3 June 2024

Hindalco Industries

Capacity expansion, sizing downstream to drive margins; initiating, with a Buy

Rating: **Buy**
Target Price (12-mth): Rs.850
Share Price: Rs.693

One of the largest non-ferrous manufacturers globally, Hindalco offers many products and solutions for packaging, automobiles, construction, aerospace and other industries. Its multi-regional and multi-product capacity expansion underway, we believe, would augment the share of VAPs and enhance its recycling abilities, strengthen its aluminium circularity potential. Considering its strong focus on expanding capacity, integrating RMs, enhancing aluminium recyclability and raising the share of VAPs, we initiate coverage on the stock with a Buy and a sum-of-parts TP of Rs850/sh.

Key data	HNDL IN
52-week high / low	Rs715 / 407
Sensex / Nifty	76363 / 23241
3-m average volume	$65.7m
Market cap	Rs1564bn / $18811.8m
Shares outstanding	2247m

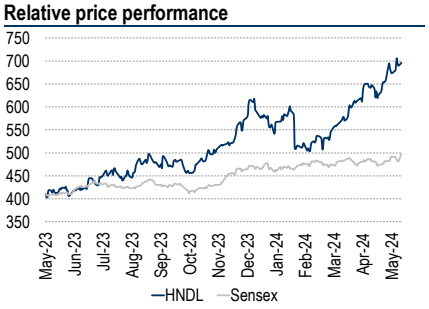
Shareholding pattern (%)	Mar '24	Dec '23	Sep '23
Promoters	34.6	34.6	34.6
- of which, Pledged	0.0	0.0	0.0
Free Float	65.4	65.4	65.4
- Foreign institutions	30.5	31.6	30.7
- Domestic institutions	25.8	25.2	25.8
- Public	9.1	8.6	8.9

Capacity addition to drive performance: The ~$7bn capex across regions would significantly enhance Novelis' FRP capacity (~21%) to over 4.9m tonnes, Novelis recycling capacity ~33% to ~2.9m tonnes, besides domestic downstream aluminium capacity ~39% to over 0.6m tonnes. The company plans a 2m tonne alumina refinery expansion at Odisha. Consolidated EBITDA is expected to record a ~17.5% CAGR over FY24-26, driven by FRP capacity expansion, greater share of recycled content in manufacturing, and enhanced domestic VAP capacities. We believe the company is adding VAP capacities at the right time to capture growth opportunities at home; the share of downstream business in domestic revenue is likely to surpass 14% in FY26.

Novelis on track to $600 EBITDA/tonne. In Q4, Novelis crossed its $525 EBITDA/tonne guidance. We expect $566 in FY26 and $600 in FY27, driven by cost reduction on greater consumption of recycled content, capacity expansion and the enriched product mix. Novelis' strong operations across regions and its conversion business model helps insulate it from commodity price fluctuations, ensuring stable margins (a ~12.3% EBITDA margin by FY26).

Outlook, Valuation. Considering its strong focus on recycling, adding capacity, RM integration and enhanced VAPs, we initiate coverage with a Buy and a sum-of-parts TP of Rs 850/share. **Risks:** Fluctuations in non-ferrous metals on the LME, slowing demand, delay and cost over-runs in project execution, scrap unavailable.

Relative price performance



Source: Bloomberg

Key financials (YE Mar)	FY22	FY23	FY24	FY25e	FY26e
Sales (Rs bn)	1,951	2,232	2,160	2,431	2,566
EBITDA (Rs bn)	283	227	239	299	329
Adj. PAT (Rs bn)	136	101	101	135	149
EPS (Rs)	61.3	45.3	45.6	60.7	67.2
P/E (x)	11.3	15.3	15.2	11.4	10.3
EV / EBITDA (x)	6.7	8.2	7.8	6.4	5.8
Net debt / EBITDA (x)	1.2	1.4	1.4	1.2	1.1

Source: Company, Anand Rathi Research

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Research Analyst

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Research Analyst

Quick Glance – Financials & Valuations (Consolidated)

Fig 1 – Income statement (Rs bn)

Year-end: Mar	FY22	FY23	FY24	FY25e	FY26e
Revenue	1,951	2,232	2,160	2,431	2,566
Revenue growth (%)	*47.8*	*14.4*	*-3.2*	*12.5*	*5.6*
Expenses	1,667	2,005	1,921	2,132	2,237
EBITDA	283	227	239	299	329
EBITDA growth (%)	*61.7*	*-20.0*	*5.3*	*25.2*	*10.3*
EBITDA margins (%)	*14.5*	*10.2*	*11.1*	*12.3*	*12.8*
Depreciation	67	71	75	89	99
Other income	11	13	15	13	13
Interest expenses	38	36	39	43	44
PBT before excep. items	190	132	140	180	199
Exceptional items	6	0	0	0	0
PBT after exceptional items	196	132	140	180	199
Effective tax	54	31	39	45	50
PAT (before Ass. / (Mino.)	142	101	102	135	149
+ Associates / (Minorities)	5	0	0	0	0
Reported PAT	137	101	102	135	149
Adj. PAT	136	101	101	135	149
Adj. PAT growth (%)	*140.0*	*-26.2*	*0.8*	*32.9*	*10.8*

Fig 2 – Balance sheet (Rs bn)

Year-end: Mar	FY22	FY23	FY24	FY25e	FY26e
Share capital	2	2	2	2	2
Net worth	782	948	1,061	1,183	1,318
Debt	632	583	545	533	520
Minority interest	0	0	0	0	0
DTL / (Assets)	44	73	82	82	82
Others	103	95	97	97	97
Capital employed	**1,562**	**1,699**	**1,785**	**1,894**	**2,016**
Net tangible assets	745	758	772	868	953
Net intangible assets	306	324	323	316	307
CWIP	47	73	146	161	175
Investments	86	82	121	121	121
Other non-current assets	48	104	122	139	154
Inventory	445	430	408	459	485
Accounts receivable	211	162	164	185	195
Cash (incl. bank balance)	228	212	177	127	125
Other current assets	101	89	74	83	88
Current liabilities	657	536	522	566	587
Capital deployed	**1,562**	**1,699**	**1,785**	**1,894**	**2,016**

Fig 3 – Cash-flow statement (Rs bn)

Year-end: Mar	FY22	FY23	FY24	FY25e	FY26e
EBITDA	283	227	239	299	329
+ other adj.	14	-3	9	0	0
- Incr. / (decr.) in WC	-91	-5	19	-38	-19
Others incl. taxes	-38	-27	-27	-45	-50
CF from op. activity	**168**	**192**	**241**	**216**	**260**
- Capex (tang. + intang.)	-54	-97	-157	-210	-204
Free cash-flow	115	95	84	6	56
Others	-17	16	14	13	13
CF from inv. activity	**-71**	**-81**	**-143**	**-197**	**-191**
- Div.	-7	-9	-7	-13	-14
+ Debt raised	-49	-82	-44	-13	-13
Others	-12	-13	-58	-43	-44
CF from fin. Activity	**-68**	**-103**	**-108**	**-68**	**-71**
Closing cash balance	116	128	118	69	66
Closing bal. (incl. bank bal.)	228	212	177	127	125

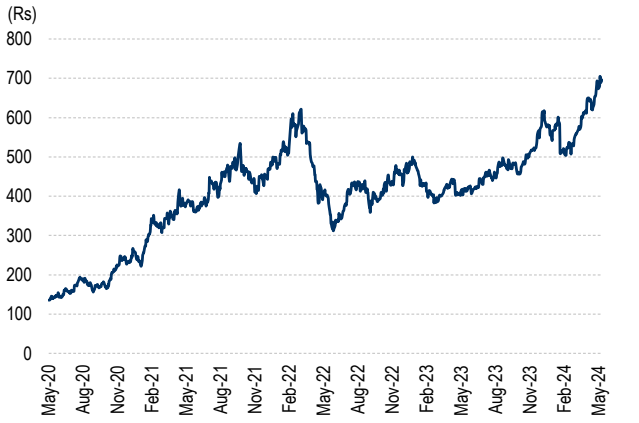
Source: Company, Anand Rathi Research

Fig 4 – Ratio analysis

Year-end: Mar	FY22	FY23	FY24	FY25e	FY26e
EPS (Rs)	61.3	45.3	45.6	60.7	67.2
P/E (x)	11.3	15.3	15.2	11.4	10.3
P/BV (x)	2.0	1.6	1.4	1.3	1.2
EV / EBITDA (x)	6.7	8.2	7.8	6.4	5.8
EV / Sales (x)	1.0	0.8	0.9	0.8	0.7
RoE (%)	18.8	11.6	10.1	12.0	11.9
RoCE (%)	15.0	10.3	10.2	12.1	12.5
DPS (Rs)	4.0	3.0	3.5	6.0	6.5
Dividend payout (%)	6.5	6.6	7.7	9.9	9.7
Net debt / EBITDA (x)	1.2	1.4	1.4	1.2	1.1
Inventory (days)	83	70	69	69	69
Debtors (days)	39	27	28	28	28
Payable (days)	77	59	58	58	58
EBITDA margins (%)	14.5	10.2	11.1	12.3	12.8
Net profit margins (%)	7.0	4.5	4.7	5.5	5.8

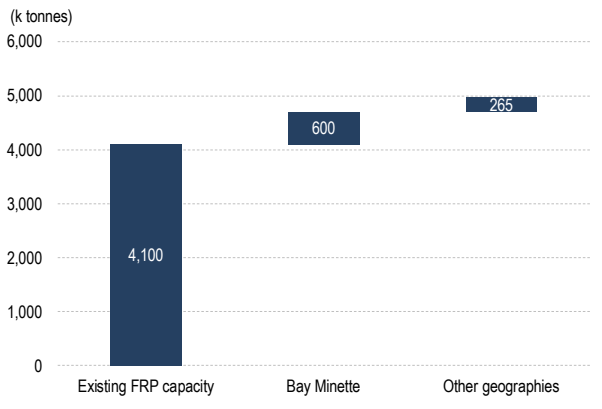
Source: Company, Anand Rathi Research

Fig 5 – Price movement



Source: Bloomberg

Fig 6 – Novelis FRP capacity to cross 4.9m tonnes by FY27



Source: Company, Anand Rathi Research

Valuation

We believe that, with the move toward greener alternatives globally, demand for aluminium and copper would be robust, driven by the strong push from EVs, RE, packaging, consumer durables, energy, aerospace, infrastructure, construction, automobiles, etc. The company, which is at the forefront of FRP and VAP capacity expansion, would be one of the biggest beneficiaries of the ongoing change in the non-ferrous landscape.

Along with planned capex, the company is strengthening backward integration by setting up recycling capacities internationally and operationalising coal mines in India.

Considering all the positive triggers, we have built in a ~7% revenue CAGR over FY24-26 for Novelis, driven by the volume momentum, better realisations and a consolidated ~9% revenue CAGR, stemming from the greater share of downstream VAP and support from the LME. Further, in considering the benefits of various cost-saving measures and RM linkages, we expect a ~10% EBITDA CAGR for Novelis and ~17.5% consolidated EBITDA CAGR over FY24-26.

We value Hindalco on a sum-of-parts basis, using EV/EBITDA and ascribe 5x FY26e EV/EBITDA to its Indian upstream operations (lower than global peers), 6.5x FY26e EV/EBITDA for its downstream operations (higher than upstream operations, considering the nature of VAP), 7x for Novelis (lower than tentative IPO valuation) and 6x for the copper vertical. We arrive at a TP of Rs 850/sh. The stock now quotes at 5.8x FY26e EV/EBITDA and 1.2x FY26e P/BV.

Novelis is expected to list on NYSE (under the symbol NVL) by offering ~7.5% stake (complete OFS) at $18-$21 per share. At the upper end, its market cap works out to ~$12.6bn and EV of ~$17.8bn. Also, its valuation works out to ~7.9x FY26e EV/EBITDA.

Fig 7 – Assumptions (FY25 and FY26)

Assumptions	FY22	FY23	FY24	FY25e	FY26e
Aluminium LME ($ / tonne)	2,770	2,489	2,202	2,469	2,450
Copper LME ($ / tonne)	9,685	8,555	8,360	9,638	9,500
Novelis shipments (k tonnes)	3,858	3,790	3,673	3,852	3,994
Novelis EBITDA / tonne ($)	518	478	510	525	566
Aluminium upstream (k tonnes)	1,294	1,319	1,346	1,350	1,350
Upstream EBITDA / tonne (Rs)	1,298	793	822	929	927
Aluminium downstream (k tonnes)	349	354	370	404	455
Downstream EBITDA / tonne (Rs)	147	220	187	204	225
Copper (k tonnes)	405	439	506	519	522

Source: Company, Bloomberg, Anand Rathi Research

Fig 8 – TP calculation

Particulars	UoM	FY26e
Aluminium – upstream		
Volumes	kt	1,350
EBITDA / tonne	$	927
EBITDA	Rs m	1,07,374
EV / EBTIDA (x)	x	5.0
Target EV	**Rs m**	**536,872**

Aluminium – downstream		
Volumes	Kt	455
EBITDA / tonne	$	225
EBITDA	Rs m	8,796
EV / EBTIDA (x)	x	6.5
Target EV	**Rs m**	**57,173**
Copper		
Volumes	kt	522
EBITDA	Rs m	27,477
EV / EBTIDA (x)	x	6.0
Target EV	**Rs m**	**164,863**
Novelis		
Volumes	kt	3,994
EBITDA / tonne	$	566
EBITDA (converted to Rs)	Rs m	193,798
EV / EBTIDA (x)	x	7.0
Target EV	**Rs m**	**1,356,587**
Other Adj.		
EBITDA	Rs m	-8,000
EV / EBTIDA (x)	x	4.5
Target EV	**Rs m**	**-36,000**
Target Group EV	**Rs m**	**2,079,495**
Less: Net debt	Rs m	3,62,193
Add: Adj. CWIP (@ 50%)	Rs m	87,720
No. of shares	m	2,220
Per share value	Rs	813
Add: Adj. per share value of investment (Holding Co. disc @ 35%)	Rs	37
Target price	**Rs / sh**	**850**

Source: Anand Rathi Research

Fig 9 – Global peers

Company	P/E (x)		EV / EBITDA (x)		RoE (%)	
	CY24 / FY25	CY25 / FY26	CY24 / FY25	CY25 / FY26	CY24 / FY25	CY25 / FY26
Hindalco	11.4	10.3	6.4	5.8	12.0	11.9
Vedanta	16.0	16.0	6.2	6.9	20.1	20.5
Nalco	24.5	33.3	13.5	15.5	11.2	7.9
Alcoa	19.6	15.8	6.6	5.3	9.1	10.3
Norsk Hydro	9.6	9.0	5.1	4.8	12.6	12.9
CHALCO	9.5	8.5	5.5	4.5	13.6	12.9
Constellium	8.7	7.9	5.4	5.0	26.3	23.3
Kaiser	16.7	18.4	8.8	8.9	17.2	-

Source: Company, Bloomberg, Anand Rathi Research

Bull/ bear case

Bull case. We assume 5% more shipments for Novelis and the downstream aluminium business in FY25, and 7.5% more in FY26, in our bull case scenario. This would raise consolidated revenue/EBITDA/adj. PAT CAGRs to 12%/20%/26% over FY24-26. Considering the increase in production and its impact on earnings, we arrive at a sum-of-parts TP of Rs.896 a share (~29% upside).

Fig 10 – Bull case

Particulars (Rs bn)	Revenue	EBITDA	Adj. PAT
FY25 (base case)	2,431	299	135
FY25 (bull case)	2,505	307	141
Change in estimate, %	*3*	*3*	*5*
FY26 (base case)	2,566	329	149
FY26 (bull case)	2,686	344	160
Change in estimate, %	*5*	*4*	*7*
TP (base case)		850	
TP (bull case)		896	
Change in estimate, %		*5*	

Source: Anand Rathi Research

Bear case. We assume slower capex execution for Novelis and the domestic downstream vertical, resulting in 7.5% and 10% lower shipments in respectively FY25 and FY26 in a bear-case scenario. This would lead to 6%/14%/15% revenue/EBITDA/PAT CAGRs over FY24–26. Considering a drop in performance, we arrive at a sum-of-parts TP of Rs.788 a share (~14% upside potential).

Fig 11 – Bear case

Particulars (Rs bn)	Revenue	EBITDA	Adj. PAT
FY25 (base case)	2,431	299	135
FY25 (bear case)	2,319	286	125
Change in estimate, %	*-5*	*-4*	*-7*
FY26 (base case)	2,566	329	149
FY26 (bear case)	2,407	310	135
Change in estimate, %	*-6*	*-6*	*-10*
TP (base case)		850	
TP (bear case)		788	
Change in estimate, %		*-7*	

Source: Anand Rathi Research

Sensitivity analysis

Considering Novelis driving ~65% of the group's valuation (and ~59% EBITDA), we have worked out TP sensitivity to change in volumes (%) and change in EBITDA (%).

Fig 12 – Change in TP to change in volume and EBITDA/tonne (Novelis)

		Change in volumes (%)				
		-10	-5	0	5	10
Change in EBITDA (%)	-10	730	760	780	810	830
	-5	760	790	820	840	870
	0	790	820	**850**	880	910
	5	820	850	880	910	940
	10	850	890	920	950	980

**Rounded to nearest 10's*
Source: Anand Rathi Research

Fig 13 – Change in TP to change in Novelis multiples

Change in multiples	6x	6.5x	7x	7.5x	8x
TP	763	806	850	894	937
% change to CMP	10.1	16.3	22.7	29.0	35.3

Source: Anand Rathi Research

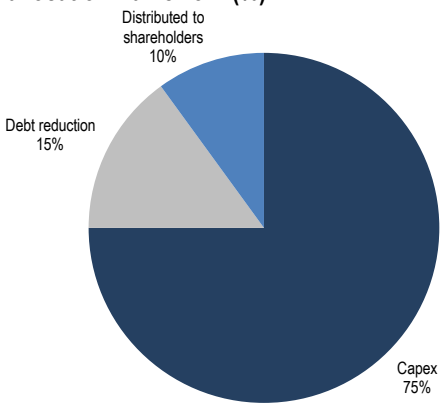
Capacity expansion to drive performance

The company is strong in four verticals **i) Novelis**: the largest aluminium FRP manufacturer and recycler in the world (across secondary aluminium), **ii) aluminium upstream:** excl. China, one of the largest producers of primary aluminium in Asia (incl. alumina and speciality alumina business), **iii) aluminium downstream:** the largest downstream aluminium VAP manufacturer in India, with customised products and solutions in FRP and extrusions and **iv) copper:** one of the largest custom copper smelters in Asia at a single location and the third largest manufacturer of copper cathode rods (excl. China).

The company has undertaken value-enhancing growth capex, expected to augment Novelis' FRP capacities, organically expanding domestic downstream VAPs and sub-VAP capacities in aluminium and copper. It has a robust capital allocation framework having committed ~$7bn for multi-regional, multi-product capex over the next 3-4 years. ~70% of the capex (~$4.9bn-5bn) is earmarked for Novelis; of the ~$1.9bn-2bn capex for domestic operations, ~34% is allocated to the downstream business (strong focus on VAPs), and 50% to set up a 2m-tonne alumina refinery at Odisha, expected to be completed in 2-3 years.

As a part of its prudent capital-allocation policy, (going forward) ~70-75% of operating cash-flow is expected to be spent on capex, ~10-15% to reduce debt, the balance to shareholders. ~77-79% of operating cash-flow is earmarked for capex in FY26.

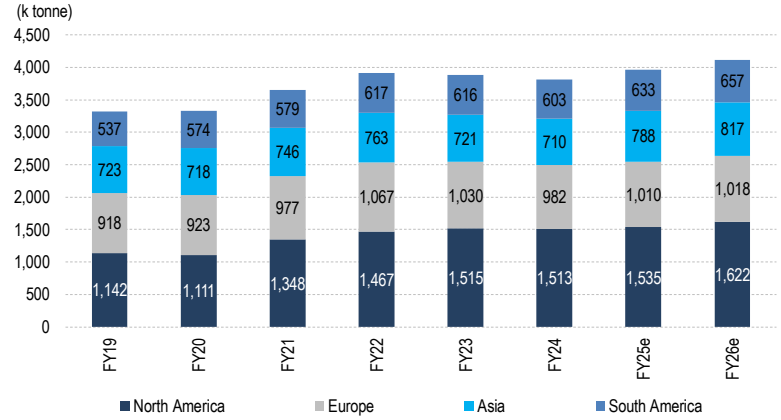
Fig 14 – Capital-allocation framework (%)



Source: Company, Anand Rathi Research

Novelis, with 33 plants globally, is the leader with a ~40% global market share in beverage cans (excl. China) and strong operations in automobile FRP (a 40% market share in North America, 35% in Europe and 20% in Asia). Its capex aims at augmenting its FRP capacity, recycling capacities and capacity release via de-bottlenecking in North and South America, and Asia. The planned capex, which would lead to favourable shifts in favour of the Americas and Asia, would contract the share of Europe.

Fig 15 – Region-wise volume break-up (excl. eliminations); Europe expected to grow the slowest, a 1.8% CAGR over FY24-26



Source: Company, Anand Rathi Research

Bay Minette expansion to pave the way for the next leg of growth

Novelis has undertaken transformational, organic capex, which would augment its rolling, casting and recycling capacities, enabling it to reach its full circularity potential. The state-of-the-art plant at Bay Minette (Alabama, USA) would be the first fully integrated plant built in the US in nearly four decades. This coming 0.6m-tonne low-carbon integrated greenfield plant is expected to be the world's most sophisticated, automated and greenest aluminium rolling mill. It would cater to the growing beverage can/ automobile demand in North America.

Novelis, which increased capex 65% to $4.1bn in Q3 FY24, citing cost overruns, is expected to commence operations in FY27, added benefit likely from FY28. The ongoing capex works out to ~$6,800 a tonne. To make the plant future ready the company has increased the scope of civil construction. The plant on ~3,000 acres has a built-in buffer to double FRP capacity (an additional 0.6m tonnes) at an further cost of $1,500-$2,500 a tonne (taking total capacity at Bay Minette to 1.2m tonnes), less than Steel Dynamics' ongoing low-carbon aluminium FRP capex of ~$3,400 a tonne.

The Bay Minette plant is expected to have a life of >40 years, though management has lowered its IRR guidance to lower double digits, from the mid-teens. We believe higher blended margins from the automobile sector and cost synergies from the ongoing enhancement of the recycling capacity would yield positive surprises.

Steel Dynamics' plant is expected to come on stream in FY25. The company has guided to annual EBITDA of $650m-$700m, which works out to ~$1,000-1,070 EBITDA per tonne once the plant is fully operational and ramped up. With Novelis crossing its guided to $525 EBITDA per tonne in Q4, we think it would achieve $600 a tonne in FY27 and then a higher figure due to savings from lower employee costs, more recycled content, lower operational costs, etc.

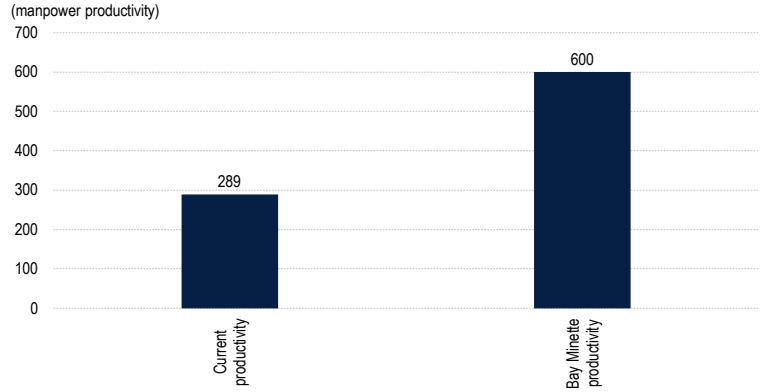
Fig 16 – Novelis' EBITDA per tonne expected to touch $600 in FY27

Particulars	FY26e	FY27e	FY28e	FY29e
Shipments (kt)	3,994	4,076	4,316	4,556
EBITDA/tonne ($ / tonne)	566	600	613	630
EBITDA ($ m)	2,259	2,445	2,643	2,870

Source: Anand Rathi Research

Per-employee productivity at the Bay Minette plant (in phase I) is expected to be ~600 tonnes (~1,000 people to be employed), which works out to more than double the productivity at its other plants (~289-292 tonnes).

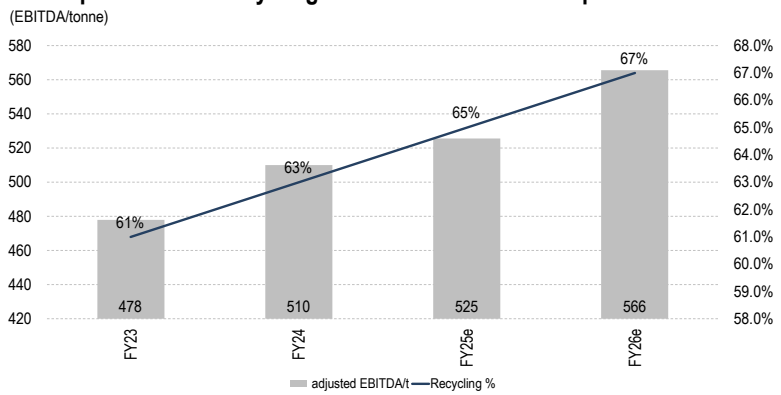
Fig 17 – Employee productivity (tonnes per person)



Source: Company, Anand Rathi Research

Also, the plant is expected to house a recycling facility, which would increase capacity by 15bn cans a year when fully operational (taking the yearly can-recycling potential to ~100bn). The rising proportion of recycling content is expected to improve EBITDA per tonne. Novelis achieved a 63% recycling rate in FY24 and is expected to gradually increase that to 67% by FY26 and 75% by FY30. It has strong operations in secondary aluminium manufacturing, which requires ~95% less power than primary aluminium manufacturing, ensuring a lower carbon footprint.

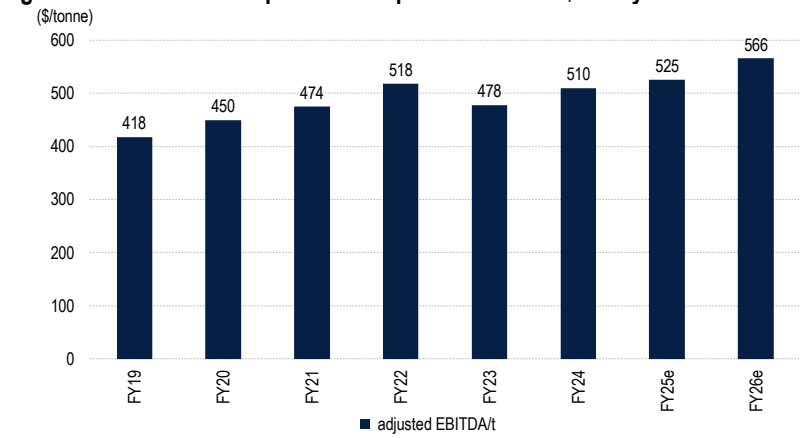
Fig 18 – Improvement in recycling content to drive EBITDA per tonne



Source: Company, Anand Rathi Research

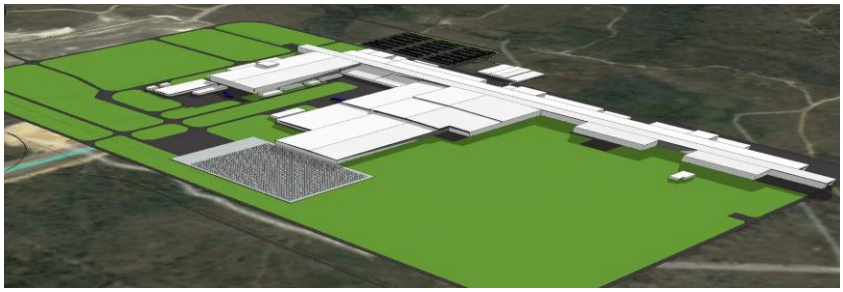
Novelis has entered into long-term agreements with Coca-Cola, Ball Corp., Ardagh, etc., to supply aluminium beverage can packaging sheets. With beverage packaging capacity fully contracted for and booked till the end of the decade, and higher recycling capacities and favourable market dynamics, it is poised to achieve a $600 EBITDA per tonne by FY27.

Fig 19 – Novelis' EBITDA per tonne expected to cross $565 by FY26



Source: Company, Anand Rathi Research

Fig 20 – The Bay Minette facility

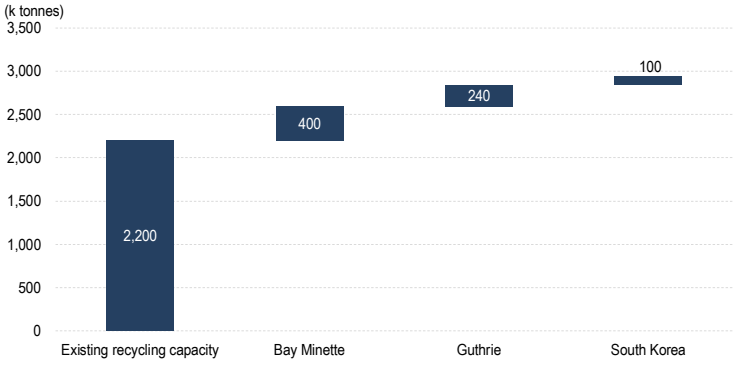


Source: Company

Guthrie automobile recycling centre to catapult capabilities

Novelis is adding an automotive-focused recycling plant in Guthrie (Kentucky, USA), at $365m capex. The 240k tonne plant is expected to be commissioned in Q1 FY25, the added benefit expected from FY26. The advanced sorting technology and automotive 'closed loop' recycling would help re-use post-production and post-consumer scrap, further reducing Novelis' emissions by 1m tonnes pa.

Fig 21 – Novelis' recycling capacity expected to increase ~33% to over 2.9m tonnes by FY27



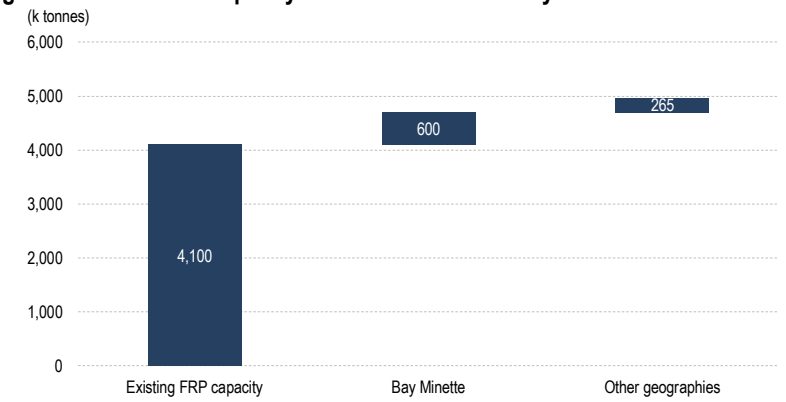
Source: Company, Anand Rathi Research

Capex across other international locations

Novelis also plans to enhance recycling capacity in South Korea by ~100k tonnes. It has earmarked $65m for this. The UAL (Ulsan, South Korea)

plant is expected to commence production by mid-FY25. Recycling capacity is expected to cross 2.9m tonnes by FY27. Similarly, it undertook debottlenecking capex at Oswego and Logan (USA), Pinda (Brazil) and Yeongju (South Korea), which would add ~0.265m tonnes of finished capacity by FY26. Capex at Oswego and Yeongju, and phase I capex for Pinda were completed in FY24 and the plants are now being ramped up. Many projects, now being appraised in Germany, China and Brazil are expected to be undertaken in phase II.

Fig 22 – Novelis' FRP capacity to cross 4.9m tonnes by FY27



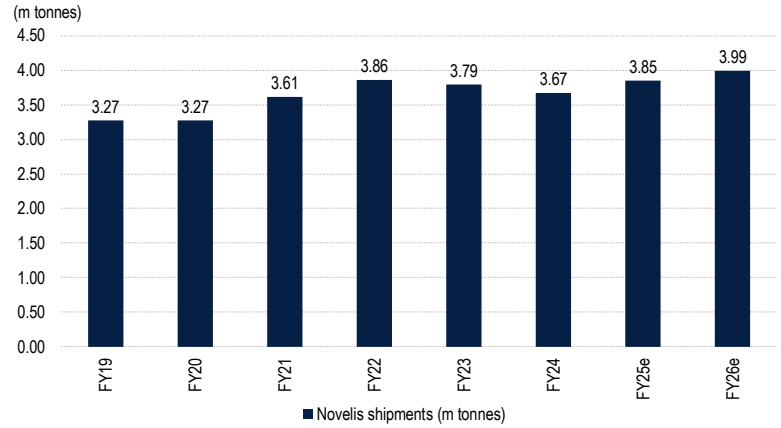
Source: Company, Anand Rathi Research

Fig 23 – Novelis' planned capex being executed

Projects	Location	Sector	Capacity (k tonnes)	Status
Debottlenecking / upgrades	Oswego, USA	Specialties, Auto	65	Completed in Q3 FY24; ramping up
Recycling	Greensboro, USA	Auto	30	Operational
Recycling / Casting Centre	Guthrie, USA	Auto	240	Expected by Q1FY25
Rolling / Recycling Mill	Bay Minette, USA	Can, Auto	600	Expected by FY27
Rolling debottlenecking	Logan, USA	Can, Auto	80	Expected by FY26
Recycling / Casting Centre	UAL, SK	Multi	100	H2FY25
Rolling debottlenecking	Yeongju, SK	Can	50	Completed in Q2 FY24; ramping up
Rolling Debottlenecking	Pinda, Brazil	Can	70	40k tonnes Phase I completed in Q2FY24
Cold mill / closed loop recycling	Zhenjiang, China	Auto	200	Delayed; project under appraisal
Rolling capacity	Germany	Can	200	Project under appraisal
Recycling capacity	Germany	Auto	150	Project under appraisal
Rolling / Recycling Mill	Brazil	Can	450	Project under appraisal

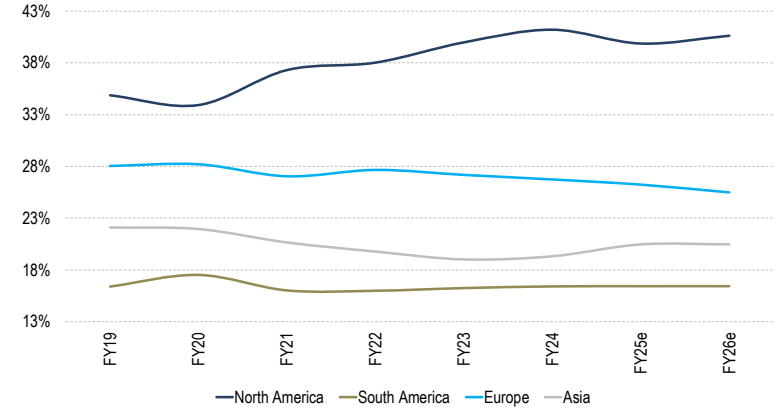
Source: Company, Anand Rathi Research

Fig 24 – Novelis' shipments expected at ~4m tonnes by FY26; to operate at 92% capacity



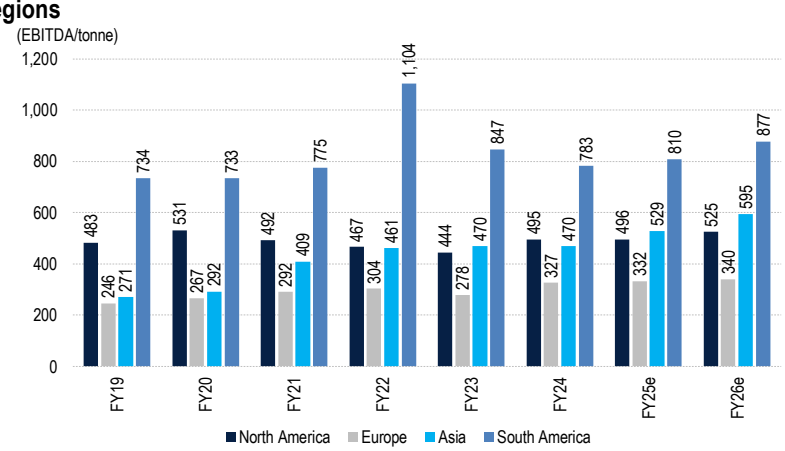
Source: Company, Anand Rathi Research

Fig 25 – Share of Europe in the geographical mix (%) expected to contract ahead



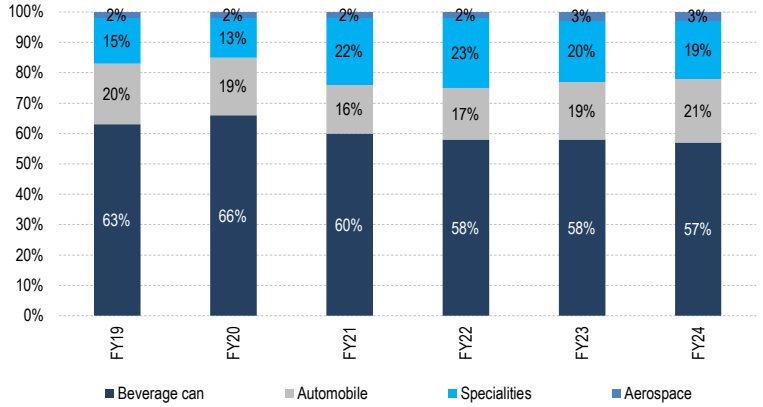
Source: Company, Anand Rathi Research

Fig 26 – Asia and South America's EBITDA per /tonne expected to outpace other regions



Source: Company, Anand Rathi Research

Fig 27 – Product-wise split (%); shares of high-margin automobile and aerospace sectors have improved



Source: Company, Anand Rathi Research

Downstream aluminium capacity in India to grow 39% to over 600k tonnes

As India enters a many-year nation-building phase, demand for VAPs is expected to grow rapidly over the next two decades. The company's strong focus on optimising product quality and developing products for various applications has led it to allocate ~34% of domestic capex to its downstream aluminium VAPs. It is developing products for use in EVs, e-mobility, packaging, batteries, building & construction, and consumer durables.

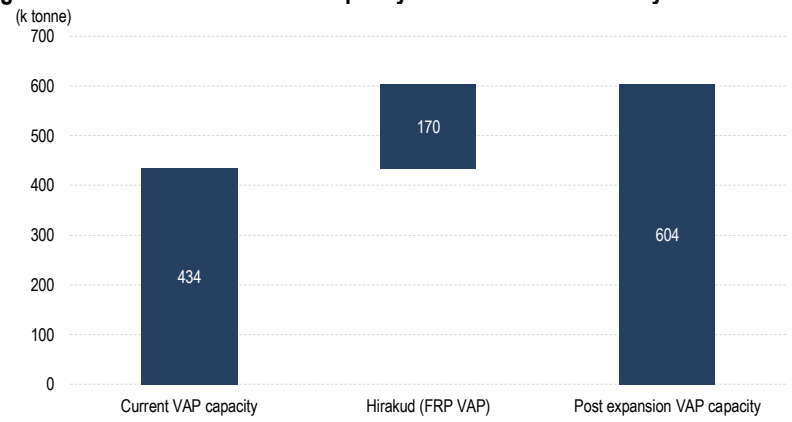
The high-end 24k-tonne extrusion plant in Silvassa is operational, and the FRP casting plant at Hirakud (first coil to roll out by Dec'24), the coated AC fins plant in Taloja (under PLI), the battery foil mill at Aditya and the battery enclosures plant in Pune are on track. Also, the company has identified an additional 39k tonnes of downstream aluminium projects, now being appraised and expected to enhance its operations in large-press Railway extrusions. The Taloja (coated AC fins), Pune (battery enclosures) and Aditya (a battery foil mill) plants are sub-VAP, which would acquire raw materials from the coming Hirakud downstream plant.

The downstream business, severely hurt in Q3 FY24 by an unfavourable product mix and lower realisations, recovered in Q4 (a $174 EBITDA/ tonne, expected at $225 by FY26). The share of downstream EBITDA as percent of domestic EBITDA is expected at 6.5% in FY26 (2.7% in FY22).

The company has changed its portfolio-enrichment strategy from an aluminium manufacturing entity to a manufacturing-solutions provider. This enables it to address ever-evolving needs of customers, enhance pricing power and help it to higher margins, especially in downstream VAP.

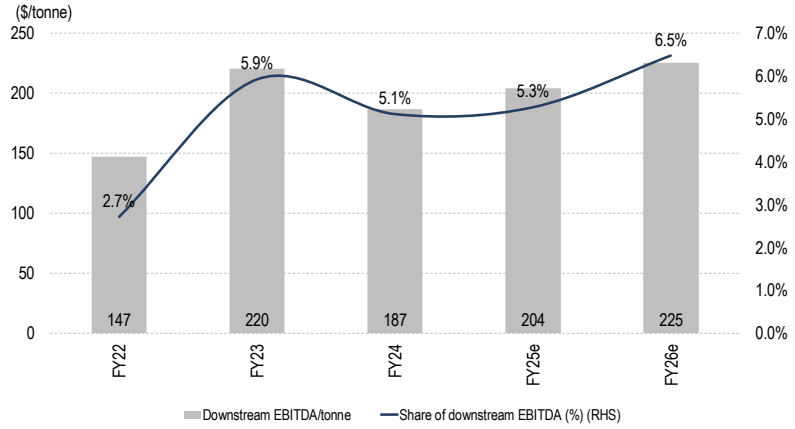
Besides, it plans to set up a ~25k tonne battery-foil manufacturing plant, catering to fine-quality aluminium foil used in rechargeable batteries for EVs and energy storage. This Sambalpur, Odisha plant (Rs8bn earmarked) would be a green one and is expected to be commissioned by Jul'25. It would supplement the one in Mouda, Maharashtra, and would house a 25MW solar plant.

Fig 28 – Downstream aluminium capacity to cross 600k tonnes by FY26



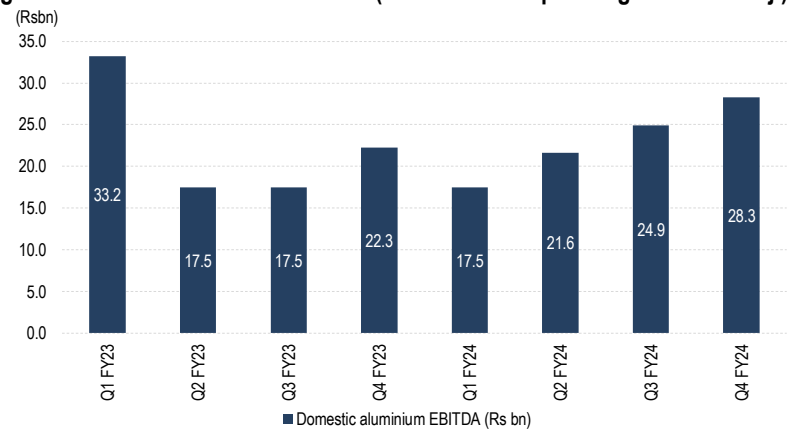
Source: Company, Anand Rathi Research

Fig 29 – Downstream EBITDA per tonne to touch $225 by FY26



Source: Company, Anand Rathi Research

Fig 30 – Domestic aluminium EBITDA (includes metal price lag and other adj.)



Source: Company, Anand Rathi Research

Strengthening copper VAP

The company operates one of the largest custom copper smelters in Asia at a single location. On acquiring Polycab's 225k-tonne copper rod unit, Ryker (now Asoj) in Nov'21, it has emerged as the third largest manufacturer (excl. China) of copper rods globally. It now has ~540k tonnes of copper-rod capacity (incl. 421k tonnes of copper cathode capacity).

In line with its sub-VAP capacity enhancement in aluminium, it is enhancing its sub-VAP copper capacity by setting up a 25k-tonne inner-grooved copper-tube plant. This first-of-a-kind plant would manufacture products for air-conditioning and refrigeration (thin-walled small-diameter grooved tubes), which would substitute for imports. Besides, the company is setting up a first-of-its-kind ~50k tonne, state-of-the-art copper recycling and e-waste plant. This is now being appraised and expected to be commissioned by FY26.

Strengthening alumina capacity

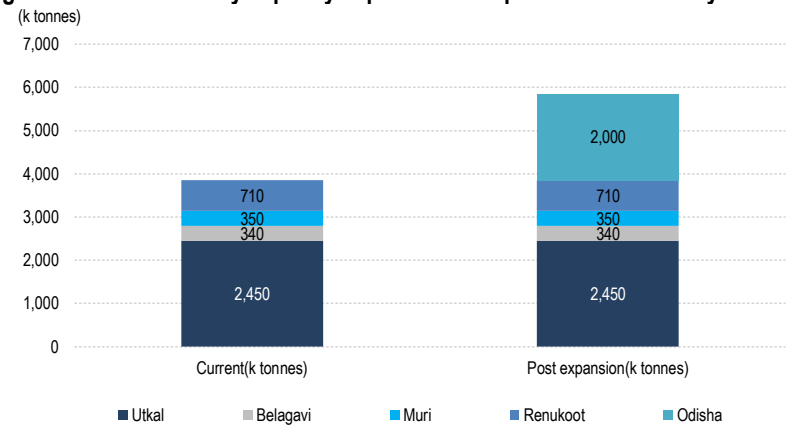
The 350k tonne capacity expansion at Utkal has been completed (now being ramped up); alumina capacity is now ~3.9m tonnes. The recent expansion at Utkal works out to ~$114 a tonne, lower than internationally. The company requires ~2.6m tonnes of captive alumina to sustain its 1.3m-tonne primary aluminium smelter. Of the 3.9m tonnes of alumina capacity, ~340k tonnes of alumina produced at Belagavi are utilised by the specialty alumina vertical (excl.-Belagavi, capacity is ~3.6m tonnes).

We believe the low-cost alumina refinery in Utkal would feed the smelter, lowering costs even more, which should help generate healthy EBITDA margins. The company would continue to sell ~900k tonnes of alumina in the merchant market, helping to higher realisations.

The company recently announced its plans to set up a 2m-tonne alumina refinery in Kansariguda (Rayagada district, Odisha) in phases and has earmarked ~50% (~Rs80bn) of domestic capex for this. Phase I will enhance refinery capacity by ~850k tonnes and OMC is expected to supply the bauxite. This greenfield alumina refinery in Odisha is expected to be constructed at ~$850 a tonne in phase I. Phase II is expected to be constructed at a fraction of the cost (~$280) taking the project average cost to ~$490 a tonne (expected to be lower than that of NALCO's ongoing capex of ~$750 a tonne).

This coming greenfield plant will have a similar cost structure as that of the Utkal refinery at ~$160-180 a tonne, against >$300 a tonne for its other refineries (Muri and Renukoot). The CoP at the coming refinery would be even lower than that of Vedanta's (Lanjigarh) alumina refinery (~$295-325 a tonne).

Fig 31 – Alumina refinery capacity expected to surpass 5.8m tonnes by FY27



Source: Company, Anand Rathi Research

The company further plans to enhance its aluminium smelting capacity by 180k tonnes, to 1.5m tonnes by FY27, at an estimated outlay of $760m. This

is subject to 100MW of round-the-clock (RTC) renewable energy (RE) at Aditya (a pilot project expected to begin by Dec'24). If RTC power is available, it would ensure sustainable and reliable power supply through the grid, paving the way to integrating RTC RE for low-carbon aluminium production. All future expansions in smelting would be done with RE. The company has completed an initial survey and would undertake the expansion after the pilot study.

Fig 32 – FY25 and FY26 domestic capex under execution timelines

Projects	Location	Vertical	Capacity (k tonnes)
Can Recycling	Aditya	Recycling	100
FRP –Casting & Cold Rolling	Hirakud	Downstream	170
Coated AC Fins (under PLI)	Taloja		26
Battery Foil Mill	Aditya		24
Battery Enclosures	Pune		6.5
Inner Grove Tubes (PLI Scheme) and Alloy Rods	Vadodara	Copper	25
Precipitate Hydrate & White Hydrate	Belagavi	Specialty Alumina	60
Synthetic Aggregates	Aditya		90

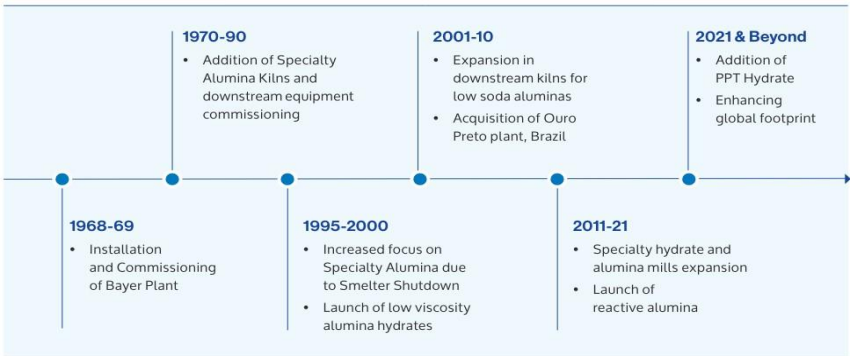
Source: Company, Anand Rathi Research

Specialty alumina to boost margin profile

Specialty alumina is widely used in refractories, display glass, ceramics, cable composites, lithium-ion batteries, LEDs, advanced ceramics, electronics, flame retardants, semiconductors, circuit boards, etc. The company, which has ~360k tonnes of installed capacity at Belagavi and Muri, plans to expand capacity at Belagavi and Aditya by ~150k tonnes.

The vertical will be supported by Hindalco Innovation Centre – Alumina, recognised by The Department of Scientific & Industrial Research (DSIR) of the government of India. The domestic specialty-alumina market is growing in double digits, compared to 5-6% in other regions. Considering promising growth prospects and widespread applications especially in new-age sectors, the company plans to double capacity by FY27.

Fig 33 – Chemicals business timeline



Source: Company

RM linkages to expand margins

Robust backward integration to provide requisite RM security; potentially safeguards from volatile input prices

The company has optimal bauxite RM security with 27 leases in Jharkhand, Odisha, Chhattisgarh, and Maharashtra. These mines, spread over three geological zones (the west coast, Chotanagpur and the east coast), have environmental clearance for ~15m tonnes, against ~10-11m tonnes required yearly. The company enjoys competitive advantages through its bauxite mines, which are near its refineries, enabling savings in freight and logistics. It has set-up a conveyor belt from the mine to the Utkal refinery, cementing its position as one of the lowest-cost alumina producers globally.

Since Dec'20, it bid for three coal blocks (Chakla, Meenakshi and Meenakshi West), acquired at a premium. The Chakla mine, which has R&R of 71m tonnes and PRC of ~5.3m tonnes (premium ~15%; annual extraction ~4.5m tonnes) is expected to commence its box cut by Q3 CY25 and to be fully operational by end-FY26. Coal from the Chakla mine would be used at Renukoot and Aditya, respectively ~300km and ~415km away by rail. Once operational, coal would be evacuated via the Tori-Shivpur rail line, which is near the western boundary of the coal block.

The company, in the seventh round of coal auctions, acquired the Meenakshi West mine in Sundergarh district, Odisha, in Aug'23 at a ~33% premium, with an R&R of 950m tonnes and PRC of ~8m. This was acquired as a back-up as the 12m-tonne Meenakshi mine (premium ~11%) is still awaiting allotment amid land acquisition issues. The company might return the Meenakshi West mine if the Meenakshi mine is allotted (tentatively in FY26).

~29 statutory clearances are required to commence the captive coal mines. Despite the Ministry of Coal simplifying the auction process, complex regulatory procedures (post-auction) are primary reasons for the delay. Since 2020, only nine mines have received all statutory permissions while five have commenced operations (20 are expected to be operationalized in FY25, subject to receiving all approvals). Prolonged and heavily regulated processes (especially land clearances) requiring various clearances from numerous government bodies under various Acts have led to the delay in coal mine operationalisation.

The company has two legacy coal blocks, at Kathautia and Gare Palma IV/4, and has already returned the Gare Palma IV/5 and Dumri mines. The two operational mines have a PRC of ~4m tonnes, but since these were acquired at a very high premium, the company is operating them at sub-50% levels. Post operationalisation of the above mine, the company plans to return the Kathautia mine to the government.

The coal required (~16.5m tonnes) is met via linkages, e-auctions, captive mines and imports. Though the company has long-term coal linkages of ~12m tonnes, only a portion is acquired under the FSA agreement; the rest is procured via e-auctions or imports. The linkage percentage which used to hover around 55-60% in the last few quarters has suddenly dropped to 48% (a similar trend was seen in Q4 FY23), while the percentage of e-auction is now ~50%, expected to be reduced to 30-35% in coming quarters. The company resorted to more e-auctions in Q4 FY24 as e-auction prices had softened from previous quarters.

Once the Chakla mine is operational, it would replace coal procured via e-auctions, reducing the CoP by Rs600-650 a tonne. We have factored into our estimates the coal cost-savings from the Chakla mine.

Fig 34 – Operational Chakla mine would lead to cost savings of Rs600-650 / tonne

Cost saving once Chakla mine is operational	
FY26 e-auction coal premium	63%-65%
e-auction ASP/tonne	~2,900
Calculated captive coal cost (including premium and royalty)	2,350-2,400
Cost savings/tonne	600-650
Annual capacity @ 100%	4.5m tonnes
Total cost savings (Rs. mn)	~2,700

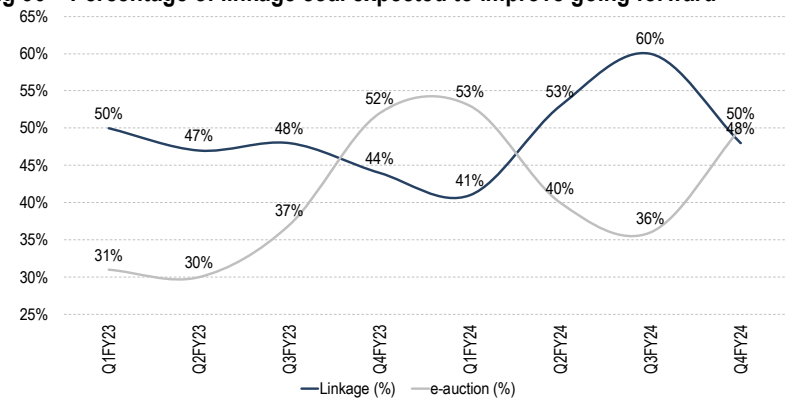
The above calculation excludes transportation cost for e-auction procurement and captive procurement.
Source: Coal India IC, Ministry of Coal, IBM, Company, Anand Rathi Research

Fig 35 – Coal mines won since Dec'20

Mine	R&R	Annual capacity (m tonnes)
Chakla, Jharkhand	71	4.5
Meenakshi, Odisha	285	12
Meenakshi West, Odisha	950	8

Source: forestsclearance.nic.in, Company, Anand Rathi Research

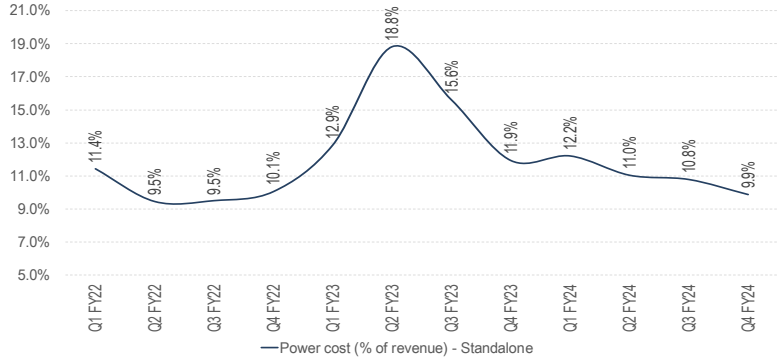
Fig 36 – Percentage of linkage coal expected to improve going forward



Source: Company, Anand Rathi Research

The company targets RE capacity of ~300MW in India by FY25. In Q4 FY24, it crossed 173MW. Solar and wind capacity of 29MW is expected to be operational by Q2 FY25, and 100MW hybrid by Q3 FY25. Primary smelting consumes a huge amount of power (cost: ~10% of revenue), ~13,800-14,000 units per tonne, RE would control power cost. Power cost, though, as % of revenue has fallen since the company shifted focus to RE.

Fig 37 – Power cost has been reducing q/q (standalone)



Source: Company, Anand Rathi Research

The green 'metal of choice'

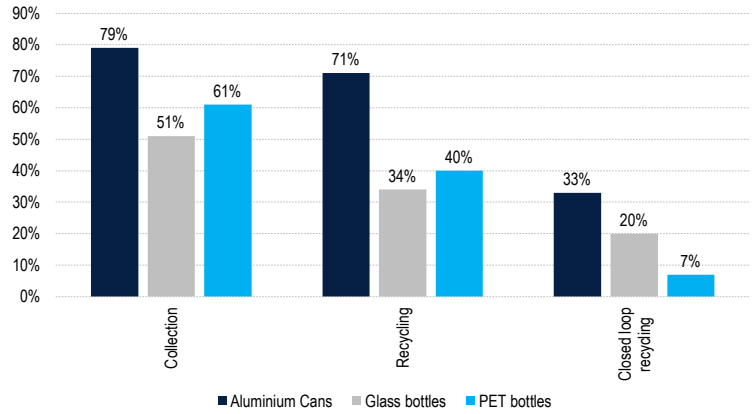
Aluminium is lightweight, corrosion-resistant, ductile and malleable, widely used in construction, automobiles, energy, infrastructure, consumer durables, packaging, energy transmission, etc. Due to repeated recyclability, it has become the green metal of choice across various sectors. Production of secondary aluminium utilises ~95% less electricity than for primary aluminium, cementing its position as a green metal. As the world gradually moves toward "green" aluminium, Novelis, being one of the largest secondary aluminium manufacturers globally, would gain the most.

Aluminium circularity

According to The International Aluminium Institute (IAI), 71% of cans are recycled (against 34% glass bottles and 40% pet bottles), ensuring greater circularity. Aluminium cans are the best solution as efficiency of the recycling process (sorting, reprocessing, thermal processing) is 90%, which means losses in aluminium cans are restricted to 10% (vs. 33% for glass and pet bottles).

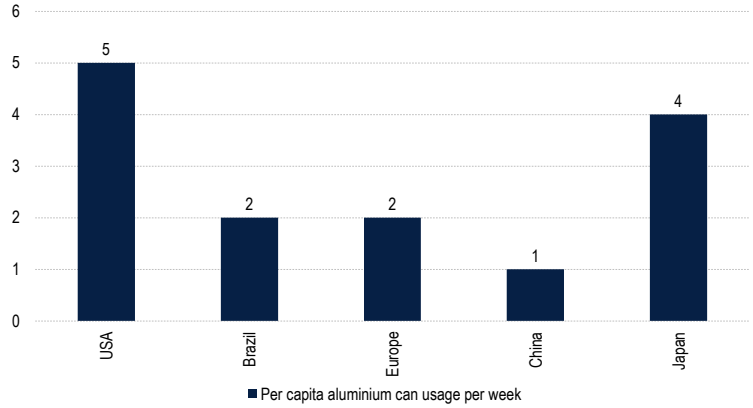
The US has the highest per capita consumption (five aluminium cans a week) and the highest rate of closed-loop recycling. Brazil and Japan have the highest recycling rates of respectively 91.4% and 93.5%.

Fig 38 – Aluminium cans have the highest recycling (%)



Source: IAI, Anand Rathi Research

Fig 39 – Per capita aluminium can consumption

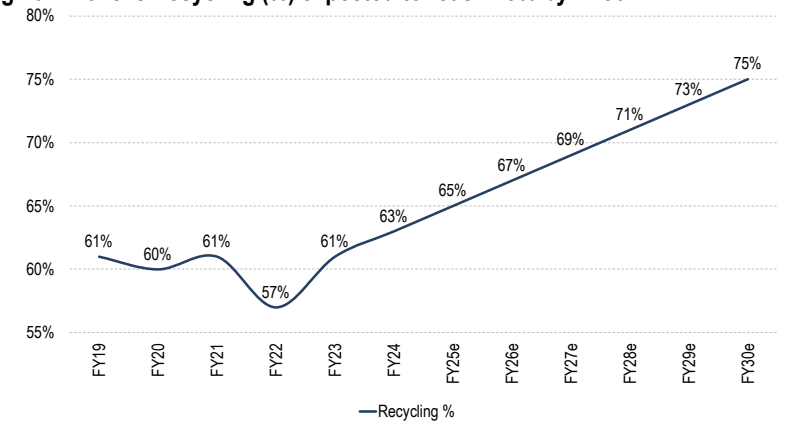


Source: IAI, Anand Rathi Research

Novelis recycled over 15% of global aluminium cans consumed in FY23. Its strong recycling focus helps it achieve its environmental sustainability target, which is at its core. In the last decade, it has spent ~$2.5bn on creating a robust recycling business and one of the most optimal value chains, termed "in the loop". It has created a 'production-closed loop' and an 'end-of-life closed loop', one of the best methods to decarbonise the aluminium sector. Of its 33 plants globally, it has recycling capacities at 17.

Its recycling rate in FY24 was 63%, expected to gradually increase to 67% by FY26 and 75% by FY30. As recycling ensures bauxite (~5 tonnes per tonne of aluminium) and power conservation (~95% less consumption) without losing properties, the higher content of recyclable material in production helps drive margins. Novelis' EBITDA/tonne is expected to continuously improve, in line with more recyclables and reach $630 a tonne by FY29.

Fig 40 – Novelis' recycling (%) expected to reach 75% by FY30

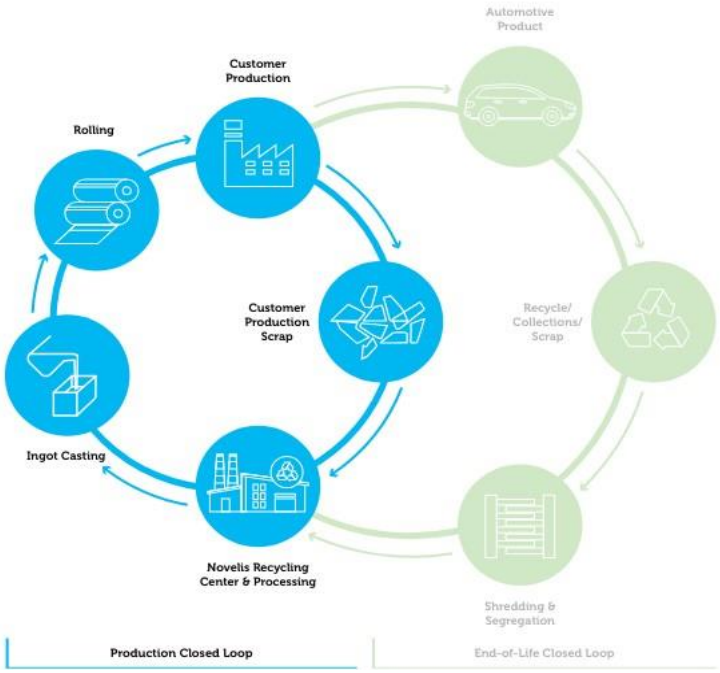


Source: Company, Anand Rathi Research

The packing sector contributes to the largest rolled post-consumer scrap intake, whereas the transportation sector contributes the most to casting scrap. Rapid growth in demand, coupled with an increased thrust on low-carbon, environmentally-friendly "green" aluminium would drive demand for recycled products. By 2050, the share of recycled to primary aluminium is expected to be 50:50. Novelis, being the largest aluminium recycler in the world with operations in four major verticals (packaging, automobiles, aerospace, specialty), is well set to capture the ever-growing demand for secondary aluminium.

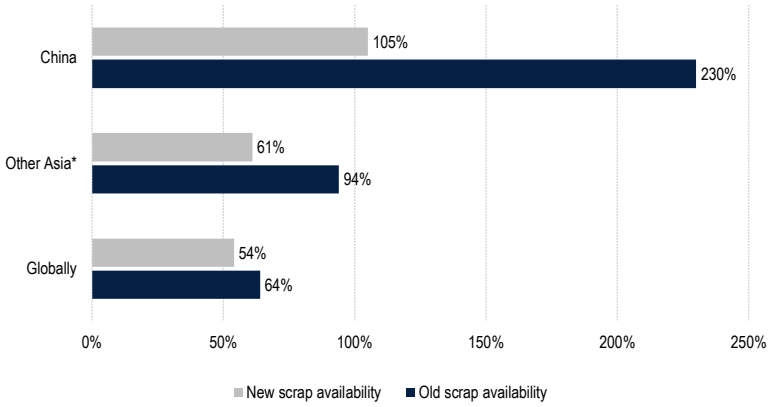
According to the Ministry of Mines and IBM, India's metal recycling rate is about 25% with most related to aluminium scrap recovery limited to the informal sector, catering mostly to the utensil and casting segments. The company, a pioneer in global recycling and the 'production closed loop', is setting up a domestic 100k tonne can recycling plant at Aditya, which would increase overall domestic recyclability to 35-40% in the next few years. As Novelis has created one of the most efficient recycling technologies, the domestic entity can replicate it for the Indian market and enhance its share in the secondary aluminium sector.

Fig 41 – Novelis' 'production closed loop' and 'end-of-life closed loop'



Source: Company

Fig 42 – Scrap available, 2011-2021



**Other Asia: India, Indonesia, Malaysia, Pakistan, Singapore, South Korea, Taiwan, Thailand and Vietnam*
New scrap: generated during manufacturing process / old scrap: post-consumer scrap
Source: IAI, Anand Rathi Research

Lightweight vehicles to drive demand for aluminium

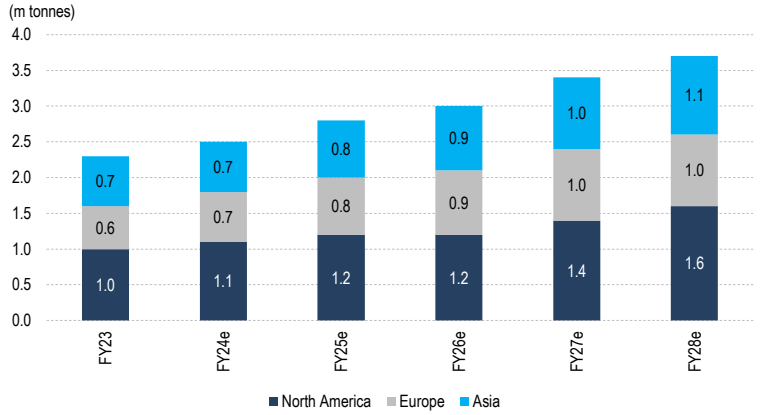
As regulations regarding CO_2 emissions turn stringent and the proportion of electric vehicles in the automobile mix increases, demand for lightweight, more fuel efficient, higher-performing cars would grow. Aluminium having one-third of the weight of carbon steel, with similar strength and properties, is widely used in the automobile sector.

Global automobile FRP demand is expected to record an 11% CAGR over FY23-FY28, from 2.2m tonnes to 3.7m tonnes, on the higher proportion of EVs, more consumption of aluminium in the non-EV segment and light-truck category, etc. As the share of lightweight pick-up trucks increases, aluminium content per vehicle would grow a further ~30%.

Novelis, being one of the largest automobiles FRP manufacturers globally, has a 40% market share in North America, 35% in Europe and 20% in Asia.

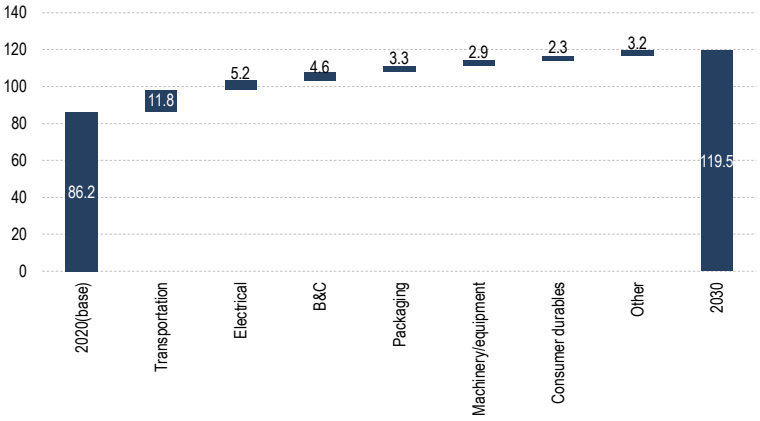
Secondary aluminium is gaining traction compared to primary aluminium, as automobiles require <25% of primary aluminium.

Fig 43 – Global automobile aluminium FRP demand (m tonnes)



Source: Company, Anand Rathi Research

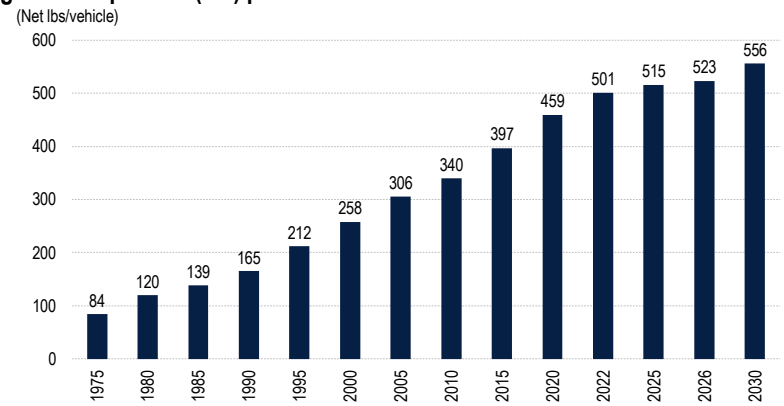
Fig 44 – Next leg of global demand to be driven by the automobile sector



Source: IAI, CRU (Opportunities for aluminium in a post Covid economy), Anand Rathi Research

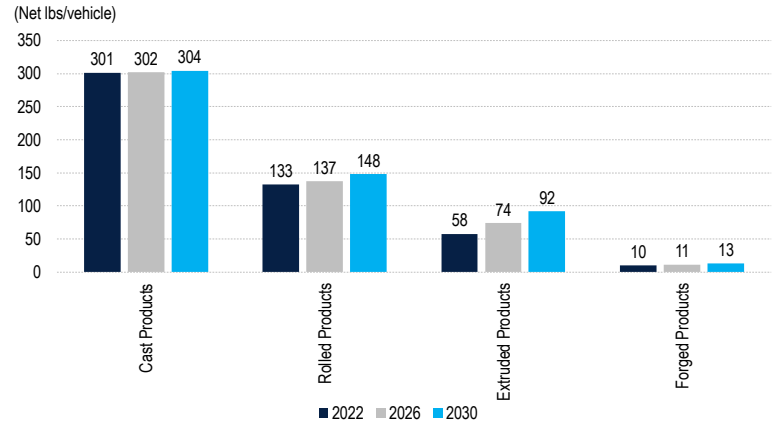
North America and China: As vehicles get lighter, aluminium parts per vehicle (PPV) in North America are expected to grow by 37PPV for battery housings, 34PPV for e-drives and e-motor housing, 8PPV for doors and 4PPV for sills/rockers by 2030. Long-term aluminium growth prospects in light vehicles seem promising, with net aluminium consumption in North America expected to increase from 501 lbs in 2022 to 556 in 2030, 55% coming from automobile casting. A similar trend is seen in China, where aluminium used in EVs has risen from 118kg in 2017 to 200kg in 2023. The trend is expected to continue, with EV manufacturing accounting for ~6% of China's aluminium demand.

Fig 45 – Net pounds (lbs) per vehicle: North America LV aluminium content



Source: Ducker Carlisle Apr'23, Anand Rathi Research

Fig 46 – Net pounds (lbs)/ vehicle: LV aluminium content, by product (North America)



Source: Ducker Carlisle Apr'23, Anand Rathi Research

Long-term beverage can demand still resilient

The shift from steel cans to aluminium cans happened in the 1960s, with organisations such as Coors Brewing Co., Kaiser Aluminium, Reynolds Metals Co., and Royal Crown being the key ones to make the move. The first two-piece cans weighed approximately 85gms, lowered to 15gms over the years.

Long-term demand for beverage can package sheets is likely to register a ~4% CAGR over FY23-30, to ~8.5m tonnes by FY31. Globally, demand for beverage cans steadily grew from 152bn in 2000 to 420bn in 2023 and is likely to cross 630bn by 2030, driven by greater demand from new locations in South America and Asia.

Aluminium's 90% combined recycling efficiency makes it a preferred choice for beverage manufacturers. Global majors like Coca-Cola and Pepsico committing to shift to 100% recyclable packaging is expected to further drive demand in the can sector. Consumers' changing lifestyles, more sale appeal, higher brand status and greater durability are expected to expand the share of aluminium cans for carbonated drinks, alcobev and energy drinks.

Novelis' coming Bay Minette beverage can plant is fully booked till the end of the decade, with contracts from marquee customers Coca-Cola, Ball Corp., Ardagh, etc.

Anheuser-Busch InBev at its recent conference call pointed to strong global demand: "In the U.S., the beer industry remains resilient with beer volumes improving sequentially through the quarter… our portfolio is regaining momentum with growth in key brands, such as Michelob ULTRA, Busch Light, Corona, Nutrl, and Cutwater… In South Africa, we again delivered record-high first-quarter volumes with double-digit top- and bottom-line growth and margin expansion. In China, our portfolio continued to premiumize and grow bottom line despite a soft industry. Our mega brands are the top brands in each market that make up the majority of our volume today and are expected to drive the majority of our growth going forward...."

Dr. Paul Collins, R&D Packaging Director, Europe Foods, PepsiCo., "No one wants to see plastic waste in the environment, and we have to play a role in addressing that. I'll be talking about what PepsiCo has been doing to build a world where plastic need never become waste, how we're reducing the packaging we use, ensuring more can be recycled and reused and looking at ways to reinvent packaging with new materials and models…"

Demand for aluminium cans is expected to continuously grow, especially from new regions in South America and Asia, driven by growth in premium energy drinks, seltzer (incl. hard seltzer), carbonated drinks, alcobev, ready-to-drink mixers, etc. For instance, the number of cans sold by Red Bull globally increased from 5.2bn in 2012 to over 12bn in 2023.

According to a market survey conducted by 'imarc', India's aluminium can market is expected to outstrip the global 4% growth rate. It is likely to record more than a 5% CAGR over FY24-32 to ~64bn cans (~10% of global can demand). Growth would be driven by rising consumption of energy, sports and carbonated drinks, and alcobev, etc.

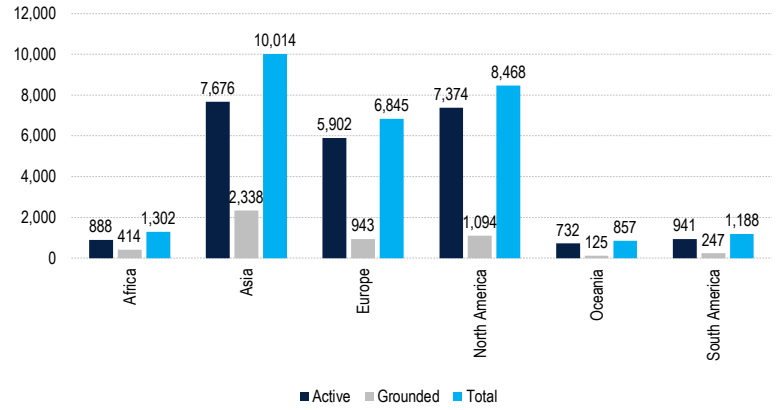
Growth in air passenger traffic to drive demand for aerospace aluminium

Global air passenger traffic in 2024 surpassed 2019 traffic, to 9.7bn passengers (106% of the 2019 level). It is expected to record a 4.3% CAGR over FY23-42 and cross 20bn by 2042 and 25bn by 2052. As air traffic increases, demand for aircraft would grow, further driving demand for aluminium FRP.

With 28,600 commercial aircraft in service (excl. private airlines), and the record order backlog of Boeing and Airbus, demand for aluminium FRP is expected to clock a ~5% CAGR over FY23-30. Amid growth in air traffic, OEMs are forecasting ~40,000 new aircraft required, ~80% expected to be single-aisles. Of the added aircraft demand, 40% is expected from Asian countries. Novelis entered the aerospace segment on acquiring Aleris. The share of the aerospace category is ~3%, expected to grow.

Mr. Salil Gupte, President, Boeing India on the aviation growth opportunity in India, "We see no slowdown (in India) and we continue to see very high load factors, extremely high rates of profitability among the airlines and extremely strong demand for aeroplanes as we have seen in some of the largest orders ever placed in the world…. Overall, we see demand growing. We are also seeing significant advancements in infrastructure as new terminals come up... new greenfield airports come up...That is going to be a boon to Indian aviation…"

Fig 47 – Global fleet size



Source: ch-aviation (Jun'22), Anand Rathi Research

Specialty vertical to grow slower

The specialty vertical, which caters to construction and infrastructure, is expected to grow slower (in line with geographical GDP), than in the past. This vertical is faced with headwinds due to a slowdown in infrastructure spending in some of the major economies, and in the construction sector, high interest rates, the inflationary environment, etc.

Domestic aluminium demand expected to double by FY33

Domestic aluminium demand is expected to double, from 4.5m tonnes in FY23 to 9m in FY33, driven by the increase in urban housing, F&B, infrastructure, pharmaceuticals, EVs, kitchenware, Railways, machinery, etc.

Building and Construction. India is expected to emerge as the third largest market by FY33 for B&C, and demand for aluminium is expected to grow from 350k tonnes to 719k tonnes over the next decade. Growth in urban housing, and premium residential & commercial projects would drive demand for façades, formworks, roofings and hardware. This sector, which is expected to register a 7% CAGR over FY23-33, will grow rapidly till FY25 but plateau thereafter. The company has also set up brand 'Eternia', for the construction sector. Under this brand, it offer building solutions for doors and windows.

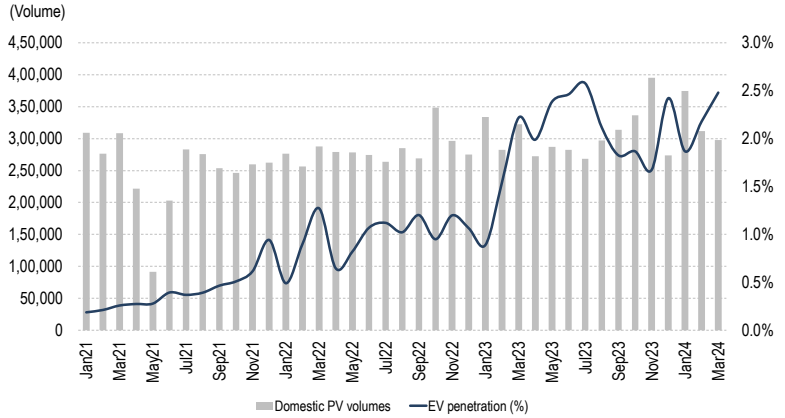
Packaging. The packaging vertical is expected to grow from 359k tonnes in FY23 to 766k tonnes in FY33. Growth in pharmaceuticals, F&B, energy drinks, alcobev, ready-to-cook and ready-to-eat, ban on plastics and rise in online food delivery are catalysts for the aluminium packing category. According to a market survey conducted by 'imarc', India's aluminium can market growth (a 5% CAGR) is expected to surpass the global 4% growth rate over FY24-32, reaching ~64bn cans.

Automobile/transportation is expected to register an 8% CAGR, while demand would grow from 1.68m tonnes in FY23 to 3.7m in FY33. Further demand would come from engine castings, auto fins/cladding, cylinder blocks, alloy wheels, steering wheels, CMS, etc. India's focus on increasing the proportion of EVs in two-, three- and four-wheelers, along with manufacturing lightweight, fuel-efficient vehicles should augur well for the sector. Aluminium consumption in the automobile sector is expected to significantly increase, triggered by the 'Make in India' push. The metal has a higher strength-to-weight ratio, twice the crash-energy-absorption ratio than. carbon steel, is lightweight and corrosion-resistant, which help

enhance vehicle performance. Average per car consumption of aluminium in India is expected to be ~40-45kg, one-fourth the global average (160-200kg). With greater demand for EVs and lightweight, fuel-efficient cars, demand from the automobile sector for aluminium would grow. The company has started manufacturing lightweight bodies for CVs (annual capacity: 10,000 bodies).

Mr. Shailesh Chandra, Managing Director, Tata Motors Passenger Vehicles. on robust demand for EVs in India, "I think with the adoption and strength of our products, we remain the best sellers. And therefore, with the additional product that we have launched now and additional two products which will be coming in the latter part of this year, I think we should be definitely thinking of volumes beyond 1 lakh. So that would be the target."

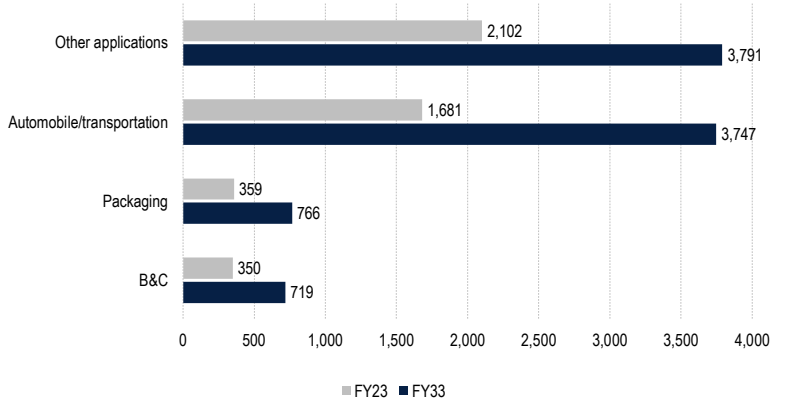
Fig 48 – Domestic EV penetration (four-wheelers)



Source: Industry, Anand Rathi Research

Other applications. Aluminium is also used in electricals, consumer durables, kitchenware, machinery, railways, printing, etc. This vertical is expected to clock a 6% CAGR, with demand rising from 2.1m tonnes in FY23 to 3.8m in FY33.

Fig 49 – Growth across sectors (k tonnes)



Source: Company, Anand Rathi Research

Aluminium sector at a glance

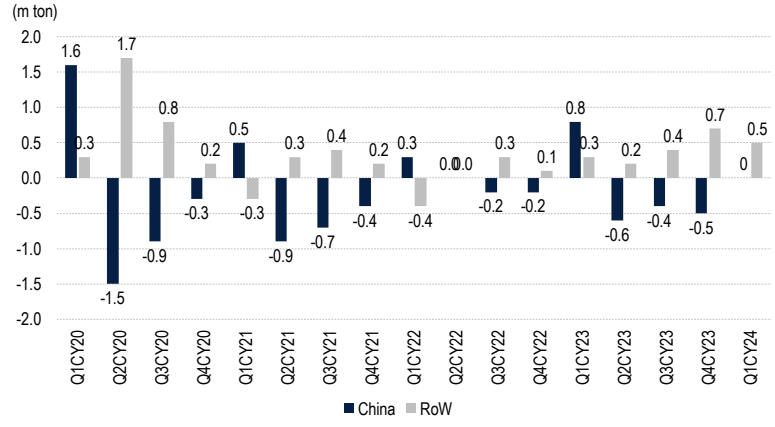
Aluminium, the future-ready metal

The second highest metal consumed after steel, aluminium has started replacing it in several applications thanks to its properties. Aluminium required globally is pegged at ~97m tonnes (primary 70m tonnes, the rest secondary). As secondary aluminium production utilises 95% less electricity, its share is expected to gradually increase, further driving greener metal growth. As the CBAM timeline in phase II intensifies from Jan'26, it would further facilitate green aluminium required, which can be achieved by using more recycled content combined with more RE.

China is the largest primary aluminium producer at ~59%, followed by the Gulf's ~9%, Asia's (excl. China) ~7%, Russia's (incl. eastern EU) ~6% and North America's ~6%. Aluminium consumption in China is to register ~3.5% CAGR over FY24-27, outstripping the average global consumption 3% growth rate. The IAI says aluminium demand by 2030 is likely to be 119.5m tonnes, with ~14m added demand coming from North America and Asia (excl. China) and 12.3m from China. The transportation sector, with ~12m tonnes of added demand, utilises most of the secondary aluminium, which would aid the next leg of growth.

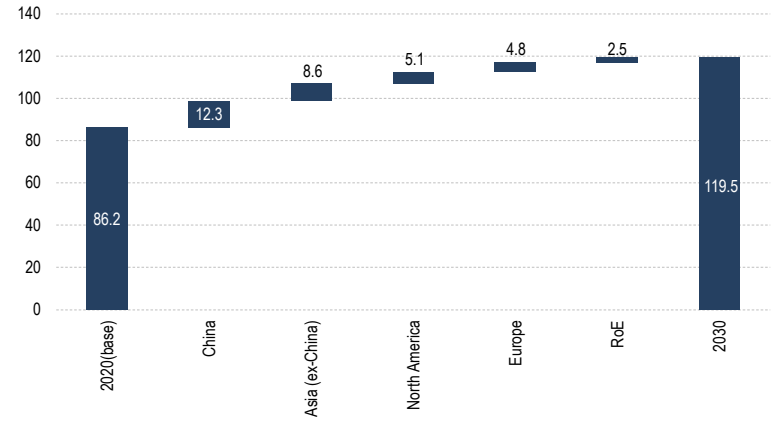
China's secondary aluminium demand is expected to cross 11.5m tonnes by FY25, driven by the government's 'new products campaign' push, tax benefits to use more recycled content, government-imposed cap on primary aluminium smelting at 45m tonnes and its carbon-neutrality target. Though the proportion of secondary aluminium is likely to increase to 27-28% of primary aluminium, the ratio is still lower than that of the US (65%) and the global average (33%).

Fig 50 – Global aluminium balance; the world (excl. China) had a 0.5m tonne surplus



Source: Company, Anand Rathi Research

Fig 51 – Added aluminium demand globally

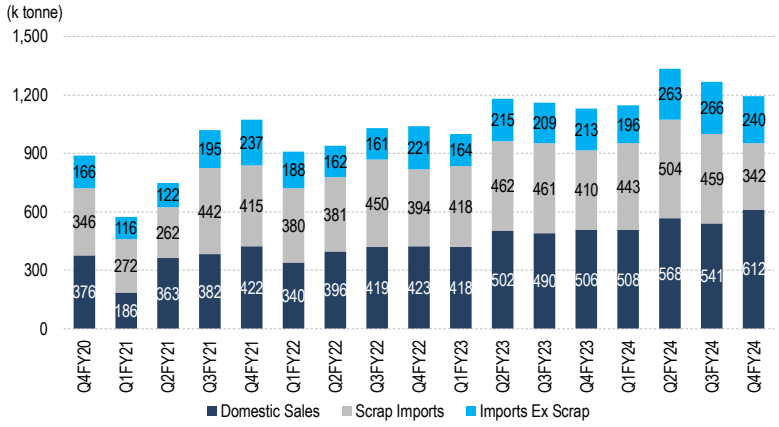


Source: IAI, CRU (Opportunities for aluminium in a post covid economy), Anand Rathi Research

Domestic aluminium demand in CY23 was 4.8m tonnes (addressed via domestic production and imports), expected to nearly double by FY33 to ~9m tonnes. India has three major primary aluminium manufacturers: Vedanta, Hindalco and NALCO. Domestic capacity is ~4.2m tonnes and Vedanta is the largest producer of primary aluminium in the country. Except for it, which is undertaking capex for a 0.6m-tonne primary smelter, no other aluminium manufacturer is adding primary smelting capacity in the near term (Hindalco plans to enhance 180k tonnes, subject to 100MW of RTC power available). Considering the domestic demand-supply mismatch, we believe aluminium imports would not shrink in the near term (imports excl. scrap rose ~23% in FY24 to ~1m tonnes), unless primary or secondary plants come on stream.

India's aluminium consumption, now at ~2.5kg/pp, still lags the global average of ~11kg. To reach that figure, India would require an additional ~16m tonnes of capacity.

Fig 52 – Strong domestic aluminium demand driven by electrical, auto and B&C



Source: Company, Anand Rathi Research

Fig 53 – Domestic peers' capacities

Capacities (m tonnes)	Hindalco	Vedanta	NALCO
Alumina	3.9	2.2	2.1
Aluminium	1.3	2.4	0.46
Market Share (~%)	27	47	10

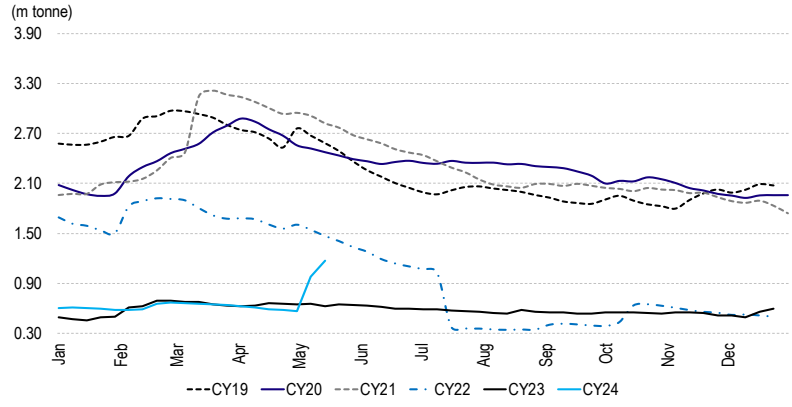
Source: Company, Industry, Anand Rathi Research

After the recent ban on Russian metal by the LME and the CME, aluminium prices soared to over $2,675 a tonne. A similar rally was seen in 2022 when G7 countries-imposed sanctions on Russian metal due to the conflict with Ukraine. Since 2022, China has emerged as Russia's last resort; though, with the recent slowdown in China, the quantum of imports from Russia is expected to be muted in the next few months. We believe that, considering aluminium's wide use in vehicles, consumer durables and high-tech industries, prices >$2,500-2,600 may be unsustainable (affordability would be a challenge). Novelis, being the largest FRP manufacturer in the western hemisphere, is expected to benefit the most from the ban on Russian metal.

Fig 54 – Aluminium LME prices ($ / tonne)

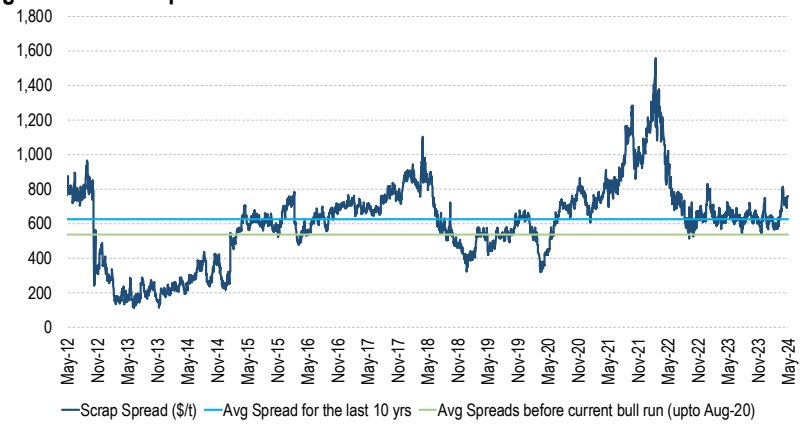
Source: Bloomberg, Anand Rathi Research

Fig 55 – Aluminium inventory



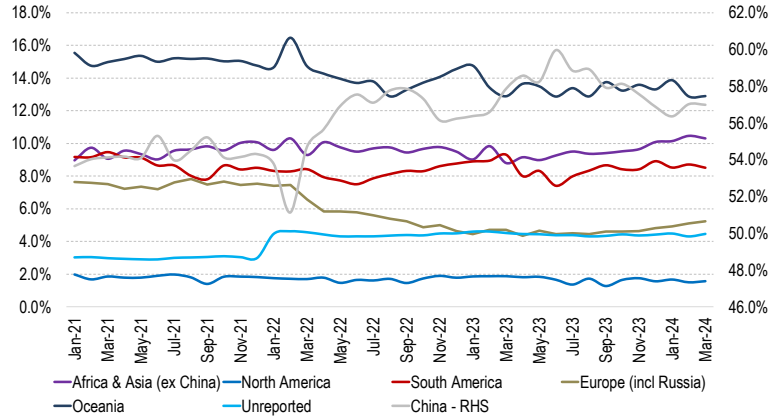
Source: Bloomberg, Anand Rathi Research

Fig 56 – UBC scrap chart



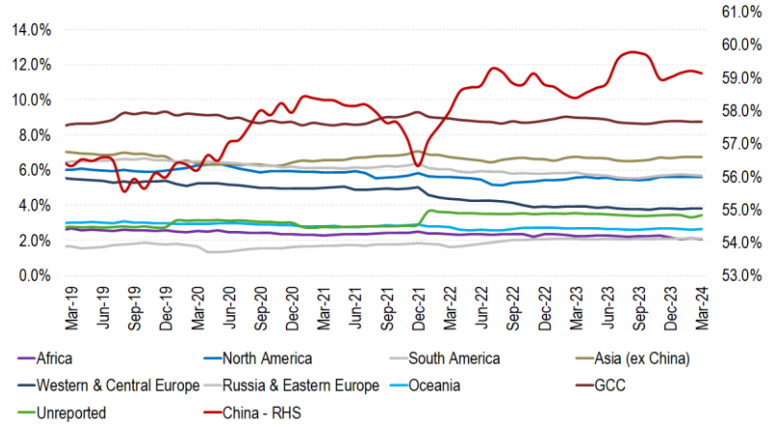
Source: Bloomberg, Anand Rathi Research

Fig 57 – Global alumina production (monthly)



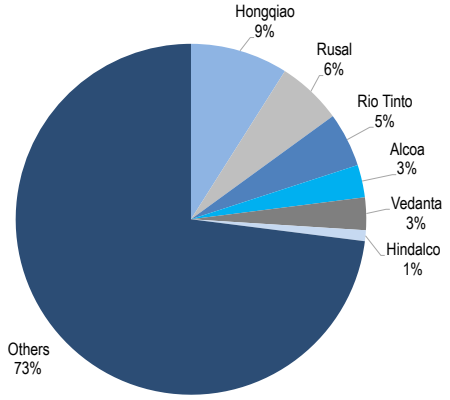
Source: IAI, Anand Rathi Research

Fig 58 – Global primary aluminium production (monthly)



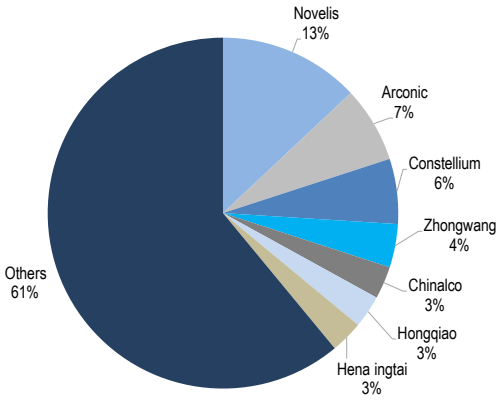
Source: IAI, Anand Rathi Research

Fig 59 – Global *primary* aluminium producer market share



Source: Industry, Anand Rathi Research

Fig 60 – Global *secondary* aluminium producer market share



Source: Industry, Anand Rathi Research

Support from sectors such as advanced ceramics, electronics, flame retardants, etc. is expected to support to domestic speciality alumina, expected to outstrip global demand. Demand for high crystalline alumina and activated alumina products (a 12% CAGR over FY23-FY33) is expected to grow more than the 5% global CAGR, driven by mobility, Defence, pharma and petrochemicals. Similarly, demand from flame retardants is expected at 888k tonnes by FY33.

Fig 61 – Global and domestic specialty alumina demand

Sector	Domestic CAGR over FY23-FY33 (%)	Domestic demand (FY33) k tonnes	Global CAGR over FY23-FY33 (%)	Global demand (FY33) k tonnes
Advanced ceramics/catalyst	12	60	5	964
Flame retardants	15	118	6	1,591
Refractories	11	888	5	3,649
Electronics	22	9	7	543
Solid surface	11	22	6	279

Source: Company, Anand Rathi Research

The copper sector at a glance

Annual demand for refined copper is ~25m tonnes. Global copper reserves are ~870m tonnes. As with other ferrous and non-ferrous metals, China leads, with ~44% of global production, and >50% of consumption. As in aluminium, the trade balance in copper is small, a 0.2m-tonne surplus in CY23. A supply crunch, however, from major copper-producing countries is expected to swing the global surplus to deficit over the next few years.

Unlike other metal super-cycles, copper has entered a structural long-term cycle, with ores shrinking, expected to hamper smelter productivity. Demand, however, is expected to grow rapidly for new-age sectors (data centres, telecoms, EV, RE, energy, etc.). We believe that, in line with the structural long-term build-up, copper prices are not expected to cool off and would be above $9,500/tonne.

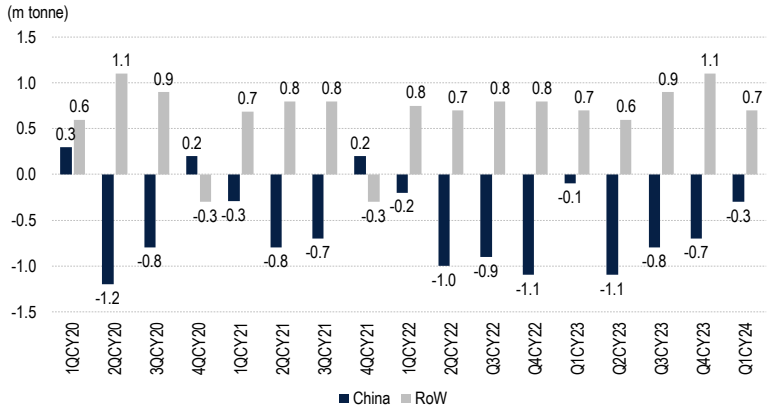
Demand in India for copper is expected at ~1.5m tonnes, two-thirds met via primary copper, the balance, secondary. After the closure of Vedanta's copper operations, Hindalco is the only major copper manufacturer in India (a ~36% market share). We believe that the Adani Group entering the sector by setting up a 1m tonne smelter in Kutch in two phases would gradually replace copper imports. On completion of the plant (~4 years to ramp up), the sector is expected to be a duopoly.

India's copper consumption is <1kg/pp (global average 4kg, China 10.7kg). However, per capita consumption in India is expected to pick up; demand for primary copper is expected to double by FY33 and reach 4m tonnes by FY47. Demand would be driven by growth in EVs, new-age lifestyles consumer products, urbanisation, RE, energy, IT, kitchenware, films/alloys, etc.

Copper in EVs is expected to grow 3-4x and its demand from the transport sector is expected at 270k tonnes by FY33. Urbanization and RE are expected to be growth catalysts with demand from urban housing and infrastructure expected at 654k tonnes (a ~6% CAGR) and copper use in RE at 191k tonnes (a >6% CAGR) by FY33. Other new age sectors (data centres, sensors, cables, etc.) are expected to grow from 139k tonnes to 217k tonnes by FY33.

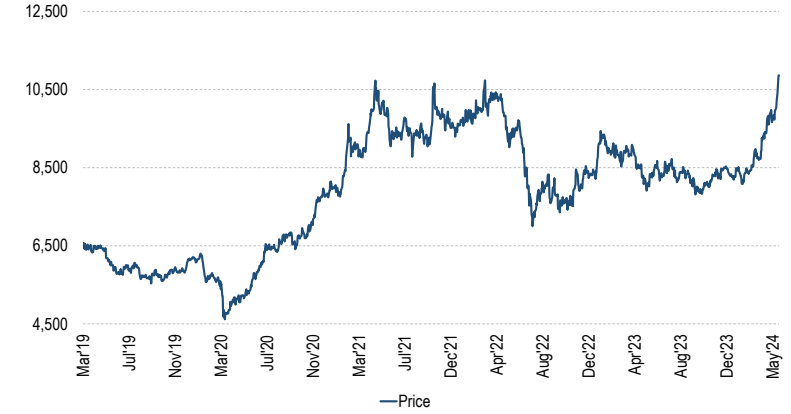
Domestic demand for refined copper in FY24 increased by 9.5% to 818k tonnes which was partially meet via imports of 244k tonnes. Demand increased in line with growing market demand for VAP.

Fig 62 – Global copper balance



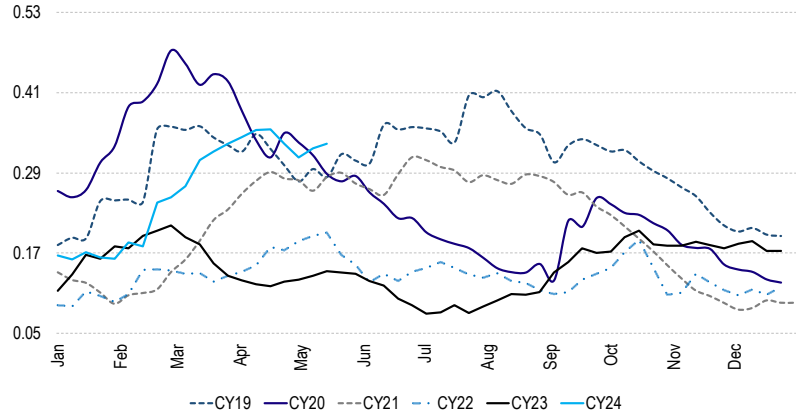
Source: Company, Anand Rathi Research

Fig 63 – Copper LME prices ($ / tonne)



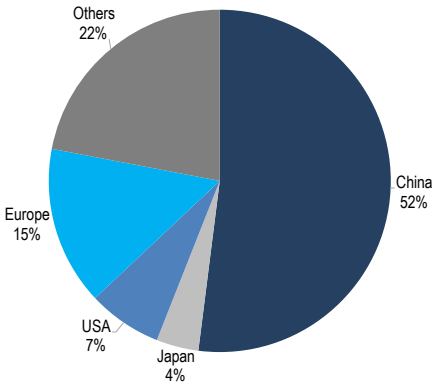
Source: Bloomberg, Anand Rathi Research

Fig 64 – Copper inventory



Source: Bloomberg, Anand Rathi Research

Fig 65 – Global copper demand



Source: Bloomberg, Anand Rathi Research

Metals flagship of a global conglomerate

A flagship metals company of the Aditya Birla Group, Hindalco is a multinational conglomerate into metals, pulp and fibre, chemicals, textiles, carbon black, telecoms and cement.

Incorporated in 1958, the company has strong operations in four verticals: Novelis, aluminium upstream and downstream and copper. It is one of the largest integrated non-ferrous metal companies, with a full suite of offerings in packaging, B&C, transportation, aerospace, new-age sectors, etc.

Novelis is the largest FRP manufacturer and recycler globally and operates the third largest copper cathode-rod plant outside China. It is also the largest aluminium downstream manufacturer in India, offering customised FRP and extrusion products.

Fig 66 – Diversified domestic offerings

Operations	Products	Sector	Brands
Upstream aluminium (incl. bauxite mining, alumina refining and primary smelting)	Alumina, ingots, billets and wire rods, etc.	Beverage packaging, automotive and transport, aerospace, pharmaceuticals, food packaging, consumer durables, kitchenware, B&C, electricals, industrial application, alternate energy, etc.	Eternia, Maxloader, Hindalco Extrusions, Hindalco Everlast, Freshwrapp, Superwrap
Downstream aluminium (VAP)	FRP, foils, extrusions, recycling, etc.		
Copper	LME grade copper cathodes, continuous cast copper rods, etc.	Automotive and transport, consumer durables, electrical equipment, wires and cables, railway electrification, EV and RE	Birla Copper, Birla Copper-II, Birla Balwan
Chemicals	Coarse alumina hydrate, metallurgical alumina, specialty alumina and alumina hydrate	Advanced ceramics and catalysts, refractories, polishing, glass, electrical, electronic equipment, water treatment (Alum/PAC), fire retardant fillers: cables and composites	-

Source: Company, Anand Rathi Research

It has 19 manufacturing plants, and many bauxite and coal mines in India and 33 internationally (17 with recycling capacities).

Fig 67 – Novelis' global operations

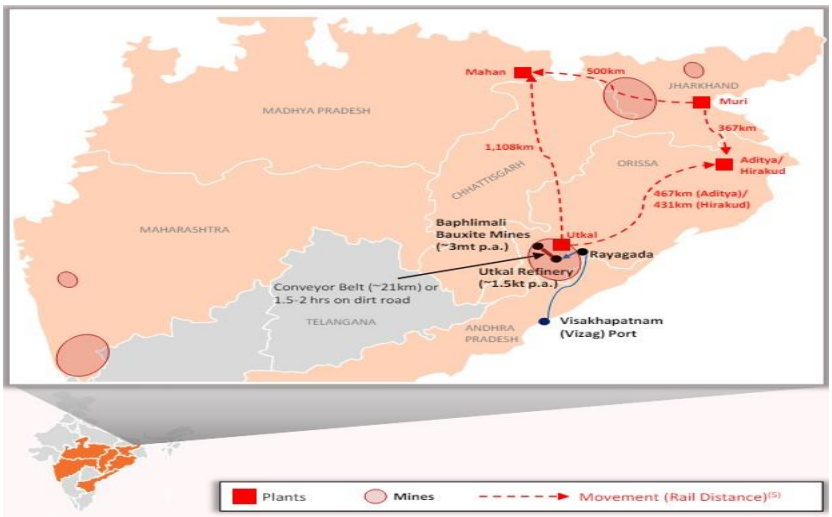
Source: Company

Fig 68 – Domestic operations at a glance

Operations	Location	
Bauxite mining	Jharkhand, Odisha, Chhattisgarh, Maharashtra	27 leases; EC ~15m tonnes
Coal mining	Chakla, Meenakshi, Meenakshi West, Kathautia and Gare Palma IV/4	Already surrendered Gare Palma IV/5 and Dumri mines Chakla box cut expected by Q3 CY25 Awaiting clearances for Meenakshi and Meenakshi west mines
Alumina refining	Utkal: 2,450k tonnes Belagavi: 340k tonnes Muri: 350k tonnes Renukoot: 710k tonnes	**Utkal:** Has captive bauxite reserves at Baphlimali, with R&R of over 25 years; one of the lowest alumina producers globally **Belagavi:** Established in 1969, the 1,182-acre facility also houses R&D and a carbon paste plant; predominantly, an export-oriented unit of special alumina and alumina hydrates for non-metallurgical applications; serves over 600 customers across 32 nations **Muri:** Commissioned in 1948, it is India's first alumina refinery; The facility is spread over 334.2 acres. **Renukoot:** Established in 1962, the facility is present across the aluminium value-chain, including VAP downstream products and extrusions
Aluminium smelting	Aditya: 360k tonnes Hirakud: 216k tonnes Mahan: 359k tonnes Renukoot: 410k tonnes	**Aditya**: Smelter in Lapanga, Sambalpur, Odisha, is supported by 6 x 150MW coal-based captive power. Alumina sourced from Utkal **Hirakud**: Commissioned in Apr'13, it is one of the lowest cost rolling complex in the world catering to foil stock, closure stock (for bottle caps), fan blade stock, electronic panel stock, etc. The 50-acre facility in Sambalpur, Odisha, is fed by 85% from CPP under an OA arrangement; Hirakud FRP has been set-up primarily by relocating and modernising Novelis' Rogerstone plant assets. **Mahan:** Located in Singrauli, MP, the facility is supported by a 6 x 150MW power plant. The facility houses 360 pots and alumina is sourced from Utkal and Muri. >40% is exported to the US, Japan, Korea, Mexico, etc. **Renukoot:** First integrated aluminium complex in India, the facility is spread over 1,056 acres and has presence across the aluminium value-chain, including VAP downstream products and extrusions
Aluminium downstream	FRP: Hirakud, Belur, Mouda, Renukoot and Taloja Extrusions: Renukoot and Alupuram Foil and packaging: Silvassa and Mouda	**Belur**: India's first producer of aluminium pressure cooker **Sectors:** Kitchenware (cooker, cookware, and consumer durables), Pharma (containers and foils), Singages (construction and transportation), cryogenic cans (O&G), aluminium LPG cylinders, antenna (telecom), etc. **Major customer:** Hawkins, Prestige, Cello, Anantha, Nirlep, Pigeon, etc. **Extrusion products**: rods (upto 320mm dia), flats (upto 425mm w) and tubes (upto 252.4mm dia) **Hindalco-Almex Aerospace**: Situated in Aurangabad, it is the only manufacturer of high-performance to aerospace/defence grade aluminium hard alloys in India; the 12,000-tonne facility manufactures aluminium hard alloy billets and slabs in a wide range of 2xxx, 6xxx and 7xxx alloy series
Copper	Dahej and Asoj	**Dahej:** One of the largest single-location copper smelters in the world, with integrated port facilities. The plant utilizes technology from Outo Kumpu's Flash Technology (Finland), Ausmelt Technology (Australia), Mistibushi Technology (Japan). Copper cathodes are square shaped, with 99.99% copper purity levels, produced using the Mount ISA electro-refining process

Source: Company, Anand Rathi Research

Fig 69 –RM security



Source: Company

Fig 70 – Novelis' global footprint (excl. R&D and regional head offices)

Continent	Facility	
Asia (~600k tonnes)	Changzhou, Jiangsu Province, China	Auto sheets for LV structures and body panel
	Ulsan, SK	Auto and specialty sheets
	Yeongju, SK	Can FRP, packaging FRP, construction FRP
Europe (~1.2m tonnes)	Göettingen, Germany	Surface treatment and coating
	Koblenz, Germany	HR plate, sheet, and coil
	Nachterstedt, Germany	Aluminium ingot and CR aluminium; one of the largest recycling units in the world
	Neuss, Germany	One of the largest aluminium rolling and casting facilities in the world
	Ohle, Germany	CR products for packaging, cable, food, automotive and caravan industry; OHLER® Packaging Systems and OHLER® Flexible Tubes
	Voerde, Germany	Custom billets for automotive and aerospace sectors
	Bresso, Italy	Pre-painted and bright finish rolled aluminium; sheet with specialty finishes for facades and architectural exteriors and interiors
	Pieve, Italy	Integrated sheet mill with continuous casting capability; supplies aluminium coil to Bresso facility; also manufactures shipping sheet and coil
	Usine de Sierre, Switzerland	Fully integrated system from casting to finishing; CR and HR mill operates a continuous annealing line
	Latchford, UK	Europe's largest UBC recycling plant and the largest closed-loop recycling for automotive aluminium rolled products
North America (~1.6m tonnes)	Ashville, Ohio, USA	Residential aluminium building and remodelling products
	Berea, Kentucky, USA	Recycles ~20% of beverage cans in the US
	Buckhannon, West Virginia, USA	Produces 1,350 and 1,100 alloys catering to the electrical conductor industry and other light-gauge applications and has ventured into 3,003 alloys for cookware
	Davenport, Iowa , USA	Utilises specialised blending, melting and CC processes to produce high-quality aluminium sheet
	Fairmont, West Virginia, USA	435 various sheet and light-gauge fin/foil products
	Greensboro, Georgia, USA	First stand-alone UBC recycling facility
	Guthrie, Kentucky, USA	Automotive aluminium finishing industry
	Lincolnshire, Illinois, USA	CR aluminium
	Russellville, Kentucky, USA	Supplies more than one-third of total beverage cans in the US
	Oswego, New York, USA	Largest fabrication facility in North America catering to automotive, beverage can and B&C
	Richmond, Virginia, USA	Utilises pellet casting technology to produce aluminium rolled sheet for B&C
	Terre Haute, Indiana, USA	World-class light gauge aluminium rolling plant catering to semi-rigid foil container stock and wide industrial fin. stock
	Uhrichsville, Ohio, USA	Rolling mill
	Warren, Ohia, USA	Produces more than 1bn can lids per month
	Kingston, Ontario, Canada	CR and specialty /industrial products for marine, transportation, and industrial applications
South America (~700k tonnes)	Utinga, Brazil	Aluminium foil products catering to automotive, pharmaceuticals, electrical, and household and consumer goods
	Pinda, Brazil	Aluminium sheet for beverage cans, packaging and industrial
	Centros de Coleta, Brazil	14 aluminium can scrap collection centres

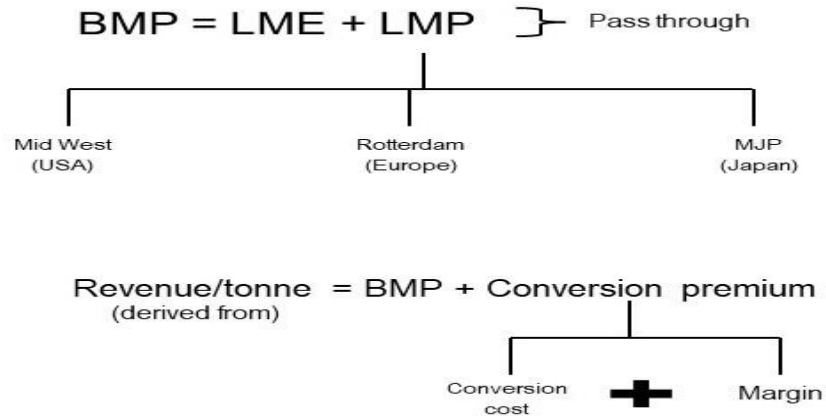
R&D facilities at Kennesaw and Spokane (USA), Gottingen (Germany), Sierre (Switzerland), Ulsan (South Korea)
Source: Company, Anand Rathi Research

Novelis BMP calculation

The local market premium (LMP) and LME price which form the base metal price (BMP) are the pass-through (market) price. The company contracts with its customers a conversion premium, which comprises the conversion cost and margins. Hence, increased conversion costs might squeeze margins, and vice-versa.

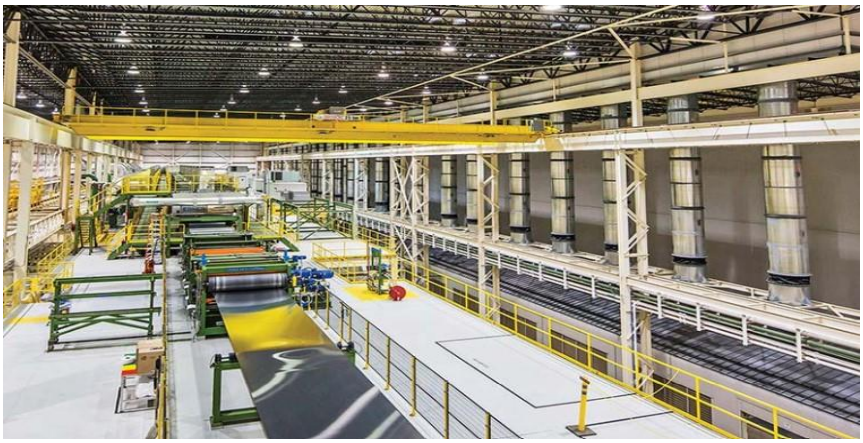
Scrap prices are a certain percentage of metal prices; hence when metal prices change, the scrap price percentage might not change. It would, however, increase or decrease in absolute terms depending on cyclicality.

Fig 71 – Base metal price (BMP) calculation for Novelis



Source: Company, Anand Rathi Research

Fig 72 – Novelis FRP facility

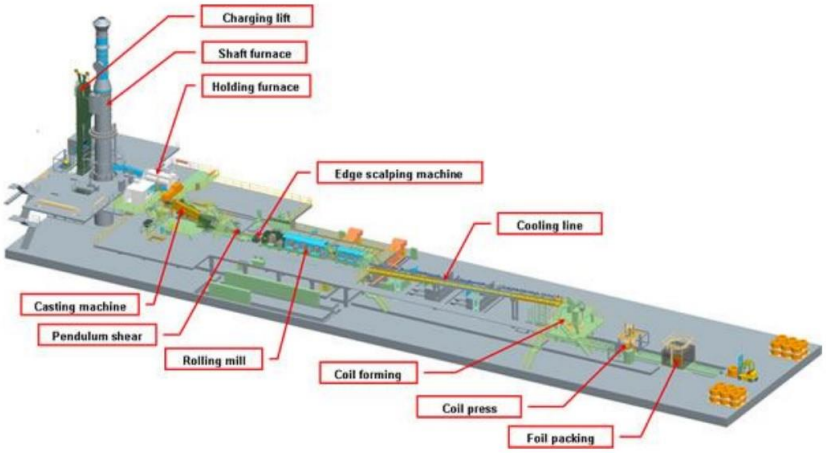


Source: Company

Fig 73 – Dahej facility

Source: Company

Fig 74 – Dahej (CC copper rod) plant process flow; can produce rods in diameters of 8, 11, 12.5, 16. 19.6, 21, 23 and 26mm



Source: Company

Fig 75 – ~18km conveyor belt from Baphimali mine to Utkal

Source: Company

Fig 76 – Utkal alumina refinery

Source: Company

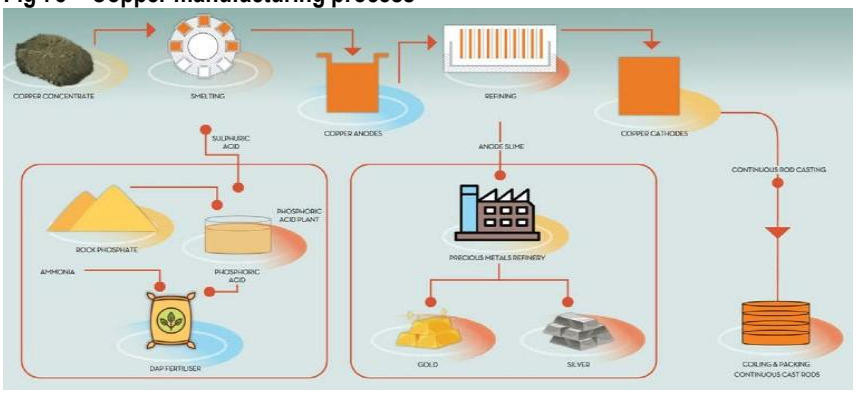
Fig 77 – Major aluminium brands

Product	Brand
Aluminium FRP	 HINDALCO Everlast Aluminium Roofing & Structurals
Foil and packaging	 Freshpakk Freshwrapp SUPERWRAP
Windows and doors extrusion	 ETERNIA
Maxloader	 HINDALCO MAXLOADER

Source: Company, Anand Rathi Research

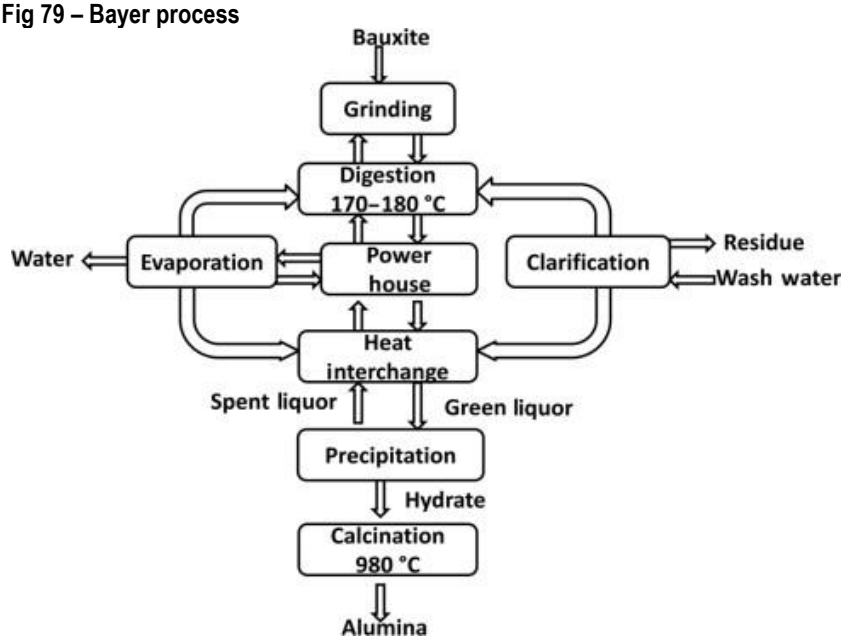
Manufacturing process

Fig 78 – Copper manufacturing process



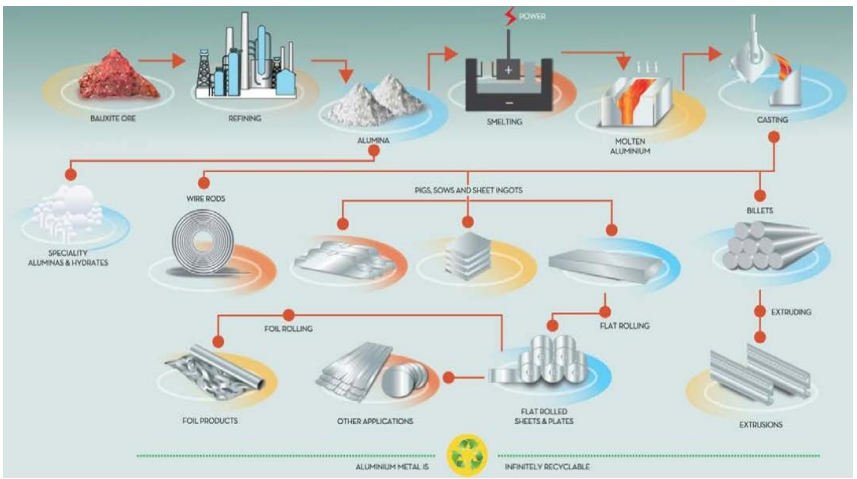
Source: Company

Fig 79 – Bayer process



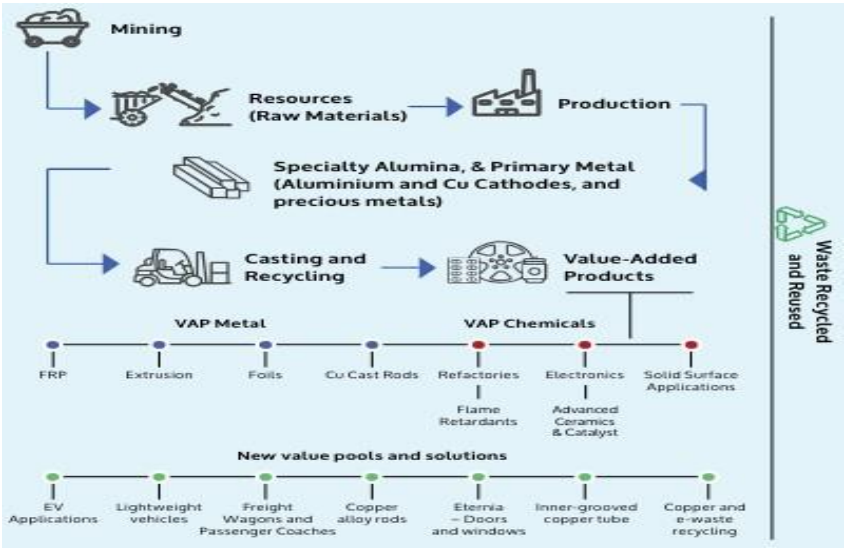
Source: Industry

Fig 80 – Aluminium manufacturing process



Source: Company

Fig 81 – Company's process flow



Source: Company

Management profile

A CA and an MBA from the London School of Business, **Kumar Mangalam Birla** is **chairman** of the company and of the Aditya Birla Group, which operates in 36 countries and six continents.

CEO of the aluminium business from Aug'13, and a mechanical engineer from IIT Madras **Satish Pai** became **managing director** in Aug'16. He was earlier associated with Schlumberger for 28 years.

A CA and an MBA from IIM-A, **Chief Financial Officer Praveen Kumar Maheshwari** joined the organisation in Dec'11; between Jul'19 and Apr'21 he was CEO of the copper business. He has 41 years' experience across different domains.

Associated with Novelis since'06, with a CPA and bachelor's degree in A&F from the University of Iowa, **Steve Fisher (Chief Executive Officer, Novelis)** has held many executive positions, including CFO. Prior to this, he was VP, Strategic Planning and Corporate Development.

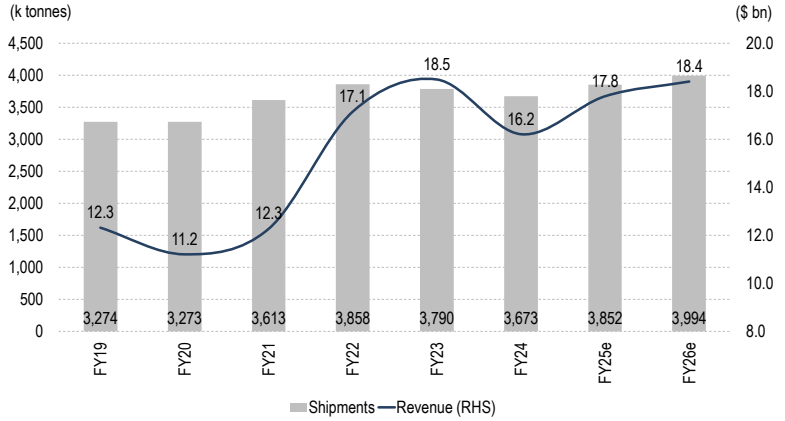
A CA with a GM programme from Fontainebleau, France, **Devinder Ahuja (Chief Financial Officer, Novelis)** oversees various aspects of the company's financial functions and activities, including accounting, Treasury, global financial planning and analysis, global tax compliance, investor relations and finance transformation.

Financial analysis

Novelis shipments, a 4% CAGR over FY24-26; revenue, 7%

Novelis, which operates at ~92% capacity is expected to reach 4.37m tonne capacity by FY26. The planned capex would lead to favourable shifts in favour of the Americas and Asia, while the share of Europe is expected to contract. Shipments are expected to be ~4m tonnes by FY26 (in line with growth in global FRP shipments) and revenue, $18.4bn. As Bay Minette ramps up, the volumes are expected to cross 4.5m tonnes by FY29.

Fig 82 – Shipments to reach ~4m tonnes by FY26



Source: Company, Anand Rathi Research

Novelis' EBITDA per tonne to surpass $565

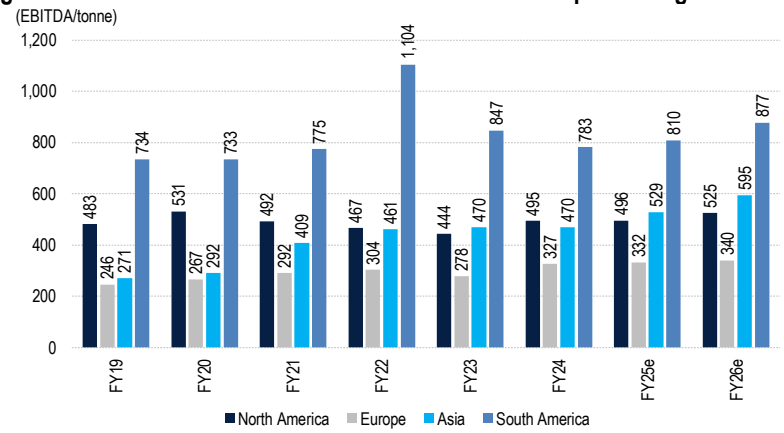
With Novelis exceeding in Q4 its EBITDA/tonne guidance of $525, we reckon that it could cross $565 by FY26 and $600 by FY27. EBITDA growth would come from reduced employee cost, higher recycled content, a larger share of high-margin products, lower operational costs, etc. the EBITDA margin is expected to rise to 12.3% (higher than in FY22).

Fig 83 – EBITDA per tonne to surpass $565 by FY26

Year	Shipments ('000 tonnes)	EBITDA / tonne ($)	EBITDA ($ m)
FY19	3,274	418	1,368
FY20	3,273	450	1,472
FY21	3,613	474	1,714
FY22	3,858	518	1,998
FY23	3,790	478	1,811
FY24	3,673	510	1,873
FY25e	3,852	525	2,024
FY26e	3,994	566	2,259
FY27e	4,076	600	2,445
FY28e	4,316	613	2,643
FY29e	4,556	630	2,870

Source: Company, Anand Rathi Research

Fig 84 – Asia and South America EBITDA/tonne to outstrip other regions

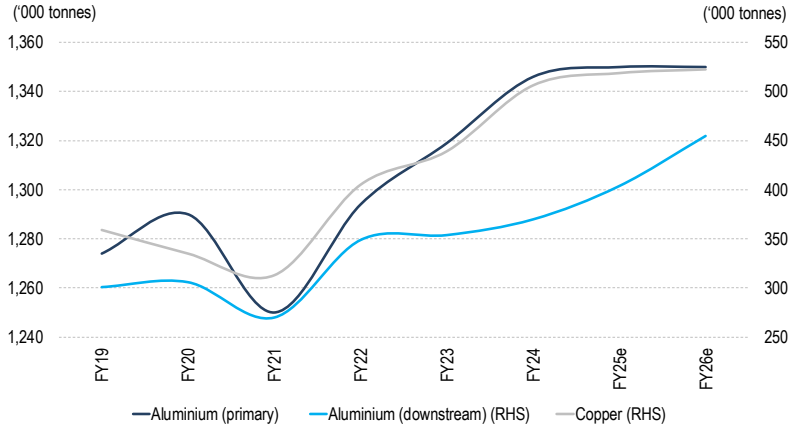


Source: Company, Anand Rathi Research

Domestic revenue to clock a 8% CAGR over FY24-26

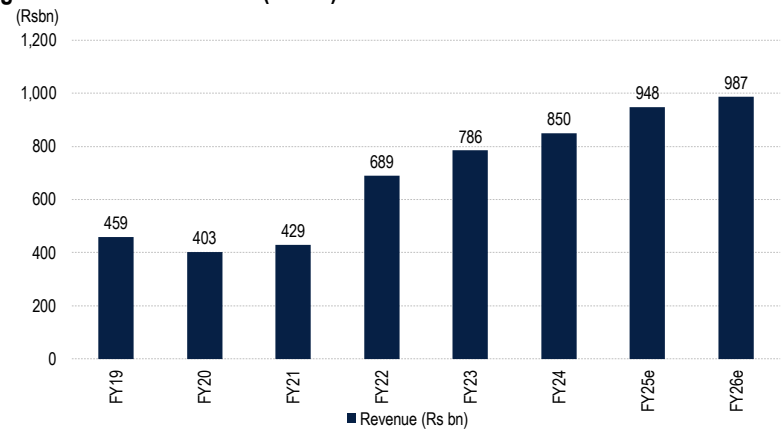
The aluminium upstream business is expected to register a ~9% CAGR over FY24-36; copper ~5%. Domestic business growth would be driven by the downstream aluminium business, expected to record a ~16% CAGR over FY24-26 (~34% of domestic capex is earmarked to enhance aluminium VAP capacities). The Silvassa extrusion plant has been commissioned; we have factored in 50% of its capacity in FY25 as it gradually ramps up. Similarly, we expect the Pune, Hirakud and Taloja plants to commence operations in FY25. As these are ramped up, we have factored in a portion in FY26e volumes. Domestic smelting volumes are to remain at 1.3m-1.35m tonnes.

Fig 85 – Domestic sales volumes ('000 tonnes)



Source: Company, Anand Rathi Research

Fig 86 – Domestic revenue (Rs bn)

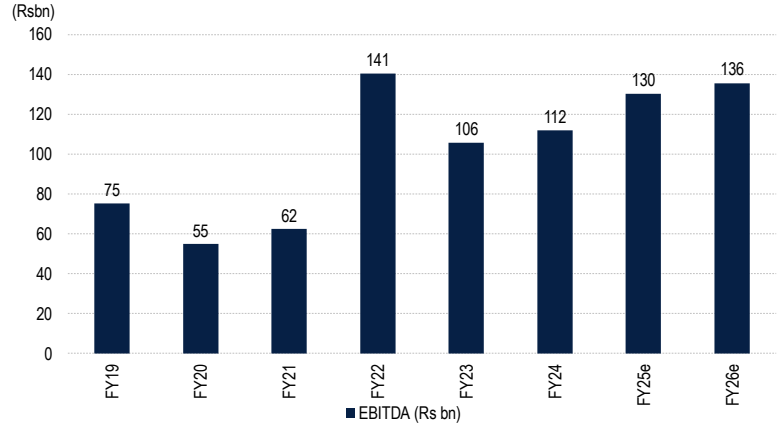


Source: Company, Anand Rathi Research

Aluminium downstream business to drive EBITDA

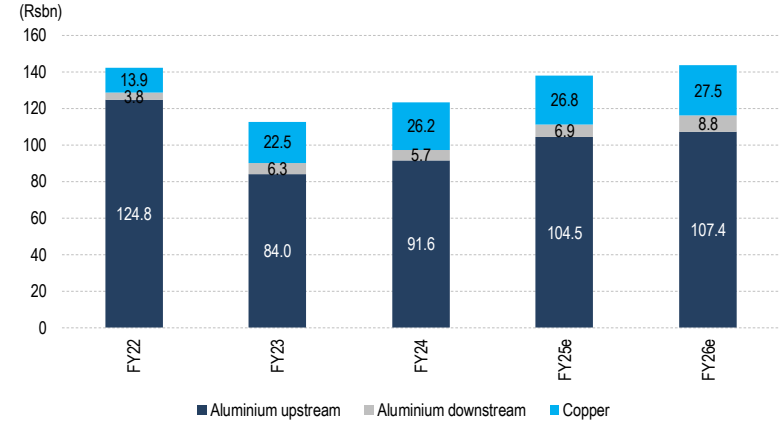
The company's $968/tonne upstream margin is far superior to Vedanta's $598/tonne. The share of downstream EBITDA in the domestic mix is expected to climb from 2.7% in FY22 to 6.5% in FY26, combined domestic EBITDA (aluminium+copper) is expected to reach Rs136bn (near the FY22 level).

Fig 87 - Domestic EBITDA (Rs bn)



Source: Company, Anand Rathi Research

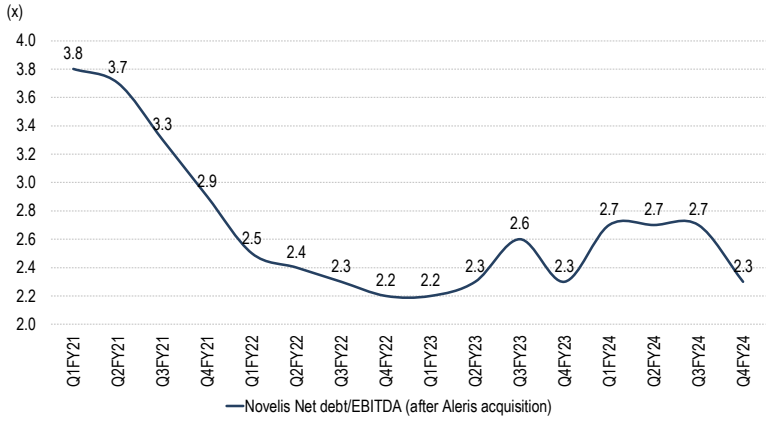
Fig 88 - Domestic EBITDA break-up (Rs bn) (excl. eliminations)



Source: Company, Anand Rathi Research

Novelis' net debt-to-EBITDA consistently improving, debt reduction in Q4 FY24 was a positive surprise

Fig 89 – Novelis' net debt-to-EBITDA

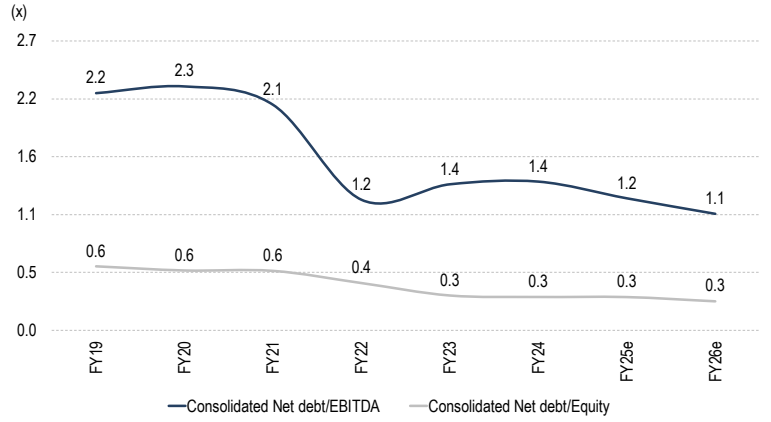


Source: Company, Anand Rathi Research

Consolidated net-debt-to-EBITDA to decline

As on Mar'24, standalone business was cash positive net debt/EBITDA stood at -0.3x

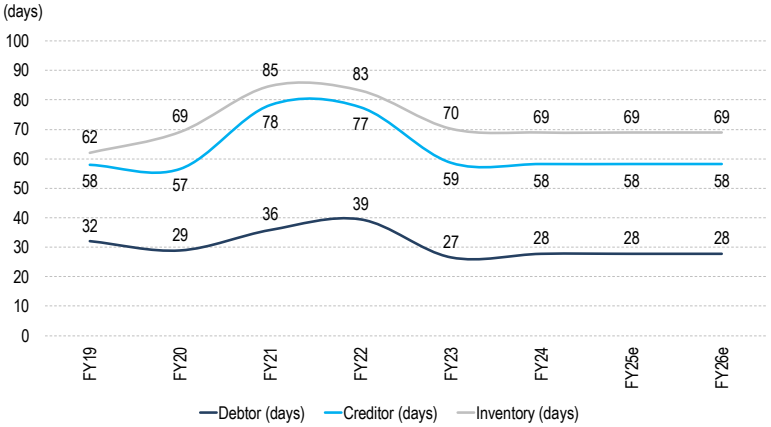
Fig 90 – Consolidated leverage position



Source: Company, Anand Rathi Research

Working capital of ~38 days

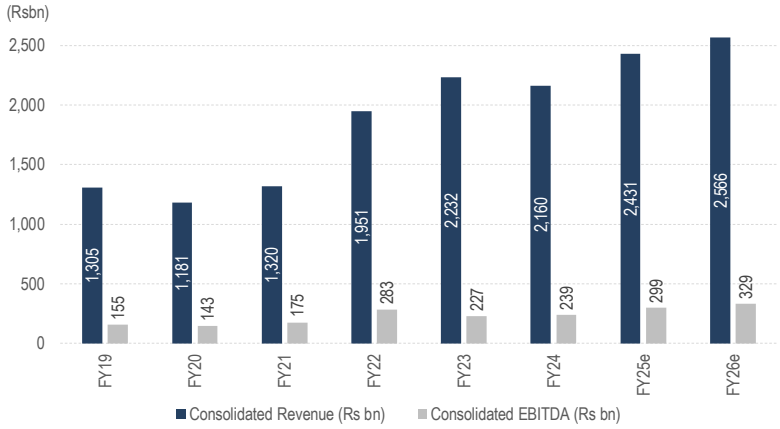
Fig 91 – Working capital cycle (days)



Source: Company, Anand Rathi Research

Consolidated revenue expected to register a 9% CAGR

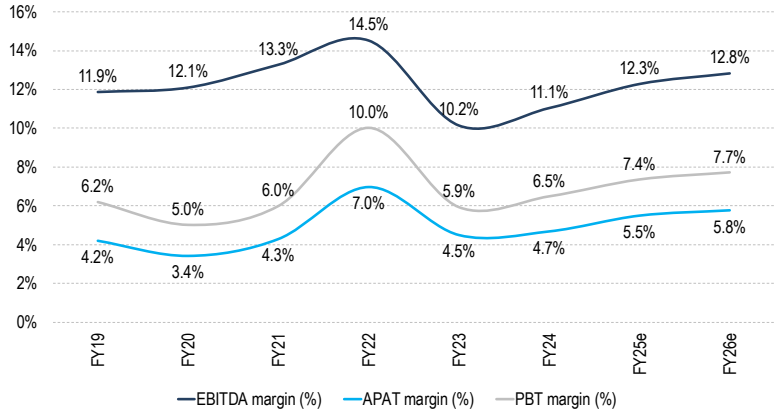
Fig 92 – Revenue expected to surpass Rs 2,500bn by FY26e; Novelis share in consolidated EBITDA to remain ~59%



Source: Company, Anand Rathi Research

Margins expected to improve

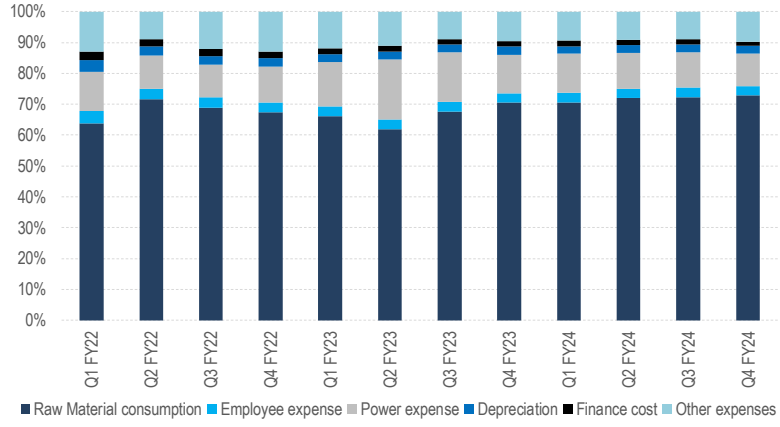
Fig 93 – EBITDA margin expected to touch 12.8% by FY26e



Source: Company, Anand Rathi Research

Standalone expenses break-up (%)

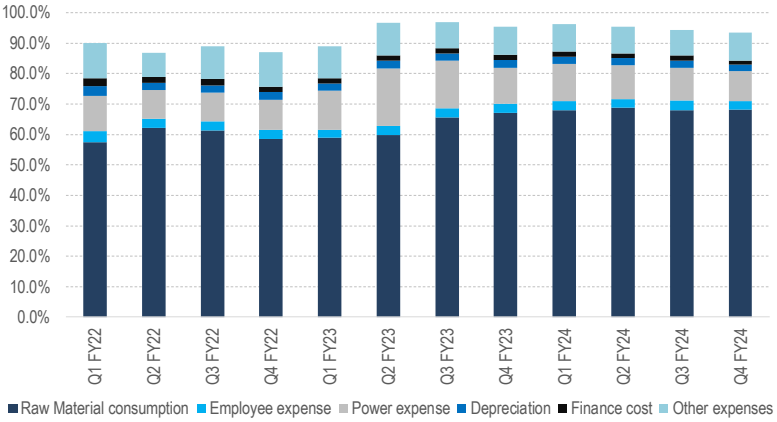
Fig 94 – Expenses break-up (%)



Source: Company, Anand Rathi Research

Standalone expenses as percent of revenue (%)

Fig 95 – Domestic expenses as percent of revenue (%)



Source: Company, Anand Rathi Research

ESG

Sustainability is at the centre of the organization's growth prospects. The company plans to be carbon neutral and water positive by 2050. It aims to be a global leader in low-carbon aluminium solutions and aims at a 10% energy, 10% water and 30% carbon footprint reduction by 2026.

It continues to march relentlessly toward building a carbon-neutral entity by 2050 across regions. Novelis has set a target of increasing recyclability content to 75% by the end of the decade and reduce 30% tCO_2e absolute and 44% tCO_2e/t intensity by FY26.

It ranks in the top 1% S&P Global ESG score in the aluminium sector. Globally, there is no other aluminium company in the top 1%; the closest are Alcoa and Norsk Hydro. which are sustainability members.

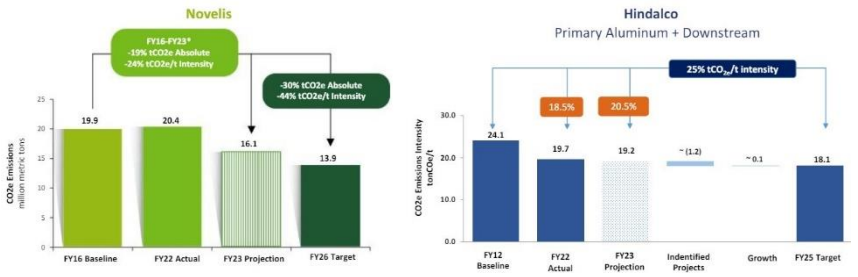
The company recycled 109% of bauxite residue (excl. Utkal) and 108% of ash, which are used in the cement sector. Hindalco achieved 84% of waste recyclability and achieved 'zero waste'-to-landfill certifications for three of its plants (Belur, Hirakud Power, FRP).

Besides, it reduced freshwater consumption to 50.5 m3/tonne for aluminium and 6.74 m3/tonne for copper (down respectively from 51.5 and 17.22).

It targets RE capacity of ~300MW in India by FY25. In Q4 FY24, it crossed 173MW. Solar and wind capacity of 29MW is expected to be operational by Q2 FY25 and 100MW of hybrid by Q3 FY25.

In FY23, it entered into an agreement with the Greenko group (one of the largest RE companies in India) for 100MW of RTC power for its smelter for 25 years. If the project is successful, Hindalco would be the first aluminium smelter in India to use RTC's carbon-free power.

Fig 96 – FY25 / FY26 ESG target



Source: Company

Appendix

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Additional information on recommended securities/instruments is available on request.

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