

# FAST FORWARD **ZERO**

*Towards a decarbonized, more circular and inclusive economy*



*Jerome Lucaes*  
CEO

## **New Perspectives on Aluminium Decarbonisation**

AMAP  
26<sup>th</sup> June 2025



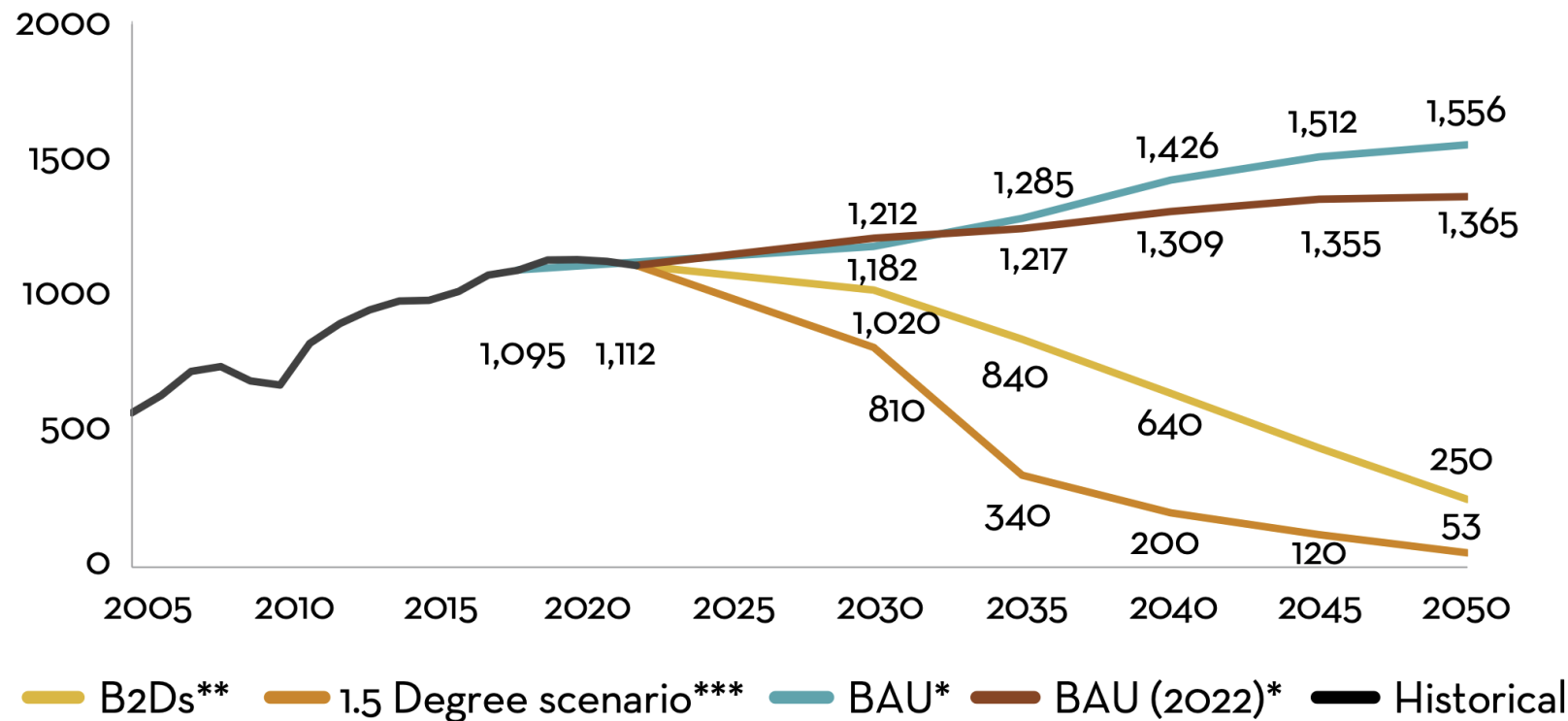
# A chaotic moment for the aluminium sector

Trade wars, wars...

Country	Trade action	What changed	Start			
US	Increase Section 301 tariffs	Tariff on Chinese aluminium increased from 7.5% to 25%	In effect Septem 2024			
US	Increase Section 232 tariffs	Tariff on all aluminium imports increased from 10% to 25%	In effect 12 March			
US	Removal of Section 232 exclusions	Removal of all country specific and product specific exclusions	In effect 12 March			
US	Reciprocal tariffs on all regions	US introduced reciprocal tariffs towards the majority of the countries in the world.	2 April			
US-China	Reciprocal tariffs	Between 8-10 April a series of moves brought US tariffs on China to 145% above pre-Trump 2.0 level, and Chinese tariffs 125% above previous level.	8 April, 10 April	US-China	Major	
	Reciprocal tariffs	US and China agree to lower their tariffs to 30% above pre-Trump 2.0 levels (Chinese exports to US), and 10% (on US exports to China).	12 May	US-China	Major	
US	Section 232	Tariff on aluminium imports from 25% to 50%	4 June	Global ex UK	Major	

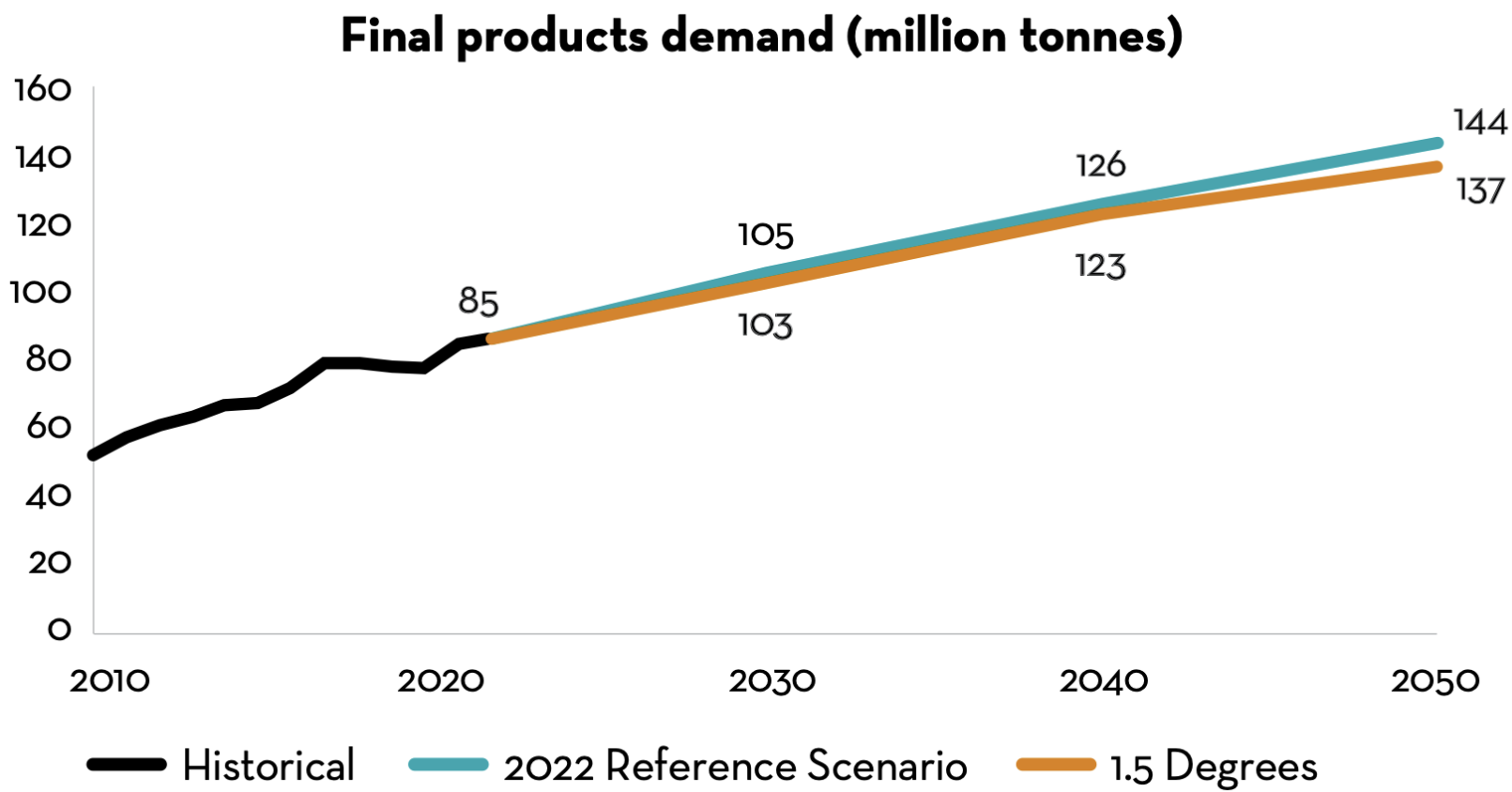


**Aluminium sector (million tonnes CO<sub>2</sub>e) - 2023 update**



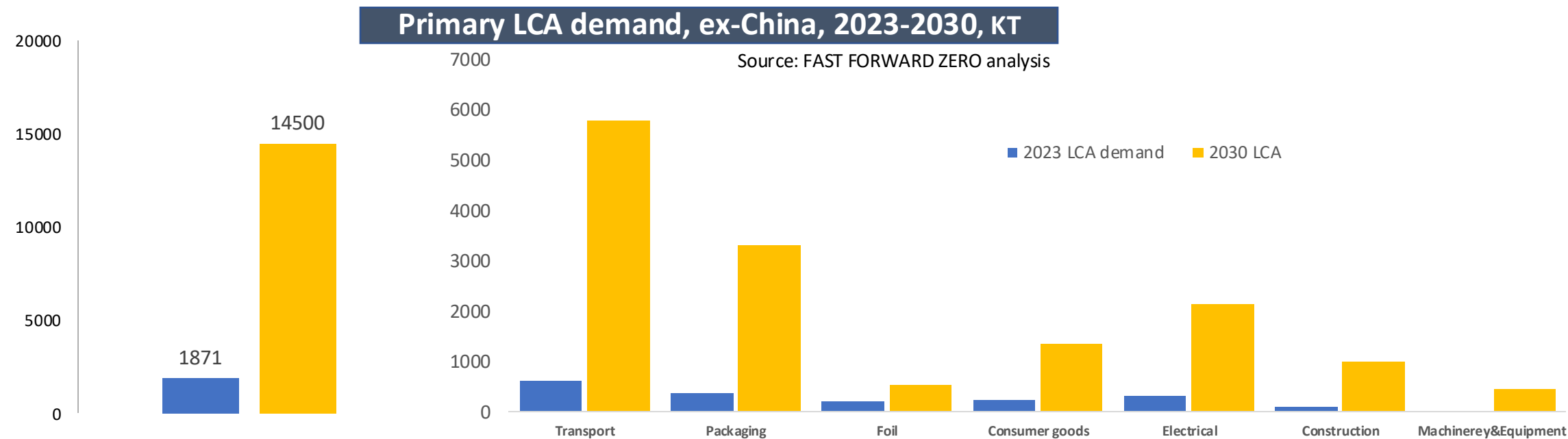
Source: IAI, <https://international-aluminium.org/resources/greenhouse-gas-emissions-decline-in-aluminium-industry/>

# Aluminium demand will continue to increase



Source: IAI, <https://international-aluminium.org/resources/greenhouse-gas-emissions-decline-in-aluminium-industry/>

# The demand for Low Carbon Aluminium (LCA) is well established



Focus group  
of end-users



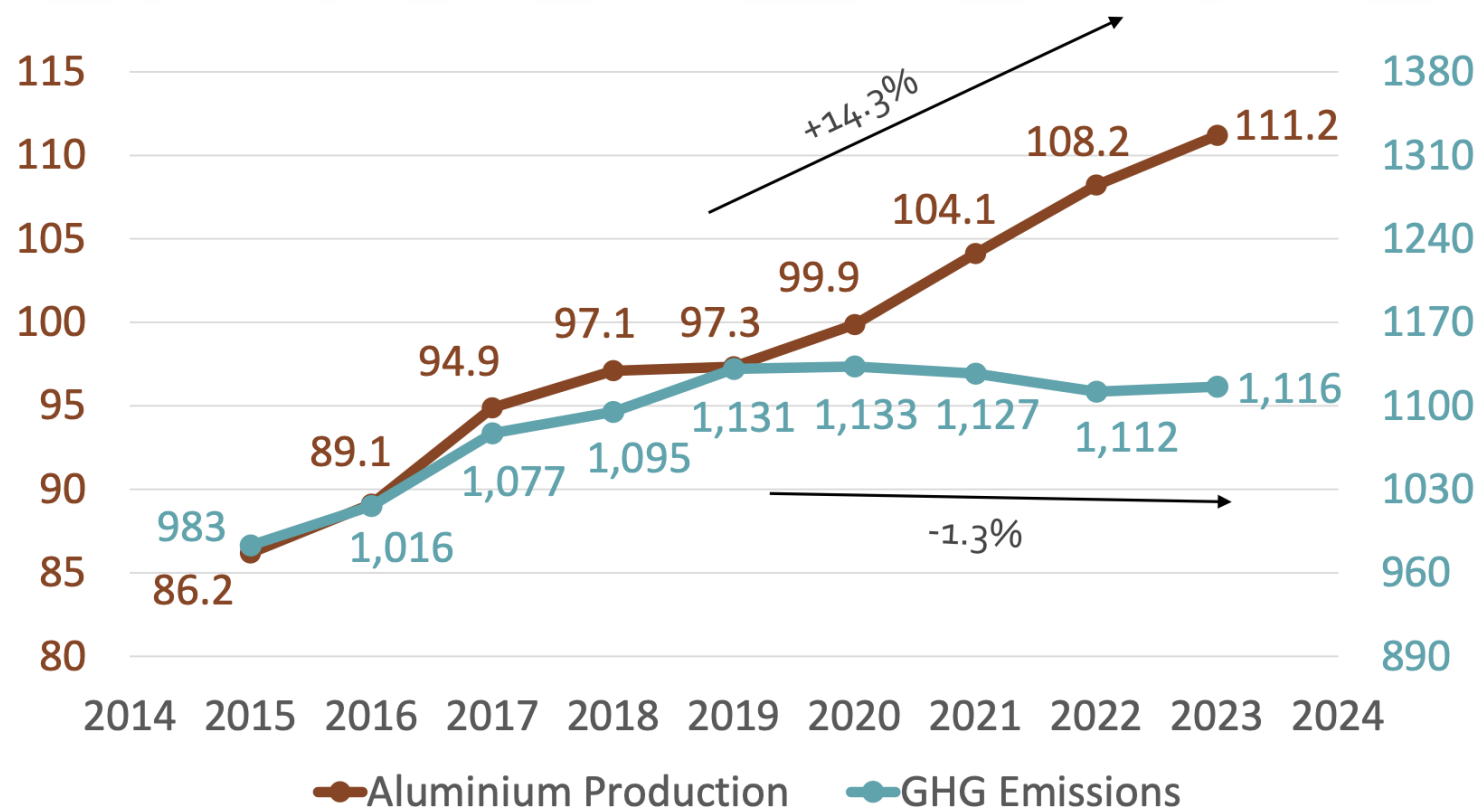
Source: FAST FORWARD ZERO analysis

# Aluminium GHG emissions have decoupled from growth

Data release from IAI (March 2025)



Production versus GHG Emissions (million tonnes)



Total emissions and intensity are declining

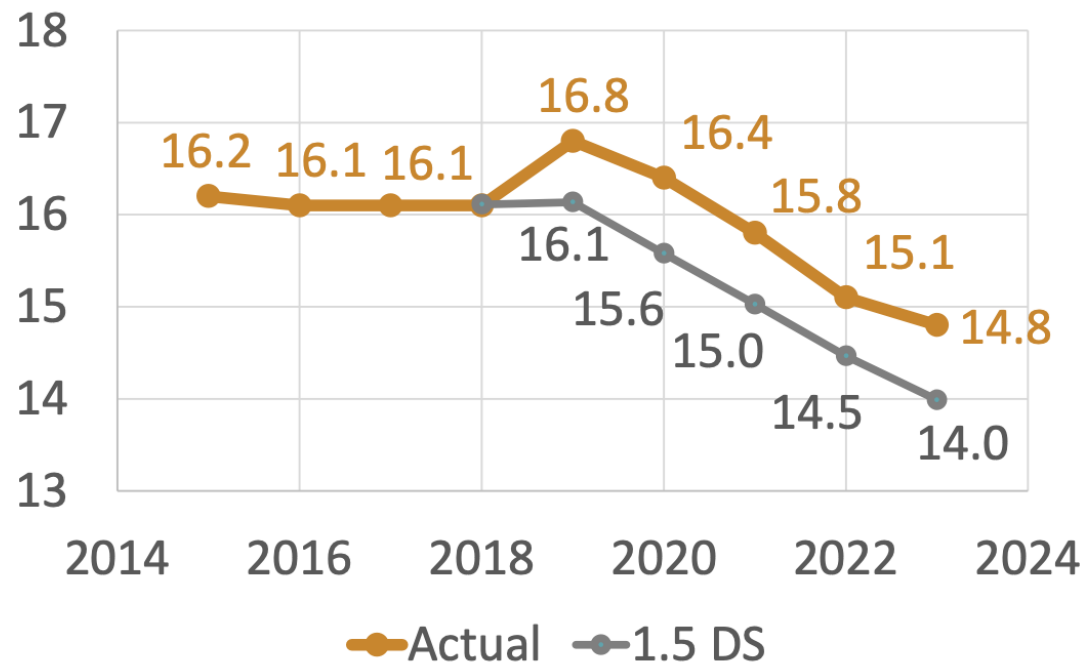
Cautious optimism: “start of trend”, if investments & roll out continues

Not fast enough

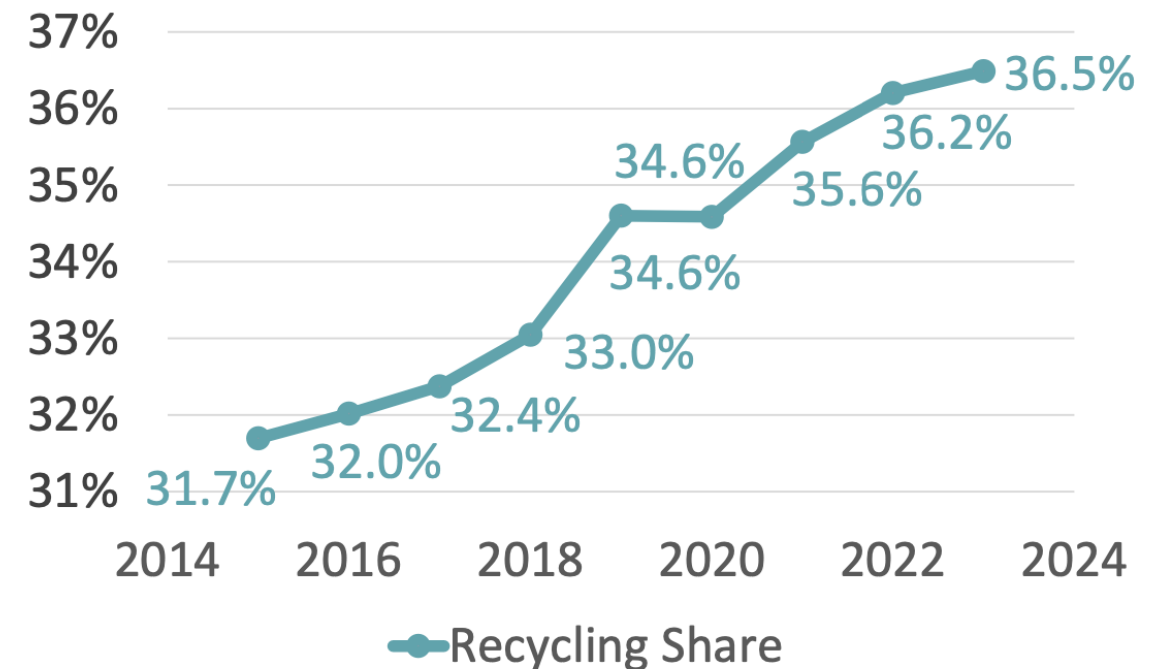
Here is why



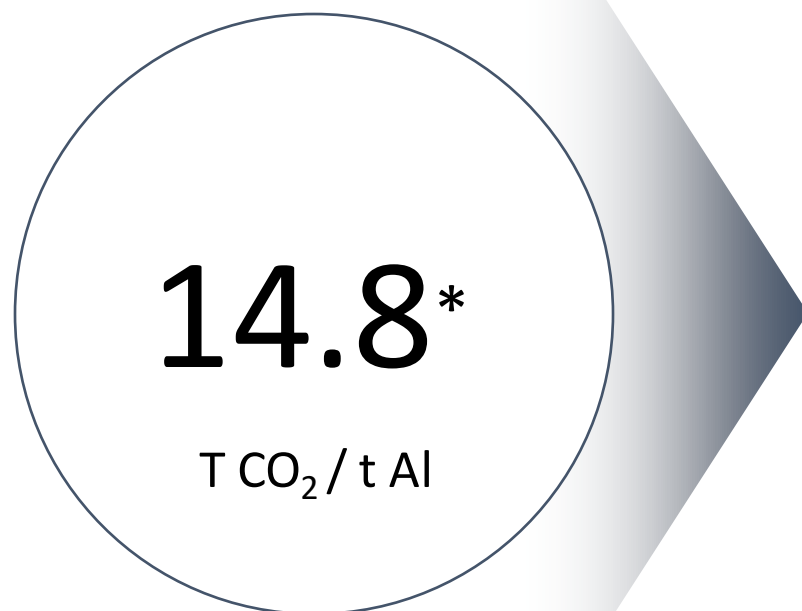
## Primary Aluminium - Decarbonisation Ongoing (t CO<sub>2</sub>e/t)



## Recycled Aluminium - Recycling Share Increased by 5 Percentage Points since 2015



80% of global emissions come from 3 sources



CO<sub>2</sub> profile primary Aluminium – World average, 2023

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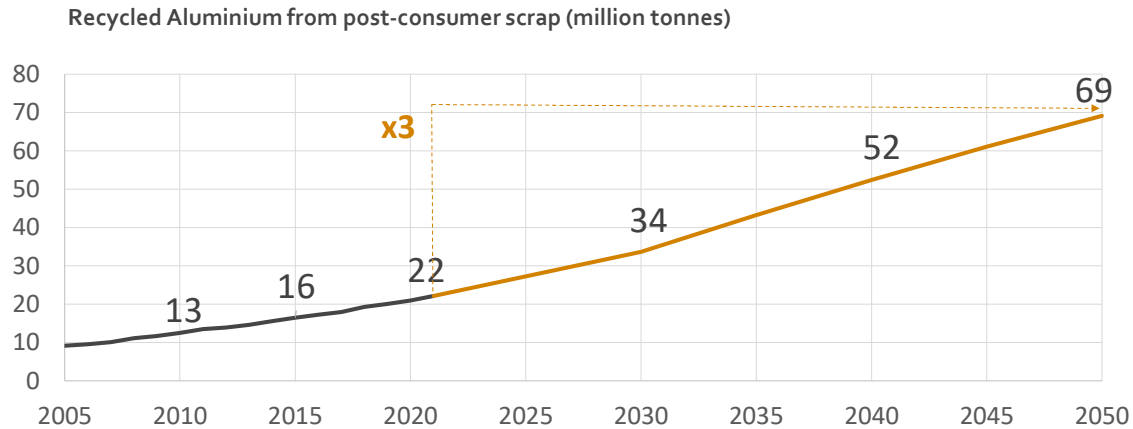
Global (CO <sub>2</sub> e per tonne Al)	Bauxite	Alumina	Anode	Electrolysis	Casting	Total
Electricity	0.03%	2.1%	0.2%	<b>1</b> 59.1%	0.2%	<b>62%</b>
NOX, Organic Carbon, PFC			0.0%	<b>3</b> 5.0%		<b>5%</b>
Direct Process (CO <sub>2</sub> )			0.7%	<b>9.9%</b>		<b>11%</b>
Ancillary Materials		<b>2</b> 2.9%	4.3%	0.5%		<b>8%</b>
Thermal Energy	0.2%	<b>11.0%</b>	0.6%	0.0%	0.4%	<b>12%</b>
Transport		1.5%		1.2%		<b>3%</b>
<b>Total</b>	<b>0.3%</b>	<b>17.6%</b>	<b>5.8%</b>	<b>75.7%</b>	<b>0.7%</b>	<b>100%</b>

**1** **2** **3** represent 80% of the sectoral emissions

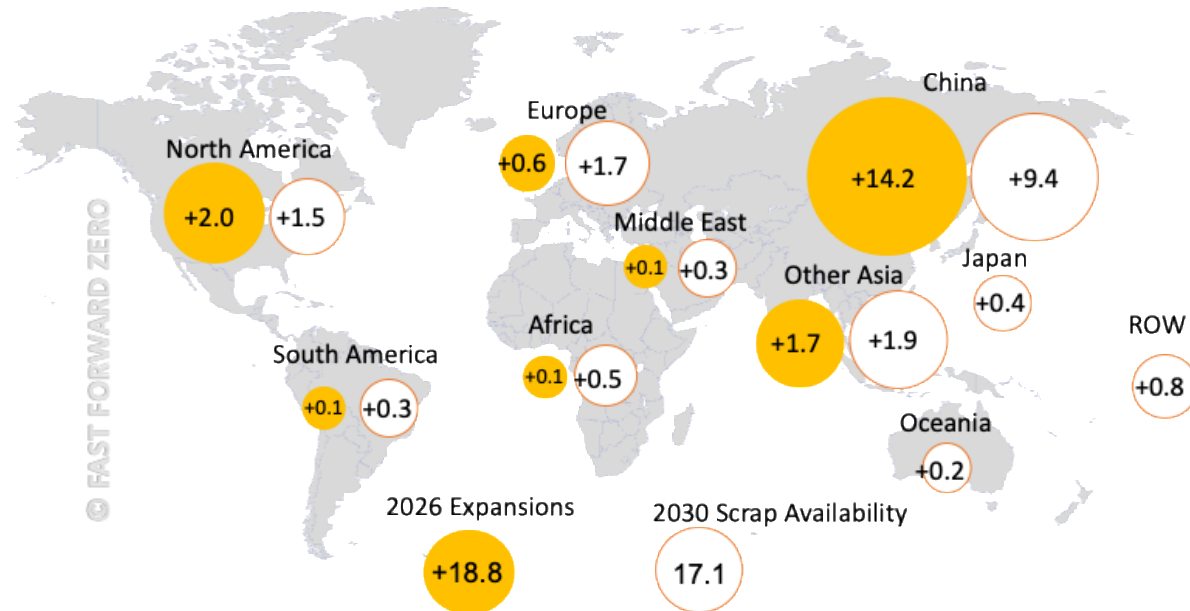
**1** **2** represent the largest realistic decarbonisation potential for the alu sector



# By 2050, achieving the full potential for recycling will cover less than 50% of the aluminium demand



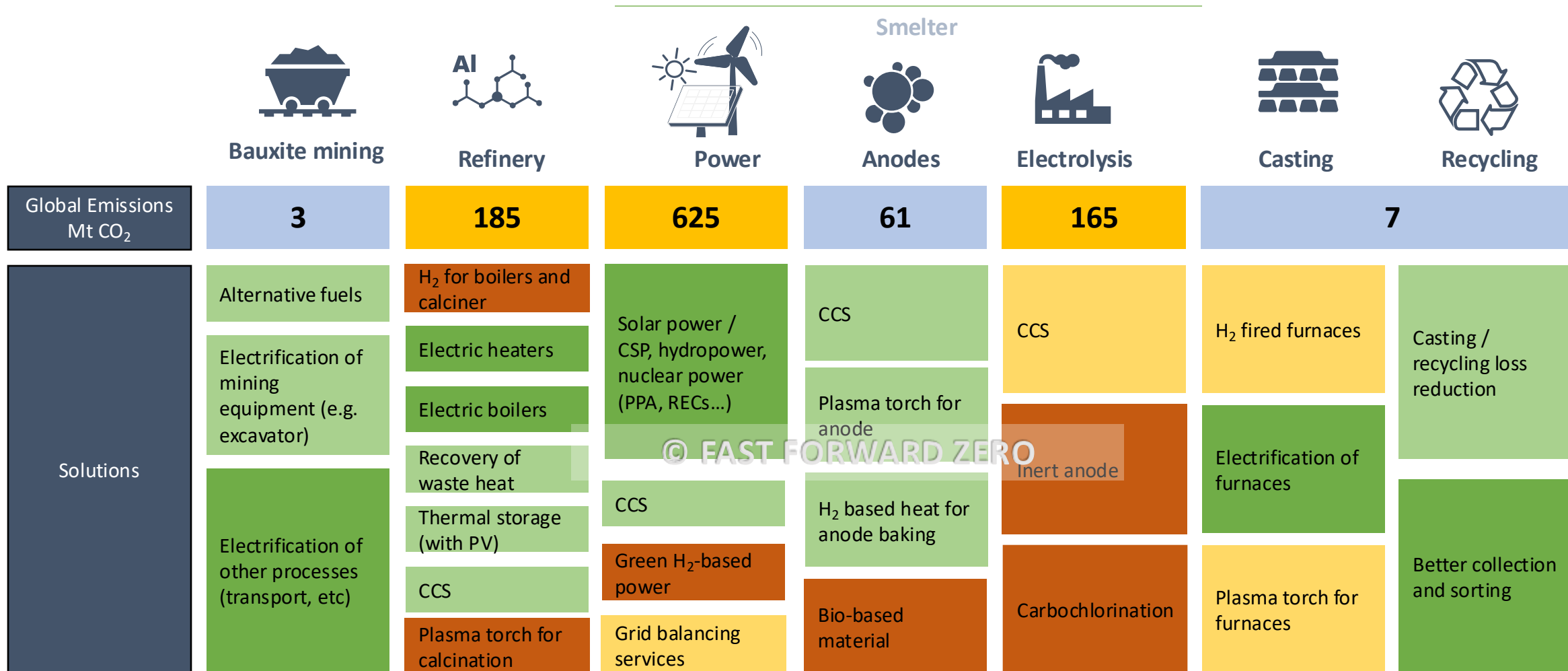
- By 2050, post consumer scrap recycling is set to triple, but will be far from covering the aluminium demand
- Current RER (Recycling efficiency Rate) is at 76%.
- Currently 7.3 million tonnes of scrap is unutilized



## Challenges and solutions:

- Better collection
- New sorting technologies
- Increase of recycling capacity. The industry has already anticipated 19 million tonnes of additional recycling capacity by 2026 (base 2020)

# Solutions for impactful decarbonisation

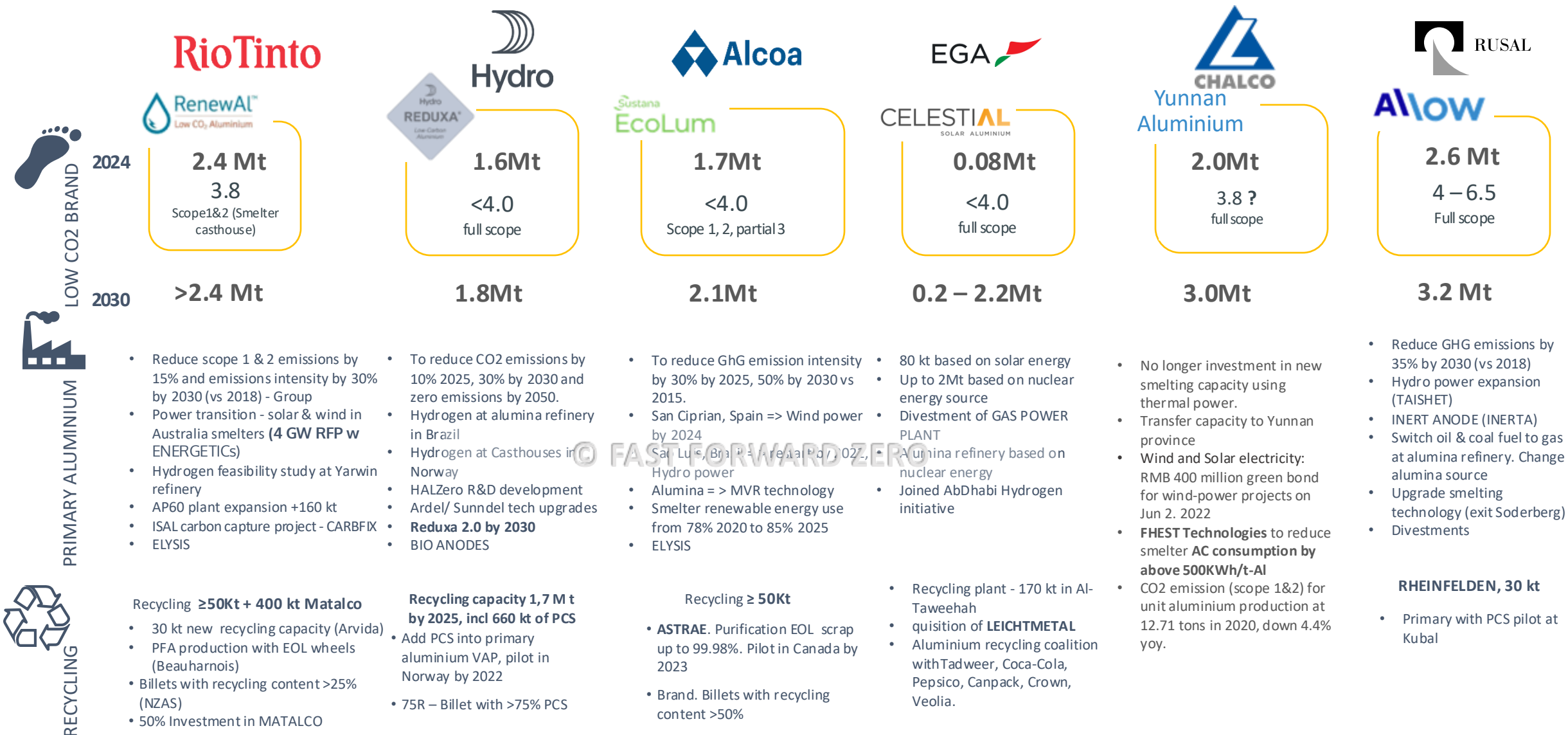


Solution readiness evaluation based on multi dimensions: technical and economic. Developed by FAST FORWARD ZERO

Techno-economic viability\*

■ TEV 8-9    
 ■ TEV 6-7    
 ■ TEV 4-5    
 ■ TEV 1-3

# Leading primary producers have differentiated decarbonisation strategies



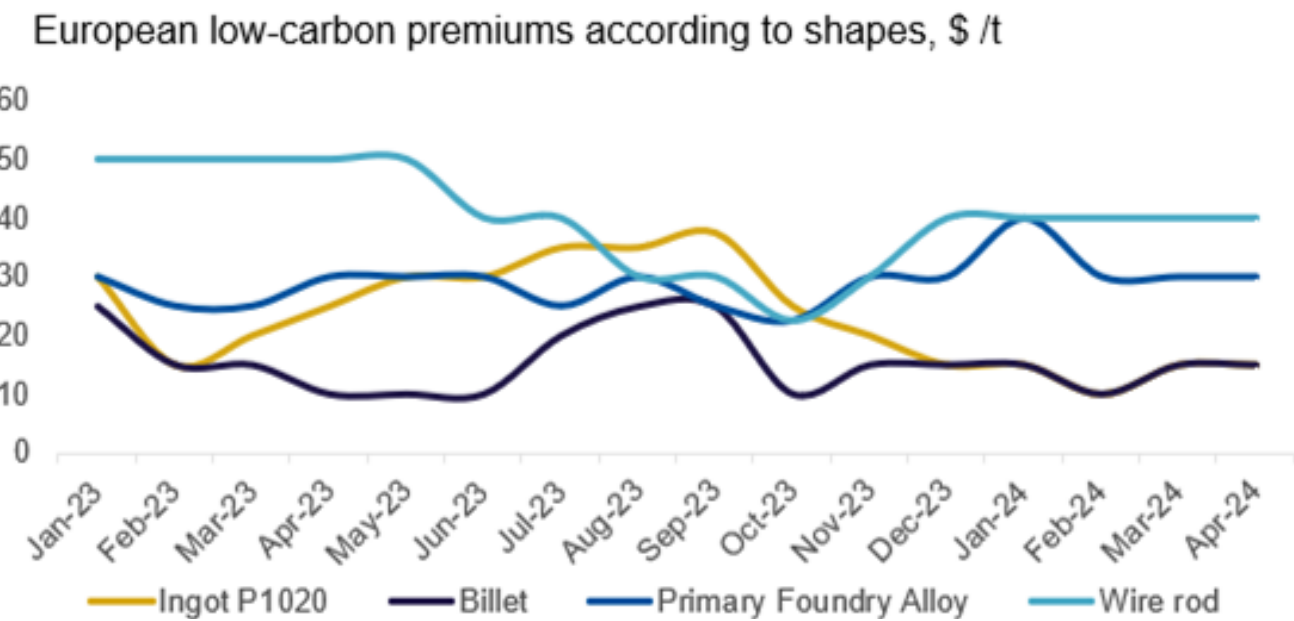
Source: FFZero analysis from publicly available data

# The price signals for Low Carbon Alu are not sufficient yet to justify significant decarbonisation efforts



Pricing component	\$/ T Al
Baseline (LME)	
Regional European premium	
Product premium	
Green Premium (Europe)	
All-in VAP price	© FAST FORWARD ZERO

## Low Carbon P1020 (Europe)



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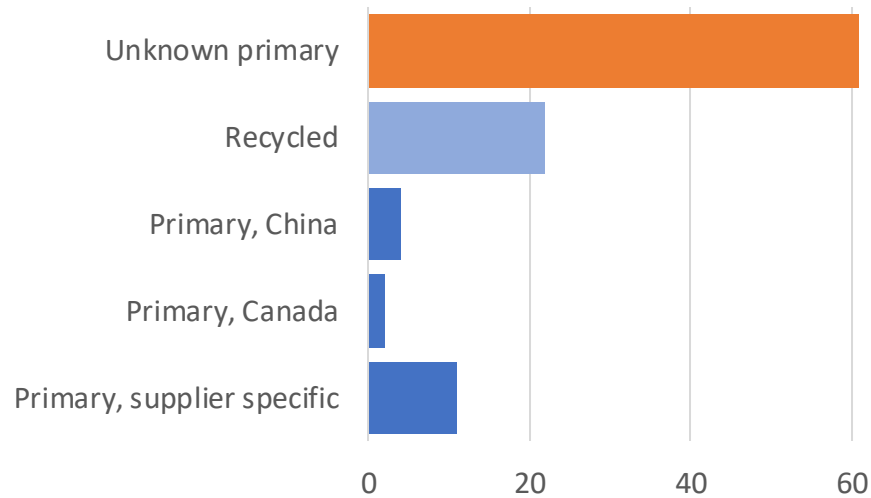
# Carbon Data Trust across the supply-chains is essential



Origin of aluminium  
for EX90



Volvo EXC90/XC90  
model

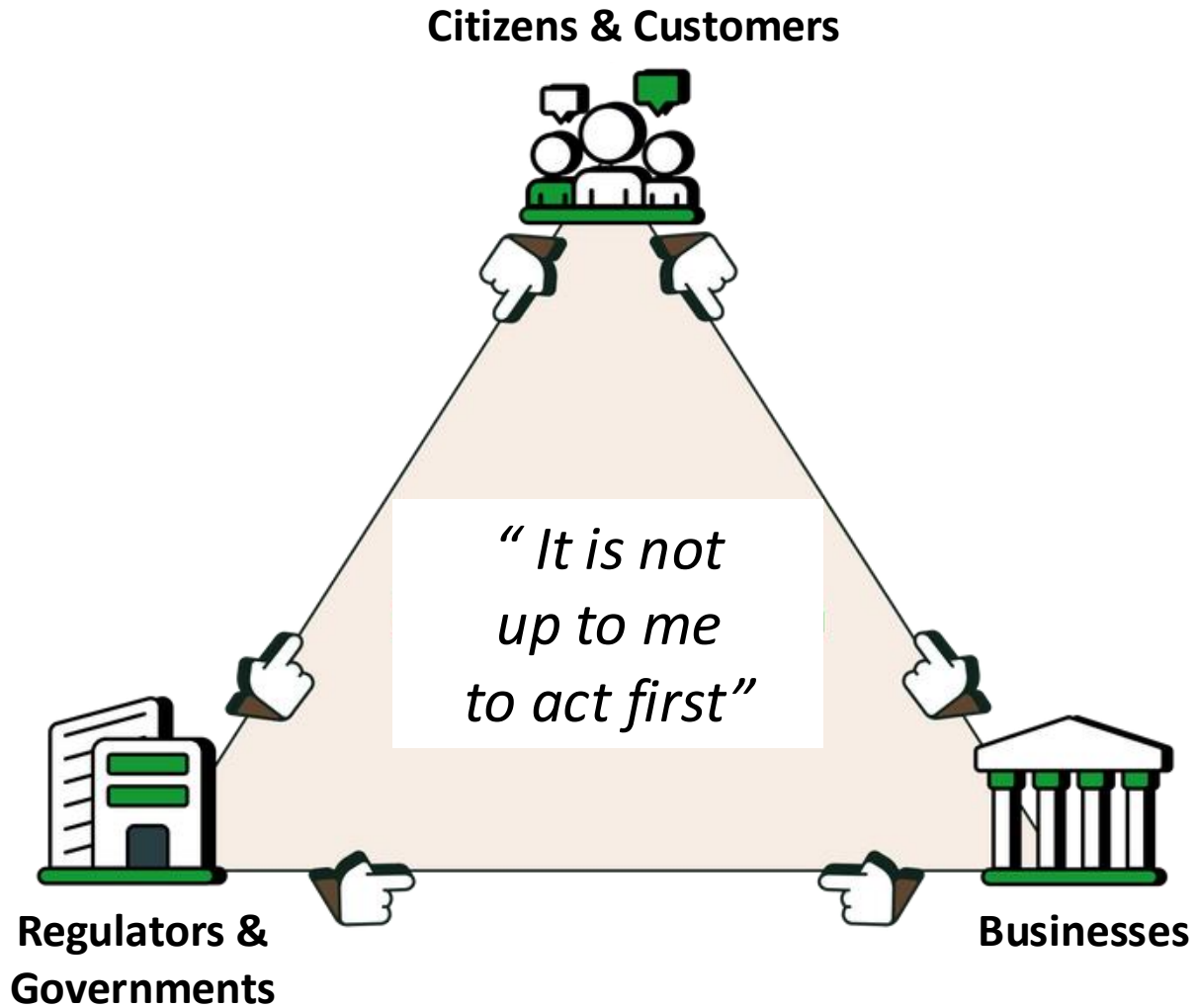


For EX90, latest Volvo model,  
61% of all aluminium consumed  
comes with unknown primary sources

Suppliers specific data are essential  
to drive real carbon footprint  
performance

Harmonized calculations for product  
carbon footprint are required

Digital Product Passports needs to  
happen fast



**Aluminium :**  
**5 priority drivers to decarbonize by 2030**

1. Recycling
2. Greening electricity at smelters
3. Decarbonizing heat at refineries
4. Carbon Data trust across the value-chain
5. Regulatory instruments (governments and markets)



# Jerome Lucaes

**CEO, FAST FORWARD ZERO**

IAI, Strategic Advisor (since 2022)

## 25 years in the aluminium sector

Experience (highlights) :

RUSAL, Director - Low carbon aluminium program

Rio Tinto

- Global Product sustainability director
- Product Director, Primary aluminium

Pechiney / Alcan (now Constellium)

Co-creator of the Aluminium Stewardship Initiative (2011-2014)

## Few World Firsts in ALUMINIUM / SUSTAINABILITY

- First announced **Net zero carbon strategy** for a global mining & metal (Jan 2021)
- First two **low carbon aluminium brands** (RENEWAL, 2016, ALLOW, 2017)
- First low carbon partnerships from mine to consumers (Rio Tinto, Rusal -> Nespresso, Apple, Budweiser)

Initiator of several collaborative groups :

- **Co-creation** of the **Aluminium Stewardship Initiative (ASI)**
- Aluminium Forward 2030 (IAI)
- Aluminium for Climate (WEF/ Mission Possible Partnership)



What we do

## From Insight to Impact

Aluminium | Metals | Supply-Chains | Decarbonisation



### BUSINESS STRATEGIES

- Decarb strategies & Technologies
- Strategic analysis & Roadmaps
- From Options to Business Case and FID
- Narratives
- Go-to-Market – Low carbon products
- Stakeholder engagements
- Education & Training
- Advisory to boards

### NET ZERO , CIRCULAR, & FAIR TRANSFORMATIONS

### ALUMINIUM

- Deep expertise: global aluminium value chain
- Recycling and circular models
- Environmental impacts
- Supply security, cost management

### SUPPLY-CHAINS

- Supply-Chain decarbonisation
- Traceability tools and systems
- Engagements and Partnerships
- Mine to products partnerships





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## Advisory & Education & Coalitions

Climate resilient business transformations  
Decarbonation | Circularity models | Metals supply-chains

- Business Development
- Supply-chain Decarbonisation
- GoToMarket Low Carbon Products
- Coalitions – Collaborative Engagement

