3rd Quarter Earnings

Alcoa Corporation

October 19, 2022

Alcoa

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This presentation contains statements that relate to future events and expectations and as such constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include those containing such words as “aims,” “ambition,” “anticipates,” “believes,” “could,” “develop,” “endeavors,” “estimates,” “expects,” “forecasts,” “goal,” “intends,” “may,” “outlook,” “potential,” “plans,” “projects,” “reach,” “seeks,” “sees,” “should,” “strive,” “targets,” “will,” “working,” “would,” or other words of similar meaning. All statements by Alcoa Corporation that reflect expectations, assumptions or projections about the future, other than statements of historical fact, are forward-looking statements, including, without limitation, forecasts concerning global demand growth for bauxite, alumina, and aluminum, and supply/demand balances; statements, projections or forecasts of future or targeted financial results, or operating or sustainability performance (including our ability to execute on strategies related to environmental, social and governance matters); statements about strategies, outlook, and business and financial prospects; and statements about capital allocation and return of capital. These statements reflect beliefs and assumptions that are based on Alcoa Corporation’s perception of historical trends, current conditions, and expected future developments, as well as other factors that management believes are appropriate in the circumstances. Forward-looking statements are not guarantees of future performance and are subject to known and unknown risks, uncertainties, and changes in circumstances that are difficult to predict. Although Alcoa Corporation believes that the expectations reflected in any forward-looking statements are based on reasonable assumptions, it can give no assurance that these expectations will be attained and it is possible that actual results may differ materially from those indicated by these forward-looking statements due to a variety of risks and uncertainties. Such risks and uncertainties include, but are not limited to: (a) current and potential future impacts to the global economy and our industry, business and financial condition caused by various worldwide or macroeconomic events, such as the COVID-19 pandemic and the ongoing conflict between Russia and Ukraine, and related regulatory developments; (b) material adverse changes in aluminum industry conditions, including global supply and demand conditions and fluctuations in London Metal Exchange-based prices and premiums, as applicable, for primary aluminum and other products, and fluctuations in indexed-based and spot prices for alumina; (c) changes in global economic and financial market conditions generally, such as inflation and interest rate increases, and which may also affect Alcoa Corporation’s ability to obtain credit or financing upon acceptable terms or at all; (d) unfavorable changes in the markets served by Alcoa Corporation; (e) the impact of changes in foreign currency exchange and tax rates on costs and results; (f) unfavorable changes in cost, quality, or supply of key inputs, including energy and raw materials, or uncertainty of or disruption to the supply chain including logistics; (g) the inability to execute on strategies related to or achieve improvement in profitability and margins, cost savings, cash generation, revenue growth, fiscal discipline, environmental- and social-related goals and targets (including due to delays in scientific and technological developments), or strengthening of competitiveness and operations anticipated from portfolio actions, operational and productivity improvements, technology advancements, and other initiatives; (h) the inability to realize expected benefits, in each case as planned and by targeted completion dates, from acquisitions, divestitures, restructuring activities, facility closures, curtailments, restarts, expansions, or joint ventures; (i) political, economic, trade, legal, public health and safety, and regulatory risks in the countries in which Alcoa Corporation operates or sells products; (j) labor disputes and/or work stoppages and strikes; (k) the outcome of contingencies, including legal and tax proceedings, government or regulatory investigations, and environmental remediation; (l) the impact of cyberattacks and potential information technology or data security breaches; (m) risks associated with long-term debt obligations; (n) the timing and amount of future cash dividends and share repurchases; (o) declines in the discount rates used to measure pension and other postretirement benefit liabilities or lower-than-expected investment returns on pension assets, or unfavorable changes in laws or regulations that govern pension plan funding; and, (p) the other risk factors discussed in Part I Item 1A of Alcoa Corporation’s Annual Report on Form 10-K for the fiscal year ended December 31, 2021, the Quarterly Report on Form 10-Q for the quarter ended March 31, 2022, and other reports filed by Alcoa Corporation with the U.S. Securities and Exchange Commission. Alcoa Corporation disclaims any obligation to update publicly any forward-looking statements, whether in response to new information, future events or otherwise, except as required by applicable law. Market projections are subject to the risks described above and other risks in the market.

Important information

Non-GAAP Financial Measures

Some of the information included in this presentation is derived from Alcoa Corporation’s consolidated financial information but is not presented in Alcoa Corporation’s financial statements prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). Certain of these data are considered “non-GAAP financial measures” under SEC regulations. Alcoa Corporation believes that the presentation of non-GAAP financial measures is useful to investors because such measures provide both additional information about the operating performance of Alcoa Corporation and insight on the ability of Alcoa Corporation to meet its financial obligations by adjusting the most directly comparable GAAP financial measure for the impact of, among others, “special items” as defined by the Company, non-cash items in nature, and/or nonoperating expense or income items. The presentation of non-GAAP financial measures is not intended to be a substitute for, and should not be considered in isolation from, the financial measures reported in accordance with GAAP. Reconciliations to the most directly comparable GAAP financial measures and management’s rationale for the use of the non-GAAP financial measures can be found in the appendix to this presentation.

Resources

This presentation can be found under the “Events and Presentations” tab of the “Investors” section of the Company’s website, www.alcoa.com.

Roy Harvey

President and Chief Executive Officer

Addressing current challenges, well positioned for long term

Alcoa values, strategic priorities, and key takeaways for 3Q22

OUR VALUES

Act with Integrity

Operate with Excellence

Care for People

Lead with Courage

3Q22 Takeaways

- No fatal or serious injuries (FSI-As) in the quarter
- Financial results for 3Q22
  - Net loss attributable to Alcoa of $746 million; Adj. net loss of $60 million
  - Adjusted EBITDA excluding special items of $210 million
  - Cash balance of $1.4 billion, proportional adjusted net debt at $1.3 billion
  - Paid quarterly cash dividend and repurchased $150 million of shares
  - Purchased group annuity contracts, transferred ~$1.0 billion of pension obligations
- Operating level adjustments, innovations, and sustainability
  - Partially curtailed Lista smelter in Norway and San Ciprián refinery in Spain
  - Progressing restarts at Alumar and Portland smelters in Brazil and Australia
  - Announced new ExtruStrong™ high-performance aluminum alloy
  - Earned Aluminum Stewardship Initiative (ASI) certification at Pocos de Caldas operations in Brazil
- Energy and decarbonization expected to drive positive long term aluminum fundamentals

William Oplinger

Executive Vice President and Chief Financial Officer

Alcoa

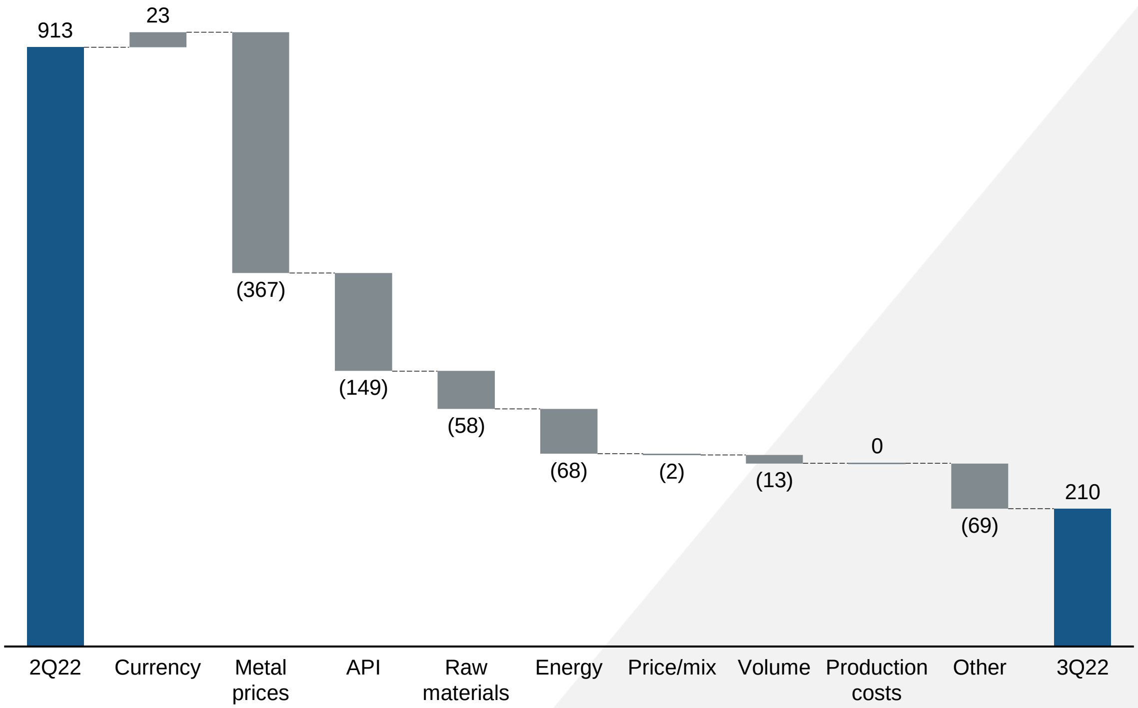
EPS negative on pension annuitization charge and lower prices

Quarterly income statement summary

M, Except per share amounts	3Q21	2Q22	**3Q22**	Prior year change	Sequential change
Income statement highlights					
Revenue	$3,109	$3,644	**$2,851**	$(258)	$(793)
Net income (loss) attributable to Alcoa Corporation	$337	$549	**$(746)**	$(1,083)	$(1,295)
Diluted earnings (loss) per share	$1.76	$2.95	**$(4.17)**	$(5.93)	$(7.12)
Adjusted income statement highlights					
Adjusted EBITDA excluding special items	$728	$913	**$210**	$(518)	$(703)
Adjusted net income (loss) attributable to Alcoa Corporation	$391	$496	**$(60)**	$(451)	$(556)
Adjusted diluted earnings (loss) per share	$2.05	$2.67	**$(0.33)**	$(2.38)	$(3.00)

EBITDA lower; sales prices decline while input costs rise

Adjusted EBITDA excluding special items sequential changes, $M

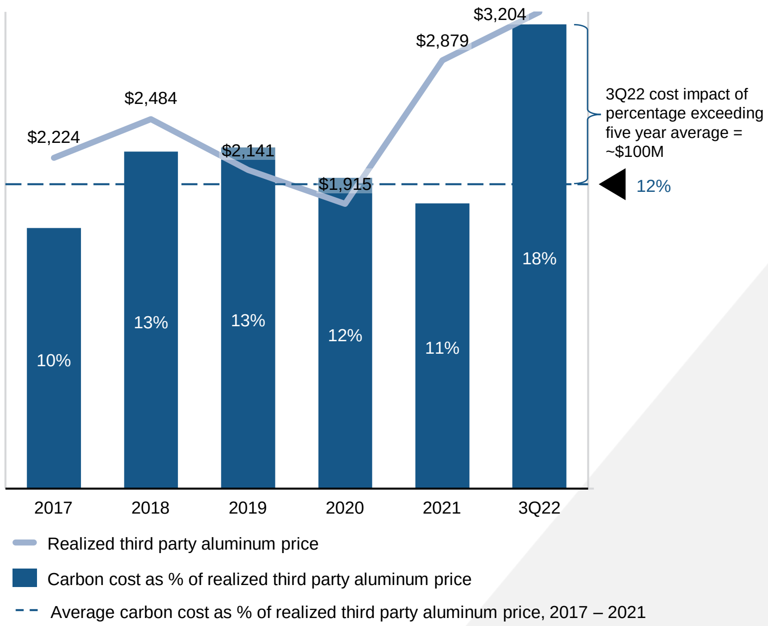


	2Q22	3Q22	Change
Bauxite	$5	$15	$10
Alumina	343	69	(274)
Aluminum	596	152	(444)
Segment total	944	236	(708)
Transformation	(11)	(19)	(8)
Intersegment eliminations	20	17	(3)
Other corporate	(40)	(24)	16
Total	$913	$210	$(703)

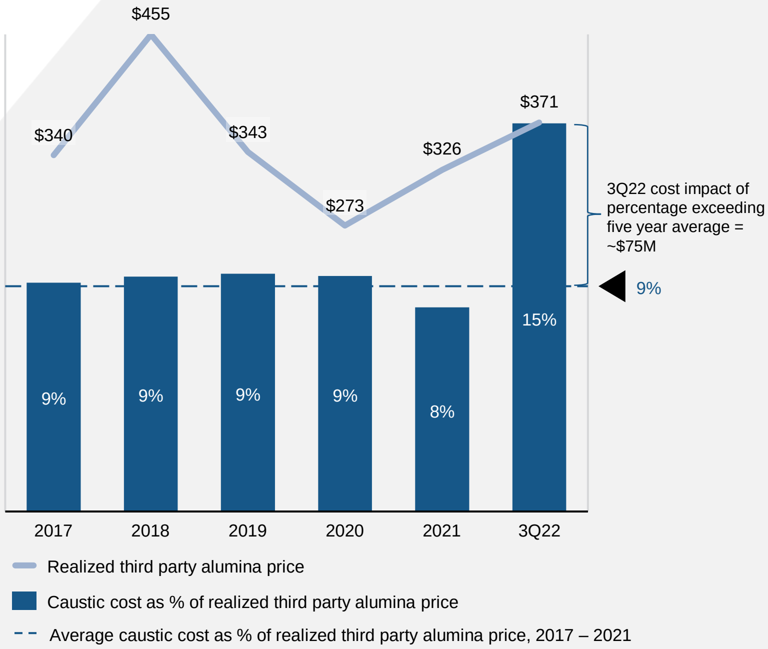
Key raw material costs much higher as percentage of revenue

Key raw material costs as % of realized third party sales prices, FY17 – FY21, 3Q22

Carbon materials cost as % of realized third party aluminum price



Caustic cost as % of realized third party alumina price



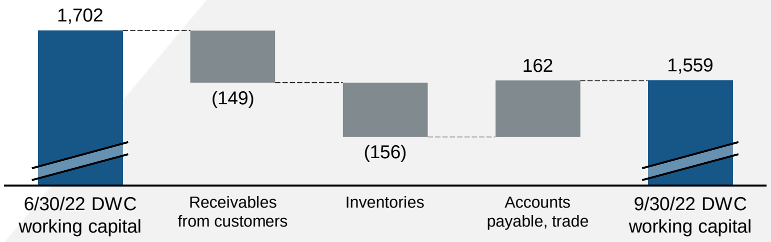
Cash returns to stockholders of $555 million 2022 YTD

Key financial metrics for 3Q22 and cash returned to stockholders, 2016 – 3Q22 YTD

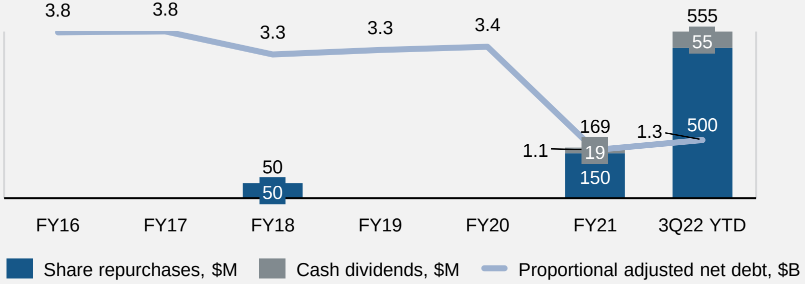
Key financial metrics

3Q22 YTD Return on equity	3Q22 Days working capital (DWC)
25.9%	**50 Days**
3Q22 YTD Capital Returns to stockholders	3Q22 Proportional adjusted net debt
$555M	**$1.3B**
3Q22 YTD Free cash flow less net NCI distributions	3Q22 Cash balance
$226M	**$1.4B[1]**

3Q22 DWC working capital changes, $M



Cash returns to stockholders ($M) and proportional adjusted net debt ($B)

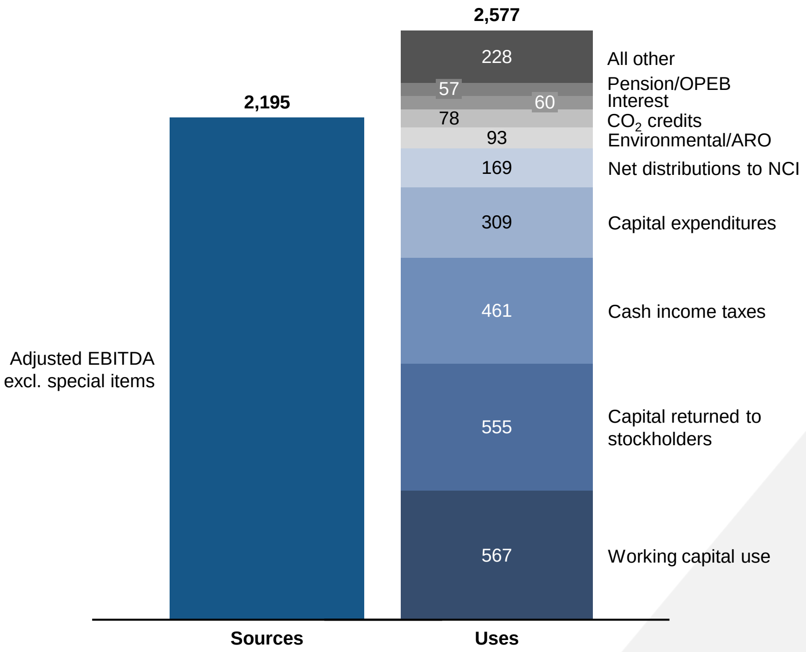


1. Excludes $109 million in restricted cash

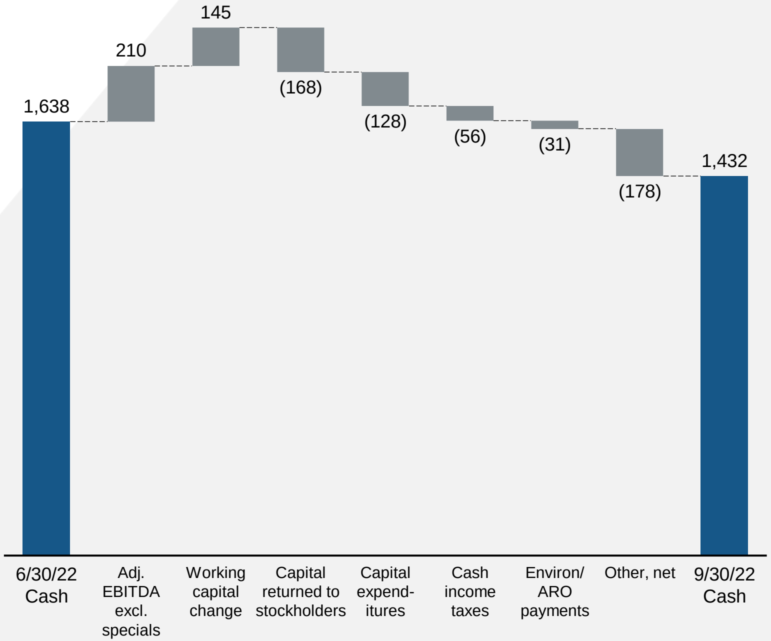
EBITDA and working capital release provide cash flow

3Q22 YTD and sequential quarter cash flow information

YTD Cash flow information, $M



6/30/22 to 9/30/22 Cash changes, $M



2022 Outlook

FY22 Key metrics as of September 30, 2022

Income statement excl. special items impacts	3Q22 YTD Actual	FY22 Outlook
Bauxite shipments (Mdmt)	32.4	43.0 – 44.0
Alumina shipments (Mmt)	9.9	13.1 – 13.3
Aluminum shipments (Mmt)	1.9	2.5 – 2.6
Transformation (adj. EBITDA impacts)	$(44)M	~ $(70)M
Intersegment elims. (adj. EBITDA impacts)	$139M	Varies
Other corporate (adj. EBITDA impacts)	$(93)M	~ $(130)M
Depreciation, depletion and amortization	$469M	~ $625M
Non-operating pension/OPEB expense	$44M	~ $60M
Interest expense	$80M	~ $105M
Operational tax expense[1]	$459M	Varies
Net income of noncontrolling interest	$165M	40% of AWAC NI

Cash flow impacts	3Q22 YTD Actual	FY22 Outlook
Pension / OPEB required cash funding	$57M	~ $75M
Additional pension funding	-	Will vary based on market conditions and cash availability
Early debt repayment	-	Will vary based on market conditions and cash availability
Stock repurchases and dividends	$555M	Will vary based on market conditions and cash availability
Return-seeking capital expenditures[2]	$37M	~ $75M
Sustaining capital expenditures[2]	$272M	~ $450M
Payment of prior year income taxes[3]	$298M	~ $325M
Current period cash taxes[1]	$163M	Varies
Environmental and ARO payments[4]	$93M	~ $145M
Impact of restructuring and other charges	$29M	TBD

Additional market sensitivities and business information are included in the appendix.

1. Estimate will vary with market conditions and jurisdictional profitability
2. AWAC portion of FY22 outlook: ~50% of return-seeking capital expenditures and ~60% of sustaining capital expenditures
3. Net of pending tax refunds
4. As of September 30, 2022, the environmental remediation reserve balance was $311M and the ARO liability was $720M

Roy Harvey

President and Chief Executive Officer

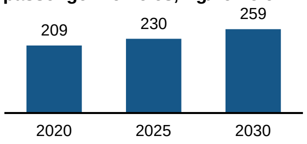
Alcoa

Energy, decarbonization, drive positive aluminum fundamentals

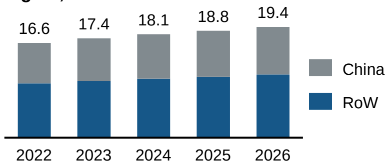
Expected long term impacts of energy and decarbonization on aluminum fundamentals

Energy driving aluminum demand

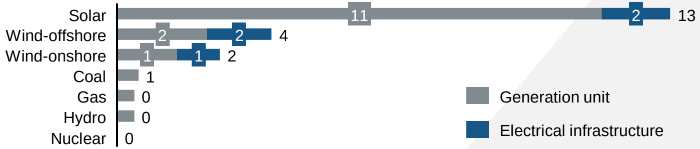
Aluminum content in N. American passenger vehicles, kg/vehicle[1]



Aluminum packaging demand by region, Mmt[2]

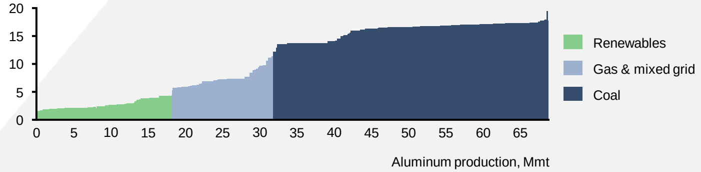


- Targeted emissions reductions driving increased electric vehicle penetration and light weighting across all vehicle types, increasing aluminum intensity
- Infinite recyclability and related energy savings combined with logistics benefits make aluminum preferred packaging material
- Renewable generation and infrastructure requirements driving increased aluminum demand; aluminum intensity, mt/MW[2]



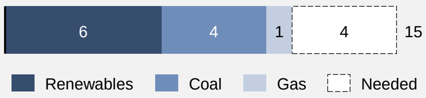
Energy constraining aluminum supply

mt CO_2e/mt primary aluminum produced[2]



- Due to high energy intensity, aluminum producers moving away from coal to minimize carbon footprint
- Alternative renewable sources challenged by availability (hydro) and intermittency (wind and solar)

Primary aluminum smelter projects required by 2030, by energy source, Mmt[2]



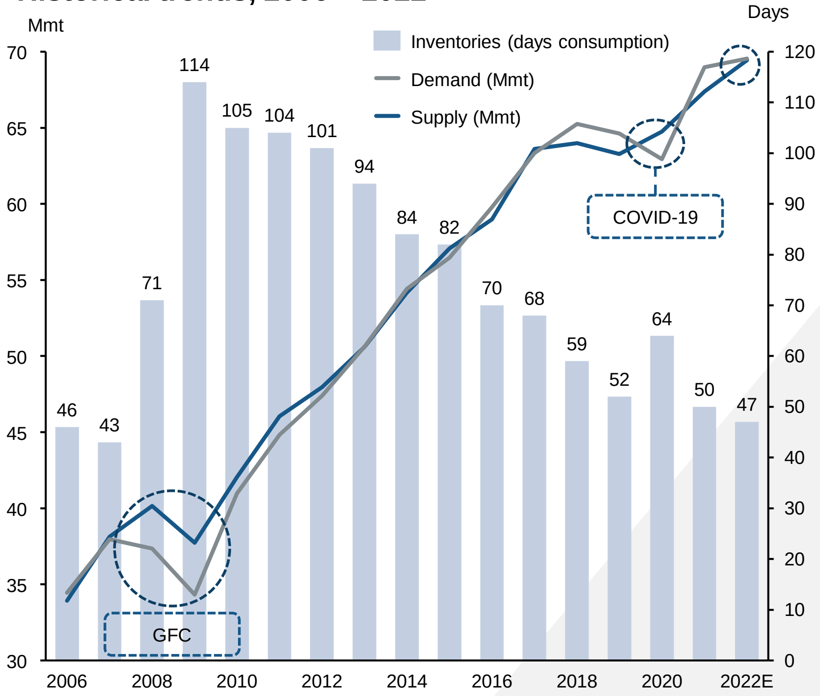
- Russia/Ukraine war highlights susceptibility of existing energy supplies and potential for sanction-related supply disruptions

Sources: 1. DuckerFrontier report, 2020; 2. CRU and Alcoa analysis

Energy crisis driving current market

Historical global supply, demand, and inventories

Historical trends, 2006 – 2022[1]



Market commentary

- 2022 market
  - Demand still growing, at slower rate, while energy shocks – both price and availability – causing curtailments in RoW and China to limit supply growth
  - Days consumption of inventories continuing to decline
  - Some consumers self-sanctioning while LME and U.S. considering action on Russian linked metal
  - Significant percentage of producers cash negative

September 2022 average (approximate ranges)[2]	Alumina		Aluminum	
	China	RoW	China	RoW
Cash negative	25-35%	10-20%	20-30%	45-55%

- COVID-19 and Global Financial Crisis (GFC)
  - Demand declined sharply, while supply growth continued, generating surpluses and days inventory growth

Sources: 1. CRU 2. CRU and Alcoa analysis

Alcoa taking action to reduce European spot energy exposures

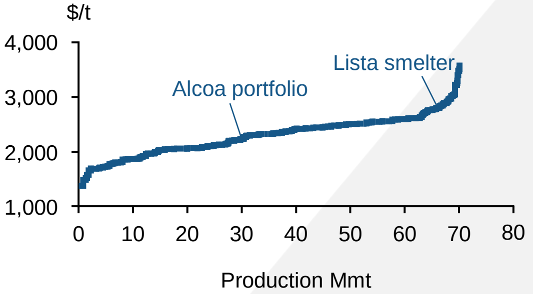
Lista smelter and San Ciprián refinery situation and actions

Lista smelter

Background information

- Located in southern Norway, nameplate capacity of 94 kmtpa
- Exposed to high spot energy prices, which averaged ~€250/mwh in September; ~65 percent of Alcoa smelter spot electricity exposure
- 3Q22 EBITDA impact: $47 million loss

2022 aluminum cost curve[1]



Mitigation actions

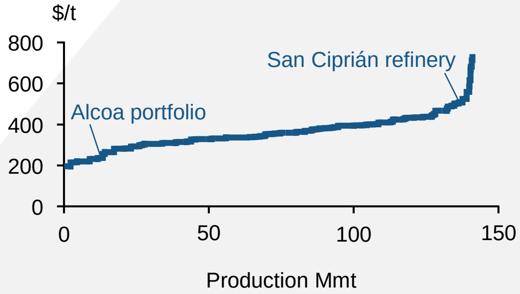
- Curtailed one potline in September; remaining capacity of ~60 kmtpa
- Negotiated medium-term power contracts, to begin limiting spot energy exposure in 4Q22
- Continue to review operating levels with changes in market conditions

San Ciprián refinery

Background information

- Located in Spain, nameplate capacity of 1,600 kmtpa
- Exposed to high spot natural gas prices, which averaged ~€30/GJ in September; 100 percent of Alcoa refinery spot natural gas exposure
- 3Q22 EBITDA impact: $69 million loss

2022 alumina cost curve[1]



Mitigation actions

- Announced a 15 percent production decrease in July
- Later in July, announced additional production decrease, lowered operating levels to ~50 percent of total capacity by September 30
- Continue to review operating levels, commercial options, and other support

1. Source: CRU

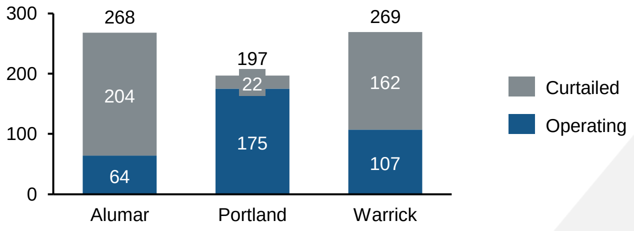
Continuing action to maintain and improve operating position

Summary of key operating actions in 3Q22 in addition to Lista and San Ciprián activity

Key actions across the globe and segments

- Continuing targeted smelter restarts
  - Alumar: 268 kmt (Alcoa share) in Brazil, based on new renewable energy contracts; majority operational in 1Q23
  - Portland: 19 kmt (Alcoa share) in Australia, using grid power; modest increase to total online 186 kmt of 197 kmt capacity; expected completion in 4Q22

Kmt operating/curtailed as of September 30, 2022



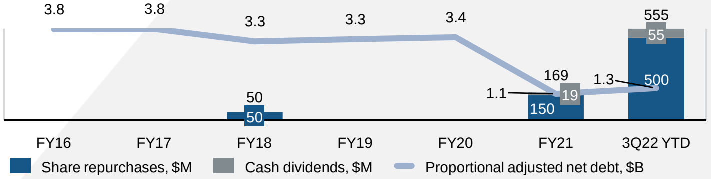
- Curtailed one 54 kmt potline at Warrick smelter in July, to maintain operational stability at remaining two operating potlines totaling 107 kmt capacity
- Plan to improve Australia refinery performance
  - Recover from lower volumes due to unplanned outages and maintenance activities at all refineries
  - Address maintenance and system stability issues through renewed focus on systems application, people processes, and equipment performance
  - Minimize reliability and direct raw materials impacts due to current bauxite quality
- Project announced to increase casting capability at Deschambault aluminum smelter (Canada)
- Ongoing sustainability-linked initiatives:
  - Additional ASI certifications in Pocos bauxite mine, alumina refinery, and aluminum casthouse (Brazil)
  - New ExtruStrong aluminum alloy for sustainable applications
- Announced (in October) new purchase power agreement to support planned restart of San Ciprián aluminum smelter in Spain

Navigating the current market, taking actions for tomorrow

3Q22 Summary

Maintained strong balance sheet

- Proportional adjusted net debt at $1.3B with cash at $1.4B
- Provided capital returns in form of quarterly dividend and share buybacks



Addressing operational challenges

- Maintained cost curve positions in all three segments
- Progressed actions to continue operational improvement

Prepared for tomorrow

- Retain view of strong long term aluminum market fundamentals
- Positioned to succeed in a sustainable world with Sustana™ product line

Sustana EcoSource Alcoa | Low-carbon alumina

Sustana EcoLum Alcoa | Low-carbon aluminum

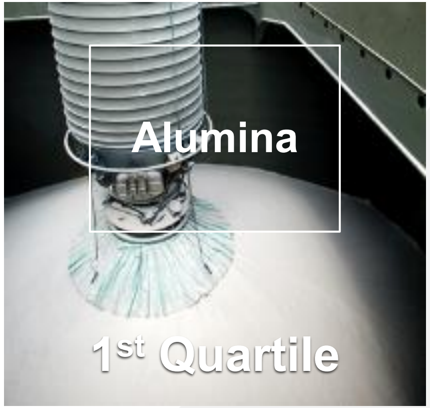
Sustana EcoDura Alcoa | Aluminum with recycled content

Appendix

Remain well positioned across three product segments

Alcoa portfolio cost curve position and key factors, 2022

- World's second largest bauxite miner with assets across four continents
- World class mine rehabilitation
- Utilize best-in-class mining methods



- Largest third party alumina producer
- Lowest CO_2e intensity refiner; sustainable residue management and press filtration
- EcoSource™ low carbon alumina

- Low CO_2e intensity producer, 81 percent of production from renewable energy
- EcoLum™, (low carbon), EcoDura™ (recycled content) products

Maximizing value creation through balanced uses of cash

Capital allocation framework considerations

Capital allocation framework

Maintain strong balance sheet through the cycle

Capital expenditures to sustain and improve existing operations

Maximize value creation

Return cash to stockholders	Transform portfolio	Position for growth

Maximize value creation

Return cash to stockholders

- Declared fifth consecutive quarterly cash dividend of $0.10/share, payable November 18, 2022
- Repurchased 3.0 million shares in 3Q22

Transform portfolio

- Restarting Alumar smelter production based on renewable energy, and portion of Portland smelter
- Partially curtailed Lista smelter in Norway and San Ciprián refinery in Spain
- Decided closure of Addy, Washington magnesium facility in 3Q22

Position for value creating growth; key timeframe 2024 - 2025

- Implement breakthrough technologies, when proven, with potential to transform the industry
- Fund projects that are expected to provide returns to stockholders greater than cost of capital

Quarterly income statement

Quarterly income statement

M, Except realized prices and per share amounts	3Q21	2Q22	**3Q22**	Prior Year Change	Sequential Change
Realized primary aluminum price ($/mt)	$3,124	$3,864	**$3,204**	$80	$(660)
Realized alumina price ($/mt)	$312	$442	**$371**	$59	$(71)
Revenue	$3,109	$3,644	**$2,851**	$(258)	$(793)
Cost of goods sold	2,322	2,767	**2,668**	346	(99)
SG&A and R&D expenses	61	59	**51**	(10)	(8)
Adjusted EBITDA	726	818	**132**	(594)	(686)
Depreciation, depletion and amortization	156	161	**149**	(7)	(12)
Other (income) expense, net	(18)	(206)	**35**	53	241
Interest expense	58	30	**25**	(33)	(5)
Restructuring and other charges, net	33	(75)	**652**	619	727
Provision for income taxes	127	234	**40**	(87)	(194)
Net income (loss)	370	674	**(769)**	(1,139)	(1,443)
Less: Net income (loss) attributable to noncontrolling interest	33	125	**(23)**	(56)	(148)
Net income (loss) attributable to Alcoa Corporation	$337	$549	**$(746)**	$(1,083)	$(1,295)
Diluted earnings (loss) per share	$1.76	$2.95	**$(4.17)**	$(5.93)	$(7.12)
Diluted average shares	190.8	186.1	**178.8**	(12.0)	(7.3)

Special items

Breakdown of special items by income statement classification – gross basis

M, Except per share amounts	3Q21	2Q22	**3Q22**	**Description of significant 3Q22 special items**
Net income (loss) attributable to Alcoa Corporation	$337	$549	**$(746)**	
Diluted earnings (loss) per share	$1.76	$2.95	**$(4.17)**	
Special items	$54	$(53)	**$686**	
Cost of goods sold	1	*95*	***77***	Portland energy contract reclass $57[1], Alumar smelter restart $14, Portland smelter restart $6
SG&A and R&D expenses	1	-	***1***	
Restructuring and other charges, net	33	*(75)*	***652***	US pension annuitization $629, Addy, Washington magnesium smelter closure $29
Interest	22	-	**-**	
Other income, net	2	*(171)*	***(6)***	Portland energy contract reclass $(57)[1], mark to market energy contracts $49
Provision for income taxes	(1)	*52*	***(22)***	Tax on special items
Noncontrolling interest	(4)	*46*	***(16)***	Partner's share of special items
Adjusted net income (loss) attributable to Alcoa Corporation	$391	$496	**$(60)**	
Adjusted diluted earnings (loss) per share	$2.05	$2.67	**$(0.33)**	

1. The mark-to-market contracts associated with the Portland smelter generated settled gains recorded within Other income, net, which economically offset a portion of the cost of power recorded in Cost of goods sold. This reclass presents the net cost of power within Cost of goods sold.

Quarterly income statement excluding special items

Quarterly income statement excluding special items

M, Except realized prices and per share amounts	3Q21	2Q22	**3Q22**	Prior Year Change	Sequential Change
Realized primary aluminum price ($/mt)	$3,124	$3,864	**$3,204**	$80	$(660)
Realized alumina price ($/mt)	$312	$442	**$371**	$59	$(71)
Revenue	$3,109	$3,644	**$2,851**	$(258)	$(793)
Cost of goods sold	2,321	2,672	**2,591**	270	(81)
COGS % of Revenue	74.7%	73.3%	**90.9%**	16.2% pts.	17.6% pts.
SG&A and R&D expenses	60	59	**50**	(10)	(9)
SG&A and R&D % of Revenue	1.9%	1.6%	**1.8%**	(0.1)% pts.	0.2% pts.
Adjusted EBITDA	728	913	**210**	(518)	(703)
Depreciation, depletion and amortization	156	161	**149**	(7)	(12)
Other (income) expenses, net	(20)	(35)	**41**	61	76
Interest expense	36	30	**25**	(11)	(5)
Provision for income taxes	128	182	**62**	(66)	(120)
Operational tax rate	23.1%	24.1%	**(901.8)%**	(924.9)% pts.	(925.9)% pts.
Adjusted net income (loss)	428	575	**(67)**	(495)	(642)
Less: Adjusted net income (loss) attributable to noncontrolling interest	37	79	**(7)**	(44)	(86)
Adjusted net income (loss) attributable to Alcoa Corporation	$391	$496	**$(60)**	$(451)	$(556)
Adjusted diluted earnings (loss) per share	$2.05	$2.67	**$(0.33)**	$(2.38)	$(3.00)
Diluted average shares	190.8	186.1	**178.8**	(12.0)	(7.3)

3Q22 Financial summary

Three months ending September 30, 2022, excluding special items

$M	Bauxite	Alumina	Aluminum[3]	Transformation	Intersegment eliminations	Other corporate	Alcoa Corporation
Total revenue	$240	$1,250	$1,986	$11	$(622)	$(14)	$2,851
Third-party revenue	$59	$832	$1,975	$2	-	$(17)	$2,851
Adjusted EBITDA[1]	$15	$69	$152	$(19)	$17	$(24)	$210
Adjusted EBITDA margin %	*6.3%*	*5.5%*	*7.7%*				*7.4%*
Depreciation, depletion and amortization	$31	$43	$70	-	-	$5	$149
Other expenses, net[2]	-	$18	$5	-	-	$18	$41
Interest expense							$25
Provision for income taxes							$62
Adjusted net loss							$(67)
Net loss attributable to noncontrolling interest							$(7)
Adjusted net loss attributable to Alcoa Corporation							$(60)

1. Includes the Company's proportionate share of earnings from equity investments in certain bauxite mines, hydroelectric generation facilities, and an aluminum smelter located in Brazil, Canada, and/or Guinea.
2. Amounts for Alumina and Aluminum represent the Company's proportionate share of earnings from its equity investment in the Saudi Arabian joint venture.
3. Third-party energy sales volume, revenue and adjusted EBITDA in Brazil were 808GWh, $12M and $(6)M, respectively.

3Q22 Adjusted EBITDA drivers by segment

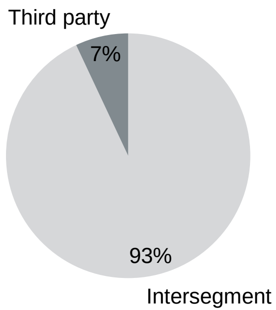
Adjusted EBITDA excluding special items sequential changes by segment, $M

Segment	Adjusted EBITDA 2Q22	Currency	Metal prices	API	Raw materials	Energy	Price/mix	Volume	Production costs	Other	Adjusted EBITDA 3Q22
Bauxite	$5	5	0	0	0	(1)	(6)	11	(6)	7	$15
Alumina	$343	10	0	(216)	(20)	(23)	13	20	(33)	(25)	$69
Aluminum	$596	8	(367)	28	(38)	(44)	(9)	(44)	39	(17)	$152
Segment Total	**$944**	**23**	**(367)**	**(188)**	**(58)**	**(68)**	**(2)**	**(13)**	**0**	**(35)**	**$236**

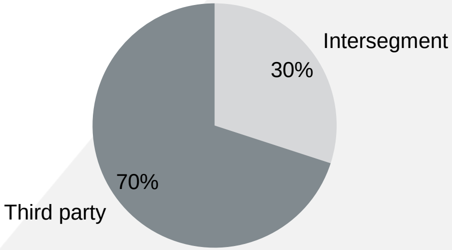
Aluminum value chain

2022 YTD Alcoa product shipments by segment

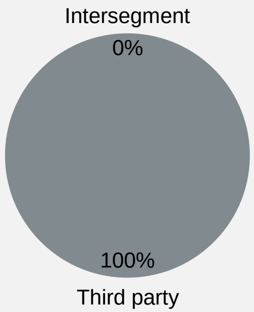
32.4 Mdmt shipments



9.9 Mmt shipments



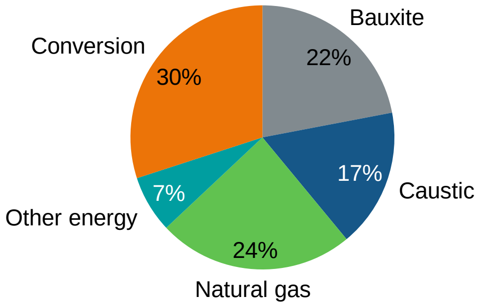
1.9 Mmt shipments



Composition of alumina and aluminum production costs

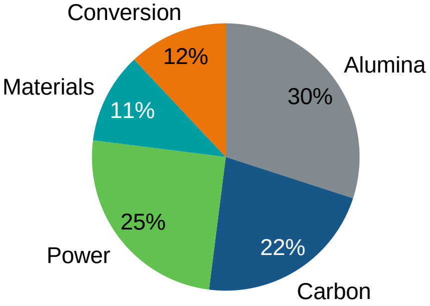
Alcoa 3Q22 production cash costs

Alumina refining



Input cost	Inventory flow	Pricing convention	FY22 annual cost sensitivity
Caustic soda	5 - 6 Months	Quarterly, Spot	$10M per $10/dmt
Natural gas	1 Month	Quarterly, 85% with CPI adjustment	$11M per $0.10/GJ
Fuel oil	1 - 2 Months	Prior Month	$2M per $1/barrel

Aluminum smelting



Input cost	Inventory flow	Pricing convention	FY22 annual cost sensitivity
Alumina	~2 Months	API on a 6 to 8 month average	$44M per $10/mt
Petroleum coke	1 - 2 Months	Quarterly	$8M per $10/mt
Coal tar pitch	1 - 2 Months	Quarterly	$2M per $10/mt

2022 Business information

Estimated annual Adjusted EBITDA sensitivities

$M Segment	LME + $100/mt	API + $10/mt	Midwest + $100/mt	Europe + $100/mt	Japan + $100/mt	AUD + 0.01 0.68[1]	BRL + 0.10 5.24[1]	CAD + 0.01 1.30[1]	EUR + 0.01 1.01[1]	ISK + 10 138.48[1]	NOK + 0.10 9.95[1]
Bauxite						(4)	2				
Alumina		123				(20)	5		(3)		
Aluminum	189	(42)	124	69	17	(3)	1	4	1	10	3
Total	189	81	124	69	17	(27)	8	4	(2)	10	3

Pricing conventions

Segment	Third party revenue
Bauxite	▪ Negotiated prices
Alumina	▪ ~95% of third-party smelter grade alumina priced on API/spot ▪ API based on prior month average of spot prices
Aluminum	▪ LME + regional premium + product premium ▪ Primary aluminum 15-day lag ▪ Brazilian hydroelectric sales at market prices

Regional premium breakdown

Regional premiums	% of 2022 Primary aluminum shipments
Midwest	~50%
Rotterdam Duty Paid	~40%
CIF Japan	~10%

1. Average 3Q22 exchange rates

Currency impacts on Adjusted EBITDA

Currency balance sheet revaluation and EBITDA sensitivities ($M, except currencies)

Balance sheet revaluation impact

	AUD	BRL	CAD	EUR	ISK	NOK	Total
3Q21 revaluation	6.2	3.7	0.3	0.4	0.0	(1.3)	9.3
12/31/21 currencies	0.73	5.63	1.26	1.14	129.79	8.76	
4Q21 revaluation	(0.9)	1.1	0.5	(1.8)	(1.2)	(1.7)	(4.0)
4Q21 sequential impact	(7.1)	(2.6)	0.2	(2.2)	(1.2)	(0.4)	(13.3)
3/31/22 currencies	0.75	4.75	1.25	1.11	127.86	8.67	
1Q22 revaluation	(1.1)	(11.0)	(2.6)	(3.3)	(0.9)	(2.5)	(21.4)
1Q22 sequential impact	(0.2)	(12.1)	(3.1)	(1.5)	0.3	(0.7)	(17.4)
6/30/22 currencies	0.69	5.22	1.29	1.05	132.90	9.80	
2Q22 revaluation	18.4	14.8	(0.9)	(1.3)	(2.4)	(2.1)	26.5
2Q22 sequential impact	19.5	25.8	1.7	2.0	(1.5)	0.4	47.9
9/30/22 currencies	0.65	5.39	1.37	0.97	144.63	10.80	
3Q22 revaluation	1.4	3.7	2.1	(1.5)	(0.3)	(8.7)	(3.3)
3Q22 revaluation sequential impact	**(17.0)**	**(11.1)**	**3.0**	**(0.2)**	**2.1**	**(6.6)**	**(29.8)**

Currency annual sensitivity and actual impact

	+0.01 AUD	+0.10 BRL	+0.01 CAD	+0.01 EUR	+ 10 ISK	+0.10 NOK	Total
2022 EBITDA sensitivity[1]	**(27)**	**8**	**4**	**(2)**	**10**	**3**	
3Q21 currency avg.	0.73	5.22	1.26	1.18	126.04	8.75	
4Q21 currency avg.	0.73	5.58	1.26	1.14	129.94	8.73	
4Q21 currency impact	3.1	3.9	0.0	2.9	0.3	(0.5)	9.7
1Q22 currency avg.	0.72	5.25	1.27	1.12	128.18	8.85	
1Q22 currency impact	1.9	(5.0)	0.6	0.1	(0.4)	0.8	(2.0)
2Q22 currency avg.	0.72	4.90	1.27	1.07	130.25	9.38	
2Q22 currency impact	1.9	(5.1)	0.6	0.1	0.5	3.6	1.6
3Q22 currency avg.	0.68	5.24	1.30	1.01	138.48	9.95	
3Q22 currency impact[2]	**25.9**	**8.9**	**2.5**	**7.1**	**3.1**	**4.9**	**52.4**
Total 3Q22 EBITDA currency impact[3]	**8.9**	**(2.2)**	**5.5**	**6.9**	**5.2**	**(1.7)**	**22.6**

Totals may not tie due to rounding

1. Sensitivities updated in 3Q22 for changes in Australian base and currency exposure (-4 AUD), lower Brazil hydro revenue (2 BRL) and higher Spain natural gas (-2 EUR)
2. Includes approximately $10M in one time currency impacts beyond sensitivities realized in 3Q22 related to Lista, Norway energy and various other non-recurring differences
3. Total EBITDA currency impact includes balance sheet revaluation based on change in quarter end currency rates and income statement currency impacts based on change in quarterly average currency rates

Additional business considerations

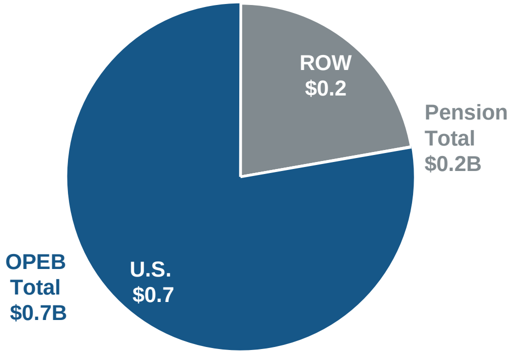
Items expected to impact Adjusted EBITDA for 4Q22

- Expected sequential impacts on Adjusted EBITDA excluding special items, excluding indexed sales prices or currency impacts:
  - In Bauxite, we expect Adjusted EBITDA to improve approximately $5 million on higher third-party shipments.
  - In Alumina, we expect approximately $20 million in lower energy costs at the San Ciprián refinery. Additionally, we expect benefits of the San Ciprián curtailment to offset the impact of lower bauxite quality in Australia and higher raw materials costs.
  - In the Aluminum segment, we expect alumina costs to be favorable by $30 million. Higher raw materials costs, lower Warrick power plant sales and lower value add product premiums are expected to be offset by lower energy costs at Lista. Due to rapid metal price changes at the end of the third quarter and inventory adjustments made to net realizable value, we expect EBITDA in the fourth quarter to be $40 million higher than calculated using prorated annual metal sensitivities. In addition, the Norwegian government has issued a budget proposal that limits CO_2 compensation to be paid in 2023. If the proposal is approved, the unfavorable sequential EBITDA impact in the fourth quarter would be approximately $35 million.
- Estimate intersegment profit elimination for every $10/mt decrease in API prices to be a $7 million to $9 million favorable impact based on comparison of the average API of the last two months of each quarter (API is based on average of prior month spot prices); consider intersegment eliminations as component of minority interest calculation.
- Computed using quarter end exchange rates, 3Q22 Adjusted EBITDA included an unfavorable balance sheet revaluation impact of $3 million ($30 million unfavorable sequentially compared to 2Q22); impacts related to balance sheet revaluation are not incorporated into the currency sensitivities provided for Adjusted EBITDA.
- Based on recent pricing, the Company expects 4Q22 operational tax expense to approximate $50 million to $60 million.

Pension and OPEB summary

Net pension and OPEB liability and financial impacts

Net liability as of September 30, 2022[1]



Estimated GAAP pension funding status as of September 30, 2022

- U.S. greater than 95%
- Worldwide greater than 95%

U.S. pension contributions currently not tax deductible

Estimated financial impacts, $M

Expense impact	2022
Segment pension	$15
Segment OPEB	5
Corporate pension & OPEB	-
Total adj. EBITDA impact	**20**
Non-operating	60
Special items[2] (curtailment/settlement)	626
Total expense impact	**$706**

Cash flow impact	2022
Minimum required pension funding	$15
OPEB payments	60
Total cash impact	**$75**

1. In 4Q21, the asset allocation for the U.S. pension plans transitioned to a 90% hedge of U.S. Treasury interest rate risk for the U.S. gross pension liability, limiting the net exposure to changes in pension discount rates.
2. Certain U.S. pension plans were remeasured as of July 31, 2022 due to the purchase of group annuity contracts. The U.S. salaried and Australian pension plans were remeasured as of September 30, 2022 due to lump sum settlements.

Investments summary

Investments listing and income statement location

Investee	Country	Nature of investment[4]	Ownership interest	Carrying value as of September 30, 2022	Income statement location of equity earnings
ELYSIS™ Limited Partnership	Canada	Aluminum smelting technology	48.235%		
Ma'aden Aluminium Company[1]	Saudi Arabia	Aluminum smelter	25.1%		
Ma'aden Bauxite and Alumina Company[1]	Saudi Arabia	Bauxite mine and Alumina refinery	25.1%[5]		
Subtotal Ma'aden and ELYSIS™				***$755M***	***Other expenses (income), net***
Consorcio Serra do Facão	Brazil	Hydroelectric generation facility	34.97%		
Energetica Barra Grande S.A.	Brazil	Hydroelectric generation facility	42.18%		
Halco Mining, Inc.[2]	Guinea	Bauxite mine	45.0%[5]		
Manicouagan Power Limited Partnership	Canada	Hydroelectric generation facility	40.0%		
Pechiney Reynolds Quebec, Inc.[3]	Canada	Aluminum smelter	50.0%		
Subtotal other				***$468M***	***COGS***
Total investments				**$1,223M**	

1. Alcoa Corporation has an investment in a joint venture related to the ownership and operation of an integrated aluminum complex (bauxite mine, alumina refinery, and aluminum smelter) in Saudi Arabia. The joint venture is owned 74.9% by the Saudi Arabian Mining Company (known as "Ma'aden") and 25.1% by Alcoa Corporation.
2. Halco Mining, Inc. owns 100% of Boké Investment Company, which owns 51% of Compagnie des Bauxites de Guinée (CBG).
3. Pechiney Reynolds Quebec, Inc. owns a 50.1% interest in the Bécancour smelter in Quebec, Canada thereby entitling Alcoa Corporation to a 25.05% interest in the smelter. Through two wholly-owned Canadian subsidiaries, Alcoa Corporation also owns 49.9% of the Bécancour smelter.
4. Each of the investees either owns the facility listed or has an ownership interest in an entity that owns the facility listed.
5. A portion or all of each of these ownership interests are held by majority-owned subsidiaries that are part of AWAC.

Alcoa sustainability goals

Alcoa strategic long-term sustainability goals, baseline and progress

Goal	Description	2015 Baseline	2021 Progress
Safety	Zero fatalities and serious injuries (life-threatening, life-altering injury or illness)	5 fatal or serious injuries/illnesses	0 fatal or serious injury/illness
Diversity and inclusion	Attain an inclusive 'everyone culture' that reflects the diversity of the communities in which we operate	N/A	17.2% global women
Mine rehabilitation	Maintain a corporate-wide running 5-year average ratio of 1:1 or better for active mining disturbance (excluding long-term infrastructure) to mine rehabilitation	N/A	0.82:1
Bauxite residue	From a 2015 baseline, reduce bauxite residue land requirements per metric ton of alumina produced by 15% by 2030	53.2 m2/kmt Ala	14.8% reduction
Waste	From a 2015 baseline, reduce landfilled waste 15% by 2025 and 25% by 2030. Baseline restated to reflect divestiture of Warrick Rolling.	131.7 mt	36.0% reduction
Water	From a 2015 baseline, reduce the intensity of our total water use from Alcoa-defined water-scarce locations by 5% by 2025 and 10% by 2030	3.37 m3/mt	0.8% reduction
Greenhouse gas emissions	Align our greenhouse gas (direct + indirect) emissions reduction targets with the 2ºC decarbonization path by reducing greenhouse gas intensity by 30% by 2025, and 50% by 2030 from a 2015 baseline	7.10 mt CO_2e/mt	23.9% reduction
Sustainable value chain	By 2022, implement a social management system at all locations, including the definition of performance metrics and long-term goals to be accomplished by 2025 and 2030	N/A	Launched SP360 – Alcoa Social Management System that will be implemented through 2022

Source: 2021 Sustainability Report

Production and capacity information

Alcoa Corporation annual consolidated amounts as of September 30, 2022

Bauxite production, Mdmt

Mine	Country	2021 Production
Darling Range	Australia	34.7
Juruti	Brazil	5.8
Poços de Caldas	Brazil	0.4
Trombetas (MRN)	Brazil	2.0
Boké (CBG)	Guinea	3.5
Al Ba'itha[1]	Saudi Arabia	1.2
Total		**47.6**

Alumina refining, kmt

Facility	Country	Capacity	Curtailed
Kwinana	Australia	2,190	-
Pinjarra	Australia	4,700	-
Wagerup	Australia	2,879	-
Poços de Caldas	Brazil	390	214
São Luís (Alumar)	Brazil	2,084	-
San Ciprián	Spain	1,600	800
Total		**13,843**	**1,014**
Ras Al Khair[1]	*Saudi Arabia*	*452*	-

Aluminum smelting, kmt

Facility	Country	Capacity	Curtailed
Portland[2]	Australia	197	22
São Luís (Alumar)[3]	Brazil	268	204
Baie Comeau	Canada	312	-
Bécancour	Canada	347	-
Deschambault	Canada	287	-
Fjarðaál	Iceland	351	-
Lista	Norway	94	31
Mosjøen	Norway	200	-
San Ciprián[4]	Spain	228	228
Intalco	U.S.	279	279
Massena West	U.S.	130	-
Warrick	U.S.	269	162
Total		**2,962**	**926**
Ras Al Khair[1]	*Saudi Arabia*	*202*	-

1. The Company's proportionate share of earnings from its equity investment in the Saudi Arabian joint venture does not impact adjusted EBITDA.
2. On November 7, 2021, the Company announced that the Portland Aluminium joint venture plans to restart a portion of the curtailed capacity at its aluminum smelter in the State of Victoria in Australia, with metal production expected to start in the third quarter of 2022. Once the restart is complete, Portland Aluminium will operate at approximately 95 percent of total capacity and Alcoa Corporation will have approximately 186,000 mtpy of its consolidated capacity at Portland operating.
3. On September 20, 2021, the Company announced plans to restart its 60% share of the Alumar smelter in São Luís, Brazil, equivalent to 268,000 metric tons per year (mtpy) of aluminum capacity. Production began in the second quarter of 2022.
4. On December 29, 2021, the Company announced a two-year curtailment of the San Ciprián smelter's 228,000 metric tons of annual capacity, and a commitment by the Company to begin the restart of the smelter in January 2024. In January 2022, the smelter curtailment was completed.

Valuation framework

Valuation framework key considerations

				LTM ending 9/30/22 Adj. EBITDA excl. special items
Business Operations	+	Bauxite	Economic value using market multiple of: i. AWAC joint venture, minus small portions of AWAC JV in Aluminum and Transformation ii. Ownership in certain mines and refineries outside the JV	$107M
	+	Alumina		$1,177M
	+	Aluminum	Economic value using market multiple of: i. Smelters, casthouses, and energy assets ii. Smelters and casthouses restart optionality	$1,984M
	-	Non-segment expenses (income)	Economic value using market multiple of: i. Net corporate expenses and Transformation	$177M
	=	Enterprise value		
Financial Considerations	-	Noncontrolling interest	Implied value of noncontrolling interest in AWAC JV, based on Alumina Limited's observed enterprise value	
	-	Debt & debt-like items[1]	Book value of debt of $1.8B ($1.8B, >95% Alcoa), pension & OPEB net liabilities of $0.8B ($0.9B, >95% Alcoa; U.S. contributions not tax deductible), environmental & ARO liabilities of $1.0 ($0.8B, ~75% Alcoa)	
	+	Cash & equity investments[1]	Cash position of $1.3B ($1.4B, ~90% Alcoa) plus carrying value of investments in the Ma´aden joint venture and ELYSIS of $0.7B ($0.8B, ~85% Alcoa)	
	=	Equity value		

1. Dollar amounts reflect Alcoa Corporation's consolidated balance sheet values as of September 30, 2022. The "Alcoa" percentages exclude amounts attributable to Alcoa Corporation's partner in the AWAC JV.

Adjusted EBITDA reconciliation

$M	3Q21	4Q21	FY21	1Q22	2Q22	3Q22
Net income (loss) attributable to Alcoa	**$337**	**$(392)**	**$429**	**$469**	**$549**	**$(746)**
Add:						
Net income (loss) attributable to noncontrolling interest	33	23	141	84	125	(23)
Provision for income taxes	127	298	629	210	234	40
Other (income) expense, net	(18)	(298)	(445)	(14)	(206)	35
Interest expense	58	28	195	25	30	25
Restructuring and other charges, net	33	1,055	1,128	125	(75)	652
Depreciation, depletion and amortization	156	165	664	160	161	149
Adjusted EBITDA	**726**	**879**	**2,741**	**1,059**	**818**	**132**
Special items before tax and noncontrolling interest	2	17	22	13	95	78
Adjusted EBITDA excl. special items	**$728**	**$896**	**$2,763**	**$1,072**	**$913**	**$210**

Alcoa Corporation's definition of Adjusted EBITDA is net margin plus an add-back for depreciation, depletion, and amortization. Net margin is equivalent to Sales minus the following items: Cost of goods sold; Selling, general administrative, and other expenses; Research and development expenses; and Provision for depreciation, depletion, and amortization. Adjusted EBITDA is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because Adjusted EBITDA provides additional information with respect to Alcoa Corporation's operating performance and the Company's ability to meet its financial obligations. The Adjusted EBITDA presented may not be comparable to similarly titled measures of other companies.

Free cash flow reconciliation

$M	3Q21	4Q21	FY21	1Q22	2Q22	3Q22
Cash provided from operations	$435	$565	$920	$34	$536	$134
Capital expenditures	(83)	(153)	(390)	(74)	(107)	(128)
Free cash flow	**352**	**412**	**530**	**(40)**	**429**	**6**
Contributions from noncontrolling interest	8	13	21	46	37	67
Distributions to noncontrolling interest	(40)	(38)	(215)	(162)	(83)	(74)
Free cash flow less net distributions to noncontrolling interest	**$320**	**$387**	**$336**	**$(156)**	**$383**	**$(1)**

Free cash flow and Free cash flow less net distributions to noncontrolling interest are non-GAAP financial measures. Management believes that these measures are meaningful to investors because management reviews cash flows generated from operations after taking into consideration capital expenditures and net distributions to noncontrolling interest. Capital expenditures are necessary to maintain and expand Alcoa Corporation's asset base and are expected to generate future cash flows from operations, while net distributions to noncontrolling interest are necessary to fulfill our obligations to our joint venture partners. It is important to note that Free cash flow and Free cash flow less net distributions to noncontrolling interest do not represent the residual cash flows available for discretionary expenditures since other non-discretionary expenditures, such as mandatory debt service requirements, are not deducted from the measure.

Net debt reconciliation

	3Q21			2Q22			3Q22		
$M	**Cons.**	**NCI**	**Alcoa Prop.**	**Cons.**	**NCI**	**Alcoa Prop.**	**Cons.**	**NCI**	**Alcoa Prop.**
Short-term borrowings	$77	$31	$46	$75	$30	$45	$75	$30	$45
Long-term debt due within one year	1	-	1	1	-	1	1	-	1
Long-term debt, less amount due within one year	1,724	-	1,724	1,725	-	1,725	1,725	-	1,725
Total debt	1,802	31	1,771	1,801	30	1,771	1,801	30	1,771
Less: Cash and cash equivalents	1,452	124	1,328	1,638	166	1,472	1,432	138	1,294
Net debt (net cash)	**350**	**(93)**	**443**	**163**	**(136)**	**299**	**369**	**(108)**	**477**
Plus: Net pension / OPEB liability	1,323	30	1,293	893	16	877	851	8	843
Adjusted net debt	**$1,673**	**$(63)**	**$1,736**	**$1,056**	**$(120)**	**$1,176**	**$1,220**	**$(100)**	**$1,320**

Net debt is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management assesses Alcoa Corporation's leverage position after considering available cash that could be used to repay outstanding debt. When cash exceeds total debt, the measure is expressed as net cash.

Adjusted net debt and proportional adjusted net debt are also non-GAAP financial measures. Management believes that these additional measures are meaningful to investors because management also assesses Alcoa Corporation's leverage position after considering available cash that could be used to repay outstanding debt and net pension/OPEB liability, net of the portion of those items attributable to noncontrolling interest (NCI).

Net debt reconciliation

	FY16			FY17			FY18			FY19			FY20			FY21			3Q22		
$M	Cons.	NCI	Alcoa Prop.	Cons.	NCI	Alcoa Prop.	Cons.	NCI	Alcoa Prop.	Cons.	NCI	Alcoa Prop.	Cons.	NCI	Alcoa Prop.	Cons.	NCI	Alcoa Prop.	Cons.	NCI	Alcoa Prop.
Short-term borrowings	$1	$-	$1	$8	$-	$8	$-	$-	$-	$-	$-	$-	$77	$31	$46	$75	$30	$45	$75	$30	$45
Long-term debt due within one year	21	-	21	16	-	16	1	-	1	1	-	1	2	-	2	1	-	1	1	-	1
Long-term debt, less amount due within one year	1,424	1	1,423	1,388	7	1,381	1,801	34	1,767	1,799	31	1,768	2,463	-	2,463	1,726	-	1,726	1,725	-	1,725
Total debt	1,446	1	1,445	1,412	7	1,405	1,802	34	1,768	1,800	31	1,769	2,542	31	2,511	1,802	30	1,772	1,801	30	1,771
Less: Cash and cash equivalents	853	100	753	1,358	252	1,106	1,113	296	817	879	167	712	1,607	176	1,431	1,814	177	1,637	1,432	138	1,294
Net debt (net cash)	**593**	**(99)**	**692**	**54**	**(245)**	**299**	**689**	**(262)**	**951**	**921**	**(136)**	**1,057**	**935**	**(145)**	**1,080**	**(12)**	**(147)**	**135**	**369**	**(108)**	**477**
Plus: Net pension	1,818	14	1,804	2,280	(1)	2,281	1,354	5	1,349	1,482	18	1,464	1,503	28	1,475	263	(7)	270	175	(13)	188
Plus: OPEB Liability	1,286	30	1,256	1,218	27	1,191	973	23	950	848	22	826	892[1]	24	868[1]	710	22	688	676	21	655
Adjusted net debt	**$3,697**	**($55)**	**$3,752**	**$3,552**	**($219)**	**$3,771**	**$3,016**	**($234)**	**$3,250**	**$3,251**	**($96)**	**$3,347**	**$3,330**	**($93)**	**$3,423**	**$961**	**$(132)**	**$1,093**	**$1,220**	**$(100)**	**$1,320**

Net debt is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management assesses Alcoa Corporation's leverage position after considering available cash that could be used to repay outstanding debt. When cash exceeds total debt, the measure is expressed as net cash.

Adjusted net debt and proportional adjusted net debt are also non-GAAP financial measures. Management believes that these additional measures are meaningful to investors because management also assesses Alcoa Corporation's leverage position after considering available cash that could be used to repay outstanding debt and net pension/OPEB liability, net of the portion of those items attributable to noncontrolling interest (NCI).

1. Includes OPEB liabilities of approximately $83 million related to the Warrick rolling mill sale which was a negotiated estimate used at December 31, 2020 and subsequently trued up in 2021. Recorded in Liabilities held for sale.

Days working capital reconciliation

$M	**3Q21**	**4Q21**	**1Q22**	**2Q22**	**3Q22**
Receivables from customers	$769	$757	$952	$898	$749
Add: Inventories	1,702	1,956	2,495	2,556	2,400
Less: Accounts payable, trade	1,482	1,674	1,645	1,752	1,590
DWC working capital	$989	$1,039	$1,802	$1,702	$1,559
Sales	$3,109	$3,340	$3,293	$3,644	$2,851
Number of days in the quarter	92	92	90	91	92
Days working capital[1]	**29**	**29**	**49**	**43**	**50**

Days working capital is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management uses its working capital position to assess Alcoa Corporation's efficiency in liquidity management.

1. Days working capital = DWC working capital divided by (Sales / number of days in the quarter).

Annualized Return on Equity (ROE)

ROE Reconciliation and calculation information as of September 30, 2022

$M	2021 YTD	2022 YTD
Numerator:		
Net income attributable to Alcoa Corporation	$821	$272
Add: Special items[1]	1	741
ROE Adjusted Net income YTD	**$822**	**$1,013**
ROE Adjusted Net income multiplied by four divided by three	**$1,096**	**$1,351**
Denominator[2]:		
Total assets	$14,522	$15,527
Less: Total Liabilities	9,271	8,714
Less: Noncontrolling Interest	1,619	1,608
Shareholders' Equity	**$3,632**	**$5,205**
ROE	**30.2%**	**25.9%**

$$\text{ROE \%} = \frac{\text{(Net Loss/Income Attributable to Alcoa + Special Items)}}{\text{(Total Assets – Total Liabilities – Noncontrolling Interest)}^2} \times 100$$

$$\text{2021 YTD ROE \%} = \frac{(\$821 + \$1) \times 4/3}{(\$14{,}522 - \$9{,}271 - \$1{,}619)} \times 100 = 30.2\%$$

$$\text{2022 YTD ROE \%} = \frac{(\$272 + \$741) \times 4/3}{(\$15{,}527 - \$8{,}714 - \$1{,}608)} \times 100 = 25.9\%$$

1. Special items include provisions for interest expense, income taxes, and noncontrolling interest.
2. Denominator calculated using quarter ending balances.

Glossary of terms

Abbreviations listed in alphanumeric order

Abbreviation	Description
% pts	Percentage points
1H##	Six months ending June 30
1Q##	Three months ending March 31
2H##	Six months ending December 31
2Q##	Three months ending June 30
3Q##	Three months ending September 30
4Q##	Three months ending December 31
Adj.	Adjusted
API	Alumina Price Index
ARO	Asset retirement obligations
AUD	Australian dollar
AWAC	Alcoa World Alumina and Chemicals
B	Billion
BRL	Brazilian real
CAD	Canadian dollar
CIF	Cost, insurance and freight
CO_2e	Carbon dioxide equivalent
COGS	Cost of goods sold
Cons.	Consolidated
CPI	Consumer Price Index
dmt	Dry metric ton
DWC	Days working capital
EBITDA	Earnings before interest, taxes, depreciation and amortization
Elims.	Eliminations
EPS	Earnings per share
ERISA	Employee Retirement Income Security Act of 1974
EUR	Euro
Est.	Estimated
excl. or ex.	Excluding

Abbreviation	Description
FOB WA	Freight on board Western Australia
FY##	Twelve months ending December 31
GAAP	Accounting principles generally accepted in the United States of America
GJ	Gigajoule
GWh	Gigawatt hour
ISK	Icelandic krona
JV	Joint venture
kmt/kdmt	Thousand metric tonnes/Thousand dry metric tonnes
LME	London Metal Exchange
LTM	Last twelve months
M	Million
Mdmt	Million dry metric tons
Mmt	Million metric tons
mt	Metric ton
NCI	Noncontrolling interest
NI	Net income
NOK	Norwegian krone
OPEB	Other postretirement employee benefits
PBT	Profit before taxes
Prop.	Proportional
R&D	Research and development
RoW	Rest of world
SEC	Securities and Exchange Commission
SG&A	Selling, general administrative and other
SHFE	Shanghai Futures Exchange
TBD	To be determined
U.S.	United States of America
USD	United States dollar
YTD, YoY	Year to date, year over year

Alcoa