of 2020, and the ATO is not expected to seek further payment prior to final resolution of the matter. If AofA is ultimately successful, any amounts paid to the ATO as part of the 50 % payment would be refunded. The ATO has also issued a position paper with its preliminary view on the imposition of administrative penalties related to the tax assessment, proposing penalties of approximately $ ~~94~~ **86** (A $ 128). AofA disagrees with the ATO' s proposed position on penalties and submitted a response to the position paper in the fourth quarter of 2020. After the ATO completes its review of AofA' s response, the ATO could issue a penalty assessment. The Company does not agree with the ATO' s positions, and AofA will continue to defend this matter ~~and pursue all available dispute resolution methods, up to and including the filing of proceedings~~ in the Australian Courts. We regularly assess the potential outcomes of examinations by tax authorities in determining the adequacy of our provision for income taxes. The results of tax audits and examinations of previously filed tax returns or related litigation and continuing assessments of our tax exposures could materially affect our financial results. See Part II Item 8 of this Form 10- K in Notes Q and S to the Consolidated Financial Statements under captions Unrecognized Tax Benefits and Contingencies, respectively. **On August 16, 2022, the U. S. enacted the Inflation Reduction Act of 2022, which includes a 15 % minimum tax on book income of certain large corporations, a 1 % excise tax on net stock repurchases after December 31, 2022 and several tax incentives to promote clean energy. This legislation did not have a material impact on the Company' s Consolidated Financial Statements as of December 31, 2022. We face significant competition globally within and beyond the aluminum industry, which may have an adverse effect on profitability. We compete with a variety of both U. S. and non- U. S. aluminum industry competitors as well as with producers of other materials, such as steel, titanium, plastics, composites, ceramics, and glass, among others. Use of such materials could reduce the demand for aluminum products, which may reduce our profitability and cash flow. Factors affecting our ability to compete include increased competition from overseas producers, our competitors' pricing strategies, the introduction or advancement of new technologies and equipment by our competitors or our customers, changes in our customers' strategy or material requirements, and our ability to maintain the cost- efficiency of our facilities. Certain competitors possess financial, technical and management resources to develop and market products that may compete favorably against our products, and consolidation among our competitors may also allow them to compete more effectively. In addition, our competitive position depends, in part, on our ability to operate as an integrated aluminum value chain, leverage innovation expertise across businesses and key end markets, and access an economical power supply to sustain our operations in various countries. See Business — Competition. We may not be able to obtain or maintain adequate insurance coverage. We maintain various forms of insurance, including insurance covering claims related to our properties and risks associated with our operations. Our existing property and liability insurance coverages contain exclusions and limitations on coverage. In connection with renewals of insurance, we have experienced, or could experience in the future, additional exclusions and limitations on coverage, significantly increased self- insured retentions and deductibles, and significantly higher premiums. We may not be able to procure adequate insurance coverage for certain risks, if at all, and existing insurance arrangements may not provide sufficient coverage or reimbursement for significant costs that may arise. As a result, in the future our insurance coverage may not cover claims to the extent that it has in the past and the costs that we incur to procure insurance may increase significantly, either of which could have an adverse effect on our results of operations. Our business, financial condition and results of operations could be adversely affected by disruptions in the global economy caused by the ongoing conflict between Russia and Ukraine. The global economy has been negatively impacted by the conflict between Russia and Ukraine. Such adverse and uncertain economic conditions have exacerbated supply chain disruptions and increased our costs for energy, particularly in Spain, and for certain raw materials. During the first quarter of 2022, in response to the conflict, we ceased purchasing raw materials from and selling our products to Russian businesses. To date, these actions have not had a material adverse impact on the Company' s business, financial condition and results of operations, but they could have material negative impacts if the conflict continues and global sales of our products are impacted. Furthermore, governments in the U. S., United Kingdom and European Union have each imposed export controls on certain products and financial and economic sanctions on certain industry sectors and parties in Russia. Although we have no operations in Russia or Ukraine and our sales into these regions were historically minimal and have recently been discontinued, we will continue to monitor the conflict between Russia and Ukraine and the potential impact of financial and economic sanctions on the regional and global economy. Increased trade barriers or restrictions on global trade, or retaliatory measures taken by Russia, or other countries in response, as well as the destabilizing effects of the conflict, could also adversely affect our business, financial condition and results of operations by limiting sales, restricting access to required raw materials, or raising costs thereof. Destabilizing effects that the ongoing conflict may pose for the global oil and**

natural gas markets could also adversely impact our operations by further increasing our energy costs. In addition, further escalation of geopolitical tensions related to the conflict could result in loss of property, cyberattacks, additional supply disruptions, an inability to obtain key supplies and materials, reduced production and sales, and / or operational curtailments, and adversely affect our business and our supply chain. Legal and Regulatory Risks We may be exposed to significant legal proceedings, investigations, or changes in foreign and / or U. S. federal, state, or local laws, regulations, or policies. Our results of operations or liquidity in a particular period could be affected by new or increasingly stringent laws, regulatory requirements or interpretations, or outcomes of significant legal proceedings or investigations adverse to the Company. We may become subject to unexpected or rising costs associated with business operations, compliance measures, or provision of health or welfare benefits to employees due to changes in laws, regulations, or policies. We are also subject to a variety of legal and compliance risks, including, among other things, potential claims relating to health and safety, environmental matters, intellectual property rights, product liability, data privacy, taxes and compliance with U. S. and foreign export, anti- bribery, and competition laws, and sales and trading practices. We could be subject to fines, penalties, interest, or damages (in certain cases, treble damages). In addition, if we violate the terms of our agreements with governmental authorities, we may face additional monetary sanctions and other remedies as a court deems appropriate. While we believe we have adopted appropriate risk management and compliance programs to address and reduce these risks, the global and diverse nature of our operations means that these risks continue to exist, and additional legal proceedings and contingencies may arise from time to time. In addition, various factors or developments can lead the Company to change current estimates of liabilities or make estimates for matters previously not susceptible of reasonable estimates, such as a significant judicial ruling, judgment, or settlement, or significant regulatory developments or changes in applicable law. A future adverse ruling or settlement or unfavorable changes in laws, regulations or policies, or other contingencies that the Company cannot predict with certainty could have a material adverse effect on our results of operations or cash flows in a particular period. See Part I Item 3 of this Form 10- K and Part II Item 8 of this Form 10- K in Note S to the Consolidated Financial Statements under caption Contingencies **.** Climate change,climate change legislation or regulations,and efforts to reduce greenhouse gases and build operational resilience to extreme weather conditions may adversely impact our operations and markets.Energy is a significant input in a number of our operations and there is growing recognition that consumption of energy derived from fossil fuels is a contributor to climate change. **Several** ~~A number of~~ governments or regulatory bodies in areas where we operate,such as in Canada and the EU,have introduced or are contemplating legislative and regulatory change in response to the potential impacts of climate change,which could result in changes to the margins of greenhouse gas (GHG) intensive assets and energy- intensive assets.These regulatory mechanisms relating to carbon may be either voluntary or legislated and the inconsistency of associated regulations may impact our operations directly or indirectly through customers or our supply chain.Assessments of the potential impact of future climate change legislation,regulation **,** and international treaties and accords are uncertain,given the wide scope of potential regulatory change in countries in which we operate and the diversity in the scope and development of such regulations.For example,in 2021,the European Commission proposed a Carbon Border Adjustment Mechanism (CBAM) as a levy on ~~polluting~~ **carbon- intensive** imports ~~and~~ **,** which ~~,if~~ **was provisionally** approved ~~,~~ **in December 2022 and** would include aluminum in the first phase of implementation beginning in 2023.We may realize increased capital expenditures,costs,or taxes resulting from required compliance with revised or new legislation or regulations,including costs to purchase or profits from sales of allowances or credits under a carbon credit / pricing or “ cap and trade ” system,increased insurance premiums and deductibles as new actuarial tables are developed to reshape coverage,a change in competitive position relative to industry peers,and changes to profit or loss arising from increased or decreased demand for goods produced by the Company and,indirectly,from changes in costs of goods sold.Though we are investing in technology to reduce the production of greenhouse gases in the manufacture of our products,such as our ~~ELYSISTM~~ -- **ELYSIS** joint venture aluminum smelting technology and other technologies that limit the production of carbon in alumina refining,in certain aspects of our operations,our ability to reduce our greenhouse gas emissions is also dependent on the actions of third parties,especially energy providers,and our ability to make significant changes in our greenhouse gas emissions.As a result,we could face additional costs associated with any new regulation of GHG emissions,and our ability to modify our operations to avoid these costs may be limited in the near term.In addition,regulations to combat climate change could impact the competitiveness of the Company,including the attractiveness of the locations of some of the Company’ s assets.The global focus on climate is raising awareness in all countries,such as the agreement at the 26th United Nations Climate Change Conference of the Parties (COP26) by many governments of countries where the Company operates to combat deforestation,which could adversely affect our ability to mine and operate in sensitive areas like the Jarrah Forest and the Amazon.The potential physical impacts of climate change or extreme weather conditions on the Company’ s operations are highly uncertain and will be particular to the geographic circumstances.These may include changes in rainfall patterns,wildfires,heat waves,shortages of water or other natural resources,changing sea levels,changing storm patterns,flooding,increased frequency and intensities of storms,and changing temperature levels.Any of these may disrupt our operations,hinder transportation of products to us or of our products to customers,prevent access to our facilities,negatively impact our suppliers’ or customers’ operations and their ability to fulfill contractual obligations to us,and / or cause damage to our facilities,all of which may increase our costs,reduce production,and adversely affect our business,financial condition,or results of operations. ~~We face significant competition globally within~~ **From time to time,we establish strategies** and ~~beyond~~ **expectations related to climate change and** ~~the~~ **other** ~~aluminum industry~~ **environmental matters.Our ability to achieve any such strategies or expectations is subject to numerous factors and conditions** , **many of** which ~~may have~~ **are outside of our control.Examples of such factors include,but are not limited to,evolving legal,regulatory,** ~~an~~ **and** ~~adverse effect on profitability.We compete with a variety of both U.S.and non-U.S.aluminum industry competitors as well as with producers of~~ other ~~materials~~ **standards** , **processes** ~~such as steel~~ , ~~titanium,plastics,composites,ceramics,~~ and ~~glass~~ **assumptions** , ~~among~~ **the pace of scientific and technological**

developments,increased costs,the availability of requisite financing,and changes in carbon markets.Failures or delays (whether actual or perceived) in achieving our strategies or expectations related to climate change and ~~others~~ - **other environmental** ~~.Use of such materials~~ --- **matters** could **adversely** ~~reduce the demand for aluminum products,which may reduce our profitability and cash flow.Factors affecting~~ --- **affect** our ~~ability to compete include~~ **business,operations,and reputation,and** ~~increased~~ - **increase** ~~competition from overseas producers,our competitors' pricing strategies,~~ the **risk** ~~introduction or advancement~~ of **litigation** ~~new technologies and equipment by our competitors or our customers,changes in our customers' strategy or material requirements,and our ability to~~ . We are subject to a broad range of health, safety and environmental laws, regulations, and other requirements in the jurisdictions in which we operate that may expose us to substantial claims, costs, and liabilities. Our operations worldwide are subject to numerous complex and increasingly stringent federal, state, local and foreign laws, regulations, policies, and permitting, licensing, and other requirements, including those related to health, safety, environmental, and waste management and disposal matters, which may expose us to substantial claims, costs, and liabilities. We may be subject to fines, penalties, and other damages, such as natural resource or community damages and the costs associated with the investigation and cleanup of soil, surface water, groundwater, and other media under laws such as CERCLA (commonly known as Superfund) or similar U. S. and foreign regulations. These laws, regulations, policies, and permitting, licensing, and other requirements could change or could be, and have been, applied or interpreted in ways that could (i) require us to enjoin, curtail, close or otherwise modify our operations and sites, including the implementation of corrective measures, the installation of additional equipment or structures, or the undertaking of other remedial actions, or (ii) subject us to enforcement risk or impose on or require us to incur additional capital expenditures, compliance or other costs, fines, penalties, or damages, any of which could adversely affect our results of operations, cash flows and financial condition, and the trading price of our common stock. The costs of complying with such laws, regulations, policies, and other requirements, including participation in assessments, remediation activities, and cleanups of sites, as well as internal voluntary programs, are significant and will continue to be so for the foreseeable future. Environmental laws may impose cleanup liability on owners and occupiers of contaminated property, including previously owned, non- operational, or divested properties, regardless of whether the owners and occupiers caused the contamination or whether the activity that caused the contamination was lawful at the time it was conducted. As a result, we may be subject to claims arising from current or former conditions at sites that we own or operate currently, as well as at sites that we owned or operated in the past, and at contaminated sites that have always been owned or operated by third parties, regardless of whether we caused the contamination or whether the activity that caused the contamination was lawful at the time it was conducted. Liability may be without regard to fault and may be joint and several, so that we may be held responsible for more than our share of the contamination or other damages, or even for the entire share. In addition, because environmental laws, regulations, policies, and other requirements are constantly evolving, we will continue to incur costs to maintain compliance and such costs could increase materially and prove to be more limiting and costly than we anticipate. Evolving standards and expectations can result in increased litigation and / or increased costs, all of which can have a material and adverse effect on our business operations, earnings, and cash flows. Future compliance with environmental, health and safety legislation and other regulatory requirements or expectations may prove to be more limiting and costly than we anticipate and may disrupt our business operations and require significant expenditures. Our business, financial condition, or results of operations in a particular period could be materially affected by certain health, safety, or environmental matters, including remediation costs and damages related to certain sites. Our operations include impoundment structures, which could impact the environment or cause exposure to hazardous substances or other damage, which could result in material liabilities to us. Some of our operations generate hazardous waste and other byproducts, which we contain in tailing facilities, residue storage areas, and other structural impoundments that are subject to extensive regulation and increasingly strict industry standards. Overtopping of storage areas caused by extreme weather events, erosion, or unanticipated structural failure of impoundments could result in severe, and in some cases catastrophic, damage to the environment, natural resources, or property, or personal injury and loss of life. These and other similar impacts that our operations may have on the environment, as well as exposures to hazardous substances or wastes associated with our operations, could result in significant costs, civil or criminal damages, fines or penalties, and enforcement actions issued by regulatory or judicial authorities enjoining, curtailing, or closing operations or requiring corrective measures, any of which could materially and adversely affect us. Climate change, climate change legislation or...... effect on our results of operations. Cybersecurity Risks Cyber attacks, security breaches, system failures, software or application vulnerabilities, or other cyber incidents may threaten the integrity of our information technology infrastructure and other sensitive business information, disrupt our operations and business processes, expose us to potential liability, and result in reputational harm and other negative consequences that could have a material adverse effect on our business, financial condition, and results of operations. We depend on information and communications technology, networks, software, and related systems to operate our business, including production controls and operating systems at our facilities and systems for recording and processing transactions, interfacing with customers, financial reporting, and protecting the personal data of our employees and other confidential information. Our global operations require increased reliance on technology, which expose us to risks of theft of proprietary information, including trade secrets and other intellectual property that could have a material adverse effect on our business, financial condition, and results of operations. The protection of such information, as well as sensitive customer information, personal data of our employees, and other confidential information, is critical to us. We face global cybersecurity threats, which may range from uncoordinated individual attempts to sophisticated and targeted measures, known as advanced persistent threats, directed at the Company. In addition, a greater number of our employees are working remotely **since** ~~as a result of~~ the COVID- 19 pandemic, which has increased cybersecurity vulnerabilities and risk to our information technologies systems. Cyber attacks and other cyber incidents are becoming more frequent and sophisticated, are constantly evolving, and are being made by groups and individuals with significant resources and a wide range of expertise and motives. Cyber attacks and security breaches may include, but are not limited to, unauthorized attempts to access information or digital infrastructure, efforts to direct payments to fictitious parties, viruses, ransomware, malicious codes, hacking, phishing (including through social engineering), denial of service, human error, and other electronic security breaches, any of which could have a material adverse effect on our business, financial condition, and results of operations. As techniques used in cyber attacks change frequently and may not be immediately detectable, we may be unable to anticipate or detect these techniques, such as use of a zero- day exploit ~~(such as Log4j vulnerability)~~ or unknown malware, ~~including~~ **immediately identify** the scope and impact of an incident, contain the incident within our systems, or implement preventative or remediation measures ~~. We have in the past experienced attempts and incidents by external parties to penetrate our networks and systems~~ . In addition, we utilize third- party vendors for certain software applications, storage systems, and cloud computing services. Cyber attacks, security breaches, or other incidents on the information technology systems of our service providers or business partners could **materially** impact us **. We have in the past experienced attempts and incidents by external parties to penetrate our and our service providers or business partners networks and systems** . Such attempts and incidents to date have not resulted in any material breaches, disruptions, or loss of information. We continue to assess potential cyber threats and invest in our information technology infrastructure to address these threats, including by monitoring networks and systems, training employees on cyber threats, and enhancing security policies of the Company and its third- party providers. While the Company continually works to strengthen our systems and security measures, safeguard information, and mitigate potential risks, there is no assurance that such actions will be sufficient to prevent or timely detect cyber attacks or security breaches. Such intrusions could manipulate or improperly use our systems or networks, disclose, or compromise confidential or protected information, destroy, or corrupt data, or otherwise disrupt our operations, any of which could have a material adverse effect on our business, financial condition, and results of operations. In addition, cybersecurity incidents could negatively impact our reputation and competitive position, and could result in litigation with third parties, regulatory action, loss of business, theft of assets, and significant remediation costs, any of which could have a material adverse effect on our financial condition and results of operations. Such security breaches could also result in a violation of applicable U. S. and international privacy and other laws, and subject us to litigation and governmental investigations and proceedings, any of which could result in our exposure to material civil or criminal liability. For example, the European Union’ s General Data Privacy Regulation subjects companies to a range of compliance obligations regarding the handling of personal data. In the event our operations are found to be in violation of the GDPR’ s requirements, we may be subject to significant civil penalties, business disruption and reputational harm, any of which could have a material adverse effect on our business, financial condition, or results of operations. Cyber attacks or breaches could require significant management attention and resources and result in the diminution of the value of our investment in research and development, which could have a material adverse effect on our business, financial condition, or results of operations. Though we have disaster recovery and business continuity plans in place, if our information technology systems, or those of our third- party providers, are damaged, breached, interrupted, or cease to function properly for any reason, and, if the disaster recovery and business continuity plans do not effectively resolve the incident on a timely basis, we may suffer interruptions in our ability to manage or conduct business and we may be exposed to reputational, competitive and business harm as well as litigation and regulatory action, which may materially and adversely impact our business, financial condition, or results of operations. Available Capital and Credit- Related Risks **.** Our business and growth prospects may be negatively impacted by limits on our ability to fund capital expenditures.We require substantial capital to invest in growth opportunities and to maintain and prolong the life and capacity of our existing facilities.Our ability to generate cash flows is affected by many factors,including market and pricing conditions.Insufficient cash generation or capital project overruns may negatively impact our ability to fund as planned our sustaining and return- seeking capital projects,and such postponement in funding capital expenditures or inadequate funding to complete projects could result in operational issues.For ~~2023~~ **2022** ,we project capital expenditures of $ ~~600~~ **525** million,of which $ ~~485~~ **450** million is for sustaining capital and $ ~~115~~ **75** million for return- seeking capital.If our technology research and development projects prove feasible with an acceptable expected rate of return,our capital expenditures for return- seeking projects would increase significantly over the next several years.To the extent our access to competitive financial,credit,capital,and / or banking markets becomes impaired,our operations,financial results,and cash flows could be adversely impacted.We may also need to address commercial,political,and social issues in relation to capital expenditures in certain of the jurisdictions in which we operate.If our interest in our joint ventures is diluted or we lose key concessions,our growth could be constrained.Any of the foregoing could have a material adverse effect on our business,results of operations,financial condition,and prospects ~~.~~We cannot guarantee that we will continue to return capital to our stockholders through the payment of cash dividends and / or the repurchase of our common stock. The reduction or discontinuation of the payment of cash dividends to our stockholders or the repurchase of our shares of common stock could adversely affect the market price or liquidity of our shares. In October 2021, the Company’ s Board of Directors initiated a quarterly cash dividend program, at $ 0. 10 per share ~~,~~ and authorized a ~~new~~ $ 500 ~~million~~ share repurchase program ~~. The Board of Directors also previously authorized a $ 200 million share repurchase program in October 2018~~ , which was fully ~~utilized~~ **used** with the completion of $ 150 ~~million~~ in repurchases during the ~~fourth~~ **third** quarter of ~~2021~~ **2022** . ~~The~~ **In July 2022, the Board of Directors approved an additional common stock repurchase program under which the Company may purchase shares of its outstanding common stock up to an aggregate transactional value of $ 500, depending on the Company’ s continuing analysis of market, financial, and other factors (the New Repurchase Program). This** share repurchase ~~authorizations~~ - **authorization** ~~do~~ **does** not have **a** predetermined expiration ~~dates~~ - **date** . The Company is under no obligation to pay any cash dividends to stockholders or to repurchase our outstanding shares of common stock at any particular price or at all, and the payment of dividends and / or repurchases of stock may be limited, suspended, or discontinued at any time in our discretion and without notice. The Company set each of the current dividend and new share repurchase program ~~authorization~~ **authorizations** at a level it believes is sustainable throughout the commodity cycle, based on our current financial position and reasonable expectations of cash flow. In addition, as described elsewhere in this “ Risk Factors ” section, the Company’ s Revolving Credit

Facility (as defined below) **could** ~~inhibits~~ **inhibit** the Company' s ability to make certain restricted payments, including the amount of dividends and payments to redeem, repurchase, or retire equity securities or other indebtedness **, if the Company does not maintain certain financial ratios** . The Company intends to pay dividends on a quarterly basis. Dividends on Alcoa Corporation common stock are subject to authorization by the Company' s Board of Directors. The payment, amount, and timing of dividends, if any, depends upon matters deemed relevant by the Company' s Board of Directors, such as Alcoa Corporation' s financial position, results of operations, cash flows, capital requirements, business condition, future prospects, any limitations imposed by law, credit agreements or senior securities, and other factors deemed relevant and appropriate. Declines in asset values or increases in liabilities, including liabilities associated with benefit plans or taxes, can reduce stockholders' equity. A deficit in stockholders' equity could limit our ability under Delaware law to pay dividends and repurchase shares in the future. The reduction, suspension, or elimination of our cash dividend or our share repurchase program could adversely affect the market price of our stock and / or ~~and~~ significantly increase its trading price volatility. The payment of any future dividends and the existence of a share repurchase program could cause our stock price to be higher than it would otherwise be and could potentially reduce the market liquidity for our stock. Additionally, any future payment of dividends or repurchases of our common stock could negatively impact our financial position and our ability to fund ordinary and existing operations, capital expenditures, ~~cash~~ **the payment of** taxes, and growth or other opportunities . Our business and growth prospects may...... operations, financial condition, and prospects . Deterioration in our credit profile or increases in interest rates could increase our costs of borrowing money and limit our access to the capital markets and commercial credit. The major credit rating agencies evaluate our creditworthiness and give us specified credit ratings. These ratings are based on a number of factors, including our financial strength and financial policies as well as our strategies, operations, and execution of announced actions. These credit ratings are limited in scope and do not address all material risks related to an investment in us, but rather reflect only the view of each rating agency at the time its rating is issued. Nonetheless, the credit ratings we receive impact our borrowing costs as well as our access to sources of capital on terms advantageous to our business. Failure to obtain **or maintain** sufficiently high credit ratings could adversely affect our interest rates in ~~future~~ financings, our liquidity, or our competitive position, and could also restrict our access to capital markets. In addition, our credit ratings could be lowered or withdrawn entirely by a rating agency if, in its judgment, the circumstances warrant. If a rating agency were to downgrade our rating, our borrowing costs could increase, our funding sources could decrease, and we would need to rely on our cash flows from operations. As a result of these factors, a downgrade of our credit ratings could have a materially adverse impact on our future operations, cash flows, and financial position. Our indebtedness restricts our current and future operations, which could adversely affect our ability to respond to changes in our business and manage our operations, and failure to comply with the agreements relating to our outstanding indebtedness, including due to events beyond our control, could result in an event of default that could materially and adversely affect our business, financial condition, results of operations, or cash flows. Alcoa and Alcoa Nederland Holding B. V. (ANHBV), a wholly- owned subsidiary of Alcoa, are party to a revolving credit agreement with a syndicate of lenders and issuers named therein (as subsequently amended, the Revolving Credit Facility). The terms of the Revolving Credit Facility and the indentures governing our outstanding notes contain covenants that **could** impose significant operating and financial restrictions on us **upon non- compliance with them** , including on our ability to, among other things: • ~~make~~ **Make** investments, loans, advances, and acquisitions; • ~~amend~~ **Amend** certain material documents; • ~~dispose~~ **Dispose** of assets; • ~~incur~~ **Incur** or guarantee additional debt and issue certain disqualified equity interests and preferred stock; • ~~make~~ **Make** certain restricted payments, including limiting the amount of dividends on equity securities and payments to redeem, repurchase or retire equity securities or other indebtedness; • ~~engage~~ **Engage** in transactions with affiliates; • ~~materially~~ **Materially** alter the business we conduct; • ~~enter~~ **Enter** into certain restrictive agreements; • ~~create~~ **Create** liens on assets to secure ~~debt~~ **lenders and issuers** ; • ~~consolidate~~ **Consolidate** , merge, sell or otherwise dispose of all or substantially all of Alcoa' s, ANHBV' s or a subsidiary guarantor' s assets; and, • ~~take~~ **Take** any actions that would reduce our ownership of AWAC entities below an agreed level. The Revolving Credit Facility requires us to comply with financial covenants which includes maintaining an interest expense coverage ratio of not less than 4. 00 to 1. 00, and a **debt to capitalization ratio not to exceed. 60 to 1. 00 (replaced the maximum** leverage ratio **upon a ratings upgrade** ~~that is not greater than 2. 75~~ to **investment grade by Moody' s Investor Service** ~~1. 00. The leverage ratio compares total indebtedness to Consolidated EBITDA~~ (**Moody' s** ~~as defined in the Revolving Credit Facility~~) **on July 26, 2022)** ~~to determine compliance with the financial covenant. The leverage ratio calculation also determines the maximum indebtedness permitted under the Revolving Credit Facility~~ . The results of the calculation of these ratios, when considering the Company' s existing debt obligations, affects and could restrict the amount of additional borrowing capacity under the Company' s Revolving Credit Facility or other credit facilities ~~. In addition~~ , ~~all obligations of Alcoa Corporation or a domestic entity under the~~ **and ANHBV' s ability to make restricted payments, to make investments and to incur indebtedness. The** Revolving Credit Facility ~~are~~ **released the collateral package that had previously** secured ~~by, subject to certain exceptions, a first priority lien on substantially all assets of Alcoa Corporation and the material domestic wholly- owned subsidiaries of Alcoa Corporation and certain equity interests of specified non- U. S. subsidiaries. All other obligations under~~ the Revolving Credit Facility **, which will continue so long as certain credit ratings** are **maintained. If Alcoa Corporation or ANHBV, as applicable, fails to have a rating of at least Ba1 from Moody' s and BB from S & P, then the Company would be required to execute all security documents to re-** ~~secured~~ **secure collateral under the Revolving Credit Facility** by, subject to certain exceptions, a first priority security interest in substantially all assets of Alcoa Corporation, ANHBV, the material domestic wholly- owned subsidiaries of Alcoa Corporation, and the material foreign wholly- owned subsidiaries of Alcoa Corporation located in Australia, Brazil, Canada, Luxembourg, the Netherlands, Norway, and Switzerland including equity interests of certain subsidiaries that directly hold equity interests in AWAC entities. Our ability to comply with these agreements may be affected by events beyond our control, including prevailing economic, financial, and industry conditions. These covenants could have an adverse effect on our business by limiting our ability to take advantage of financing, merger and acquisition, or other opportunities. The breach of any of these covenants or restrictions could result in a default under the Revolving Credit Facility or the indentures governing our notes and other outstanding indebtedness, including such indebtedness for which the Company is a guarantor. See Part II Item 7 of this Form 10- K in Management' s Discussion and Analysis of Financial Condition and Results of Operations under caption Liquidity and Capital Resources – Financing Activities for more information on the restrictive covenants in the Revolving Credit Facility. If an event of default were to occur under any of the agreements relating to our outstanding indebtedness, including the Revolving Credit Facility and the indenture governing our notes, we may not be able to incur additional indebtedness under the Revolving Credit Facility and the holders of the defaulted debt could cause all amounts outstanding with respect to that debt to be due and payable immediately. We cannot assure that our assets or cash flow would be sufficient to fully repay borrowings under our outstanding debt instruments if accelerated upon an event of default, which could have a material adverse effect on our ability to continue to operate as a going concern. Further, if we are unable to repay, refinance, or restructure our secured indebtedness, the holders of such indebtedness could proceed against the collateral securing that indebtedness. In addition, any event of default or declaration of acceleration under one debt instrument also could result in an event of default under one or more of our other debt instruments. Labor- and Pension- Related Risks Union disputes and other employee relations issues, as well as labor market conditions, could adversely affect our business, financial condition, or results of operations. A significant portion of our employees are represented by labor unions in a number of countries under various collective bargaining agreements with varying durations and expiration dates. Union disputes and other employee relations issues could, and have, adversely ~~affect~~ **affected** our business, financial condition, or results of operations. For example, in ~~2021~~ **2022** , ~~we faced~~ a ~~workers'~~ strike at ~~our San Ciprián refinery and~~ **the Mosjøen (Norway)** smelter ~~in Spain~~ **commenced, after negotiations for a nationwide collective labor agreement between Industri Energi, a federation of Norwegian industries that includes Alcoa and Norsk Industri** , which **represents workers** ~~slowed production and blocked metal shipments until January 2022, after the Company had~~ reached an ~~agreement~~ **impasse. The strike affected numerous industrial plants representing the Norwegian electrochemical industry. The strike ended on August 24, 2022,** with **a solution reached on** the ~~workers' representatives regarding~~ **labor dispute, and normal operations resumed at** the **Mosjøen** ~~near- term future of the~~ smelter **with no material impact on the Company** . We may not be able to satisfactorily renegotiate collective bargaining agreements when they expire. In addition, existing collective bargaining agreements may not prevent strikes, work stoppages, work slowdowns, union organizing campaigns, or lockouts at our facilities in the future. We may also be subject to general country strikes or work stoppages unrelated to our business or collective bargaining agreements. A labor dispute or work stoppage of employees could have a material adverse effect on production at one or more of our facilities, and depending on the length of work stoppage, on our business, financial condition, or results of operations. Additionally, in the current competitive labor market, if we lose critical or a significant ~~amount~~ **number** of workers to attrition, it may be difficult or costly to find and recruit replacement employees, which could have a material adverse effect on our business, financial condition, and results of operations. A decline in the liability discount rate, lower- than- expected investment return on pension assets and other factors could affect our business, financial condition, results of operations, or amount of pension funding contributions in future periods. Our results of operations may be negatively affected by the amount of expense we record for our pension and other postretirement benefit plans, reductions in the fair value of plan assets, and other factors. We calculate income or expense for our plans using actuarial valuations in accordance with accounting principles generally accepted in the United States of America (GAAP). These valuations reflect assumptions about financial market and other economic conditions, which may change based on changes in key economic indicators. The most significant year- end assumptions used by the Company to estimate pension or other postretirement benefit income or expense for the following year are the discount rate applied to plan liabilities and the expected long- term rate of return on plan assets. In addition, the Company is required to make an annual measurement of plan assets and liabilities, which may result in a significant charge to stockholders' equity. See Part II Item 7 of this Form 10- K in Management' s Discussion and Analysis of Financial Condition and Results of Operations under caption Critical Accounting Policies and Estimates — Pension and Other Postretirement Benefits and Part II Item 8 of this Form 10- K in Note O to the Consolidated Financial Statements. Although GAAP expense and pension funding contributions are impacted by different regulations and requirements, the key economic factors that affect GAAP expense would also likely affect the amount of cash or securities we would contribute to the pension plans. Potential pension contributions include both mandatory amounts required under federal law and discretionary contributions to improve the plans' funded status. While the Company took several actions in ~~2021~~ **2022** to improve the funded status of its pension plans and adjust its asset allocation to reduce variance risk, declines in the discount rate or lower- than- expected investment returns on plan assets could have a material negative effect on our cash flows. Adverse capital market conditions could result in reductions in the fair value of plan assets and increase our liabilities related to such plans, adversely affecting our liquidity and results of operations. **27**