

**China's changing role in the global aluminium industry –
Is the era of China's systemic surplus over?**

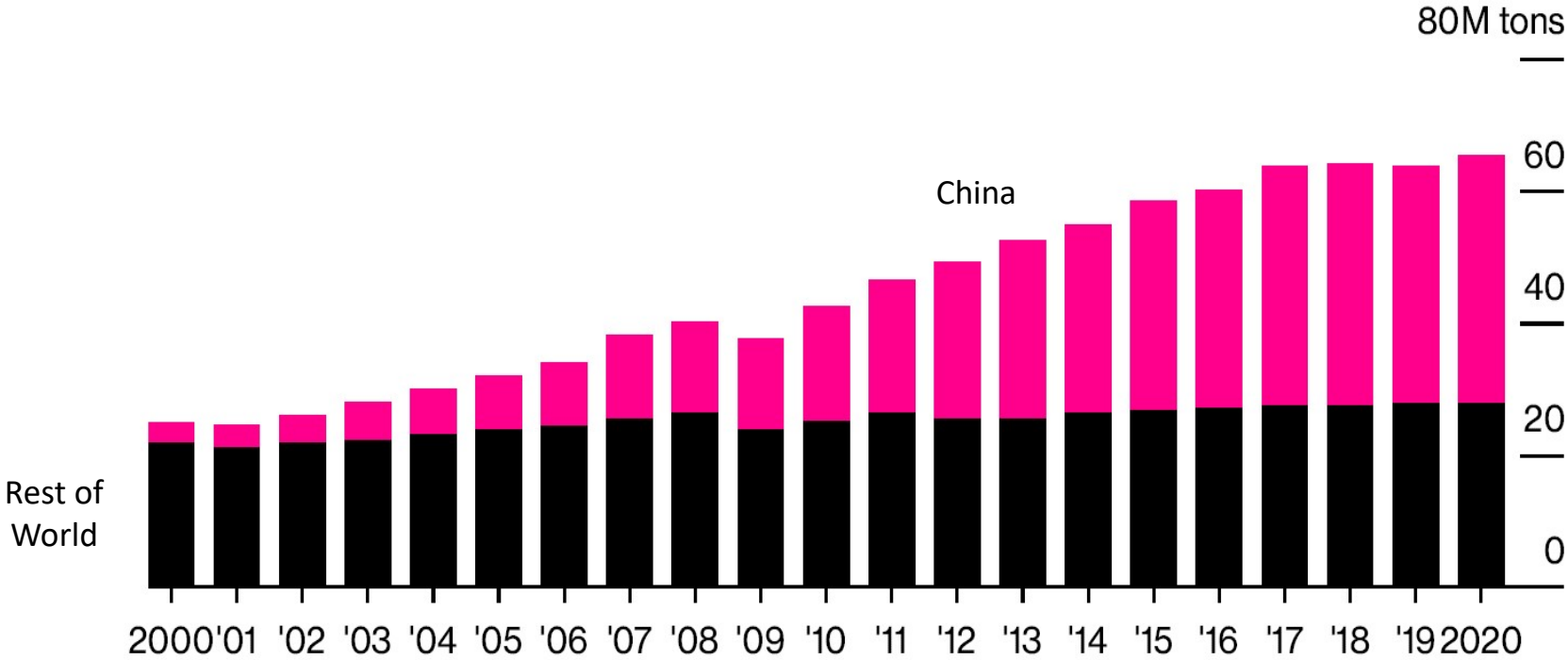
ALUMINIUM Business Summit 2021

Düsseldorf / digital space, 29. September 2021

Prof. Dr. Markus Taube

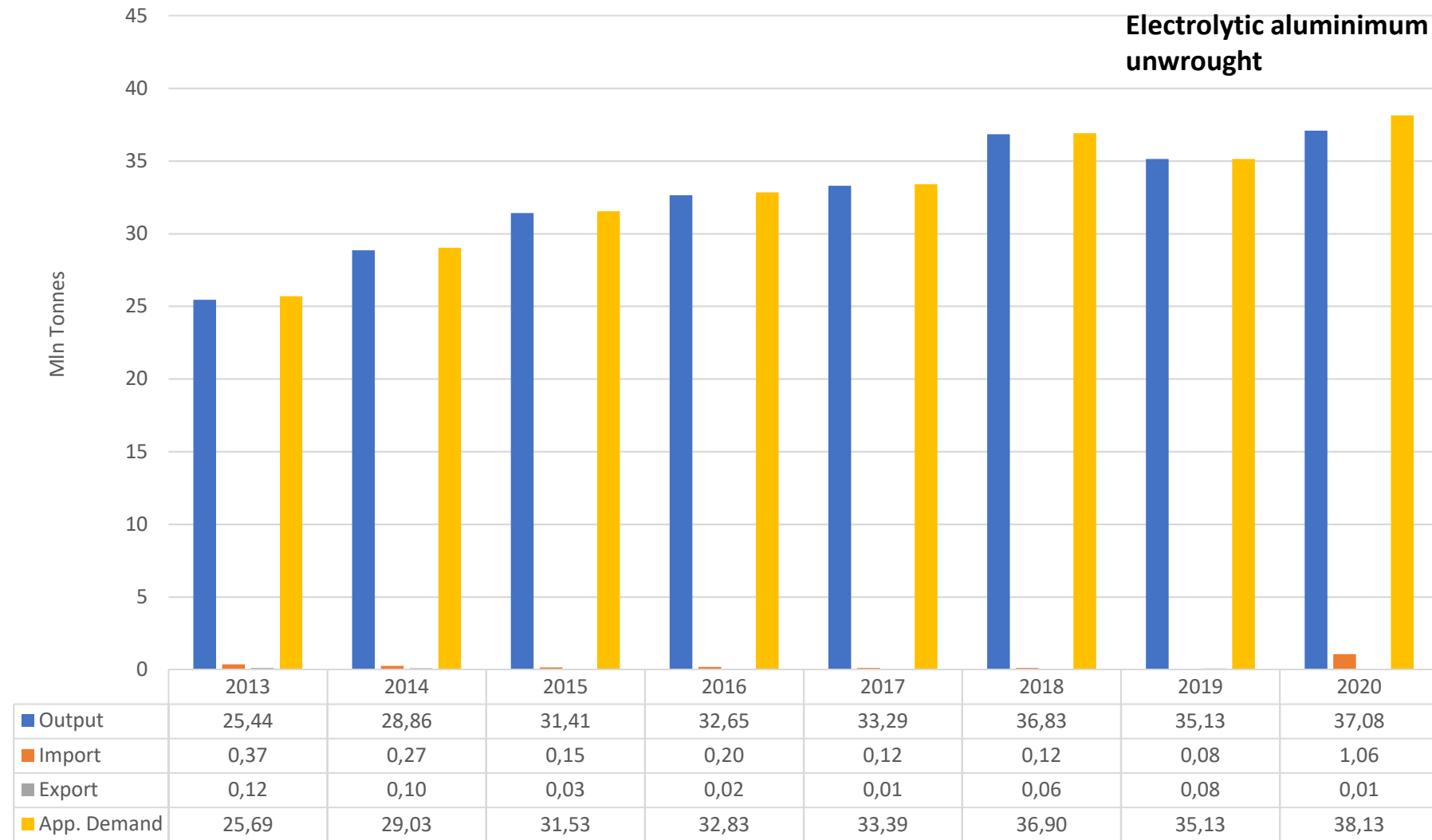
China's Aluminium Industry – Some Key Facts

China produces about 60% of global aluminium dwarfing the rest of the world



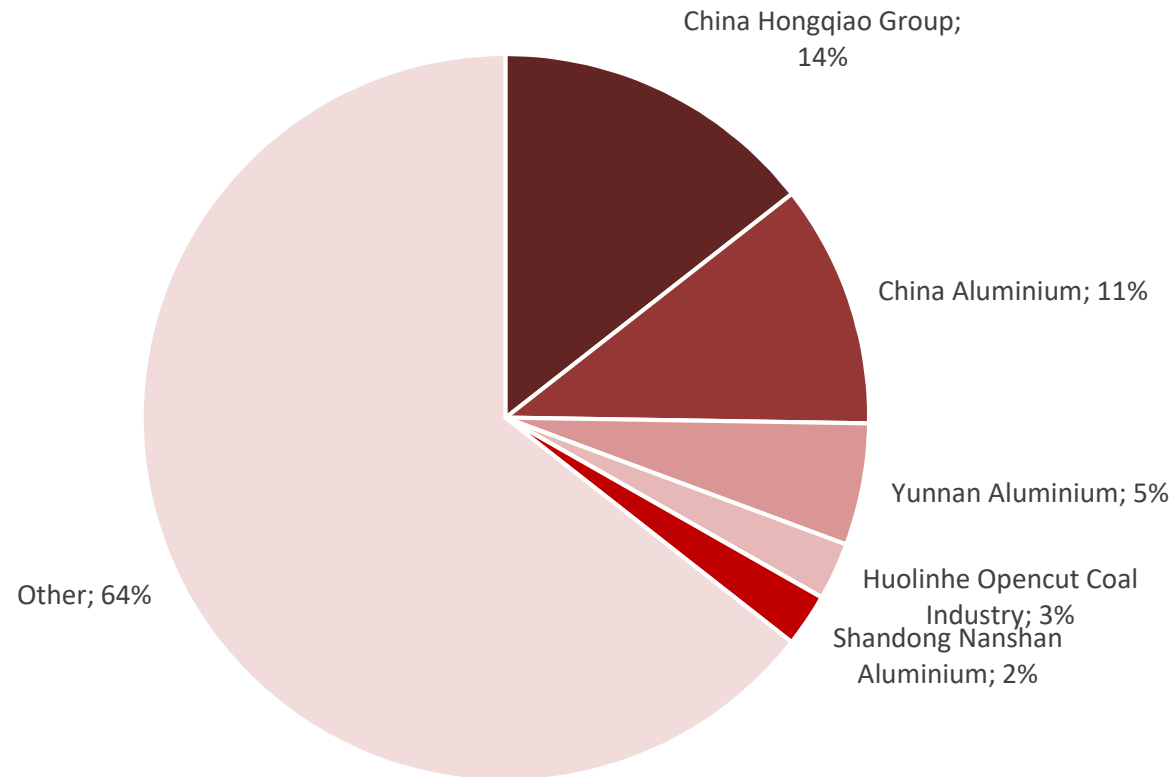
IAI, FT 2021

... and still cannot satisfy domestic primary demand



NBS 2021

Big and small, private and state-owned – but all state-directed

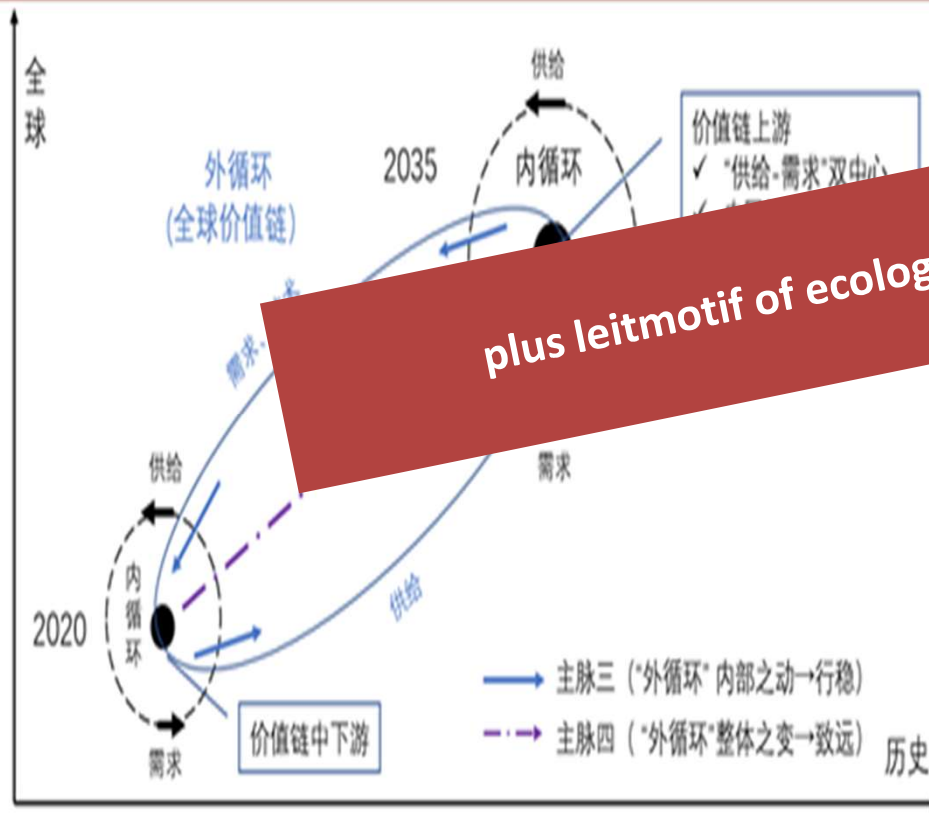


- China Hongqiao Group
- China Aluminium
- Yunnan Aluminium
- Huolinhe Opencut Coal Industry
- Shandong Nanshan Aluminium
- Other

Drivers of Industry Development

Dual Circulation

中国经济“外循环”的核心脉络



资料来源: 我们的绘制

<https://n.sinaimg.cn/finance/transform/30/w550h280/20200810/1810-ixreehn3290186.png>

Dual Circulation

Inner Circle

- Stronger focus on domestic demand (-> counterbalance to SSSR)
- Increase of nationally available technological competences (-> in

plus leitmotif of ecological sustainability

Outer Circle

- Correction of the relationship between domestic and world markets, which is currently seen as imbalanced
- Reduction of dependencies on foreign actors while continuing to utilize foreign competencies to fill national deficits (technology, innovation, etc.)
- Financial and capital market liberalization
- Re-integration into global value chains at a higher level of value creation

Industrial policy – Highly differentiated electricity pricing

Example: Yunnan Province

Dry season
(peak/trough)

用电分类	时间段	电度电价 (元/千瓦时)					基本电价		政府性基金及附加合计 (元/千瓦时)	政府性基金及附加征收标准 (元/千瓦时)					
		不满1千伏	1-10千伏	35-110千伏以下	110千伏	220千伏及以上	最大需量 (元/千瓦·月)	变压器容量 (元/千伏安·月)		农网还贷资金	重大水利工程建设基金	大中型水库移民后期扶持基金	地方水库移民后期扶持基金	可再生能源电价附加	地方水利建设基金
一、大工业用电	峰时段 9:00-12:00 18:00-23:00	0.824805	0.783406	0.742005	0.661725	0.629325	37	27	0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
二、用电容量100千伏安及以上的一般工商业及其他用电		0.73823	0.72023	0.70223					0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
一、大工业用电	平时段 7:00-9:00 12:00-18:00	0.549870	0.522270	0.494670	0.441150	0.419650	37	27	0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
二、用电容量100千伏安及以上的一般工商业及其他用电		0.492150	0.480150	0.468150					0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
一、大工业用电	谷时段 23:00-次日7:00	0.274935	0.261135	0.247335	0.220675	0.209775	37	27	0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
二、用电容量100千伏安及以上的一般工商业及其他用电		0.246075	0.240075	0.234075					0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02

注：1、本电价标准自2021年1月1日起执行。
2、抗灾救灾用电，按上表所列分类电价降低50%执行。
3、丰枯季节的划分：每年的12月和次年的1至4月为枯水季节，5月和11月为平水季节，6至10月为丰水季节。

2018-2020 weighted average electricity price of Chinese AL industry has been 0.30 RMB/kWh (= 0,04 Euro)
During a Q&A session with investors, a representative of Xinjiang Shenhua disclosed that the company paid a mere 0.17 RMB/kWh

Normal season
(peak/trough)

用电分类	时间段	电度电价 (元/千瓦时)					基本电价		政府性基金及附加合计 (元/千瓦时)	政府性基金及附加征收标准 (元/千瓦时)					
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注：1、本电价标准自2021年1月1日起执行。
2、抗灾救灾用电，按上表所列分类电价降低2分钱（农网还贷资金）执行。
3、丰枯季节的划分：每年的12月和次年的1至4月为枯水季节，5月和11月为平水季节，6至10月为丰水季节。

Rainy season
(peak/trough)

用电分类	时间段	电度电价 (元/千瓦时)					基本电价		政府性基金及附加合计 (元/千瓦时)	政府性基金及附加征收标准 (元/千瓦时)					
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一、大工业用电	峰时段 9:00-12:00 18:00-23:00	0.584237	0.554912	0.525587	0.468722	0.445772	37	27	0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
二、用电容量100千伏安及以上的一般工商业及其他用电		0.522909	0.510159	0.497409					0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
一、大工业用电	平时段 7:00-9:00 12:00-18:00	0.389491	0.369941	0.350391	0.312481	0.297181	37	27	0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
二、用电容量100千伏安及以上的一般工商业及其他用电		0.348606	0.340106	0.331606					0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
一、大工业用电	谷时段 23:00-次日7:00	0.194746	0.184971	0.175196	0.156241	0.148591	37	27	0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02
二、用电容量100千伏安及以上的一般工商业及其他用电		0.174303	0.170053	0.165803					0.064375	0.02	0.001125	0.00375	0.0005	0.019	0.02

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Industrial policy – „green“ electricity

Strict enforcement of **air pollution ceilings** by central government

Plus **demand side push** towards „certified green“ AL

Hydro-electric supply has become crucial

Those regions with corresponding supply structures attract AL industry

Regional reshuffling of ALU production according to **green and cheap** electricity availability

China holds already more than a quarter of the world's installed hydropower capacity
370 GW of 1330 GW

New capacities are added with a much higher dynamic than elsewhere.

Hydropower additions in 2020: 13,76 GW

Baihetan Hydropower Station (photo) to become operational in 2022: 16 GW

<https://www.power-technology.com/wp-content/uploads/sites/7/2021/07/Featured-Image-Baihetan-Hydropower-Project.jpg>

Yunnan's „China Aluminium Valley“ Plan

中国铝谷

14th Five Year Plan of Yunnan Province

Chapter One: Continue to Promote the Development of Pillar Industries

... Create a world-class "**China Aluminum Valley**"; realize the Yunnan aluminum and silicon industry as a state-of-the art contender in the world in terms of green development, scale, deep processing, innovation and research & development; strengthen and further perfect the rare and precious metals industry, and build a strong green manufacturing province. (at 7.1)

Yunnan Province – aggressive attraction of ALU industry

Preferential electricity prices to AL enterprises *with their own capacity indicators*. The **2018** “Circular on Promoting Special Power Consumption Plans for the Integrated Development of Hydropower and Aluminum Materials” of Yunnan Province grants AL enterprises with their own capacity indicators an electricity rate of **0.25 RMB/kWh** during their first 5 years of operation. From year six, the price is raised in annual increments of 0.012 RMB/kWh until it reaches **0.3 RMB/kWh**

During the 13th Five Year Plan Period 2016-2020 the Province has strategically developed a “**green energy brand**” and attracted investments by major Chinese AL producers - China Aluminum Group, Shandong Weiqiao (i.e. Hongqiao), Henan Shenhua and Sichuan Qiya - which have transferred or project to transfer capacities from elsewhere into the province.

Green aluminum industry clusters have evolved in Wenshan, Zhaotong, Dali, Honghe and other (prefecture) cities.

As of the end of **2020**, the province has built an electrolytic aluminum production capacity of 3.4 million tons, a planned production capacity of 4.4 million tons under construction, and a total **production capacity of 7.8 million tons after completion**.

Yunnan Province – lucky winner, but with its own challenges

- 
- Massive hydropower dam projects lead to massive political frictions with neighboring countries
 - Risk of production disruptions due to electricity shortages (e.g. May 2021 in Yunnan)
 - Yunnan lacks all major raw material inputs required for primary AL production
 - All inputs have to be transported over long distances to the smelters
 - Bauxite may be mined in nearby from Laos, which is rich in bauxite resources
- Logistics infrastructure constitutes the major bottleneck to local industry development!**

https://upload.wikimedia.org/wikipedia/commons/7/70/Terrace_field_yunnan_china_denoised.jpg

Strict Capacity Control

During **2010-2020** Chinese primary capacity has expanded rapidly – **CAGR 8%**

Since **2016** net additions have become modest – expansion drive has slowed down substantially

Sea change in **2017**:

NDRC issued “*Special Action Plan for the Cleanup and Rectification of Illegal Projects in the Electrolytic Aluminum Industry*” leads to much more **rigorous structure adjustment** rules: Black and white listing of firms, minimum technology requirements, minimum scale requirements, allocation of „tradeable“ (swap) proprietary *capacity indicators*, strict enforcement vis-à-vis managers and local cadres, elaborate control systems ...

-> market exit of many smaller firms (hard exits, few M&A)

GOC sets a national capacity cap of 45 million tons

2020 output of electrolytic (i.e. primary) aluminum reached a record high 37.4 MMT (+4.2% yoy)

2021 total capacity likely at 44 MMT - Production capacity is hitting the "ceiling".

Plant construction planned for 2021 may add 2 MMT (all in southwest)

but almost no net-increases in total capacity as “capacity swap mechanism” is put into action

Capacity Development

New electrolytic aluminum production capacity scheduled for launch in 2021

Enterprise	Region	Expected capacity (1000 MT)	Indicator
Guangxi Tianlin Baikuang Aluminum Industry Co., Ltd.	Guangxi	175	Special Approval
Yunnan Qiya Metal Co., Ltd.	Yunnan	270	Capacity replacement
Yunnan Shenhua Aluminum Co., Ltd.	Yunnan	390	Capacity replacement
Guizhou Xingren Denggao New Material Co., Ltd.	Guizhou	250	Capacity replacement
Yunnan Hongtai New Material Co., Ltd. *1	Yunnan	370	Capacity replacement
Guangxi Debaobaikuang Aluminum Industry Co., Ltd.	Guangxi	100	Capacity replacement
Yunnan Aluminium Haixin Aluminium Industry Co., Ltd.	Guizhou	300	Specially approval
Guangyuan Zhongfu High Precision Aluminum Co., Ltd.	Guangxi	50	Capacity replacement
Guizhou Yuanhao Aluminum Industry Co., Ltd.	Guizhou	100	Capacity replacement

Source: THINK!DESK, Baiinfo, public information, Orient Securities Research Institute

Impact on international markets / EU

EU action against China in the ALU industry

Product	Countries investigated	Proceeding	Measures	Status	Related case numbers	History
Aluminium converter foil	People's Republic of China	Anti-dumping	Measures in force (Prov.)	Investigation ongoing	<input type="checkbox"/> Ongoing: AD673	
Aluminium extrusions	People's Republic of China	Anti-dumping	Measures in force	No investigation ongoing	<input type="checkbox"/> AD664	
Aluminium flat-rolled products	People's Republic of China	Anti-dumping	Measures in force (Prov.)	Investigation ongoing	<input type="checkbox"/> Ongoing: AD668	
Aluminium foil (certain)	Armenia , People's Republic of China , Brazil	Anti-dumping	Measures in force	Investigation ongoing	<input type="checkbox"/> AD534 <input type="checkbox"/> R565 <input type="checkbox"/> R607 <input type="checkbox"/> R646 <input type="checkbox"/> Ongoing: R730 <input type="checkbox"/> R732	
Aluminium foil in small rolls	People's Republic of China	Anti-dumping	Measures in force	No investigation ongoing	<input type="checkbox"/> AD582 <input type="checkbox"/> R684 <input type="checkbox"/> R733	
Aluminium radiators (certain)	People's Republic of China	Anti-dumping	Measures in force	No investigation ongoing	<input type="checkbox"/> AD578 <input type="checkbox"/> R676	
Aluminium road wheels (certain)	People's Republic of China	Anti-dumping	Measures in force	No investigation ongoing	<input type="checkbox"/> AD541 <input type="checkbox"/> RF66-01 <input type="checkbox"/> R628	

European Commission, Trade defence website 24.09.2021.

Status quo and Risks

Chinese economic and industrial policy has become increasingly inward-oriented
Trade policy is refocused towards environmental sustainability and resource conservation

Exports are welcomed, but only in areas that
do **not deplete domestic natural assets** and contain **substantial domestic value added**

As such: **no major exports of unwrought aluminium** to be expected at the time being
(30% export tax, zero VAT rebate)

China's AL producers are **systematically subsidized** by a wide range of subsidies,
electricity pricing policies and **structural overcapacities in the national alumina industry**

The global AL market and its competition-driven market order remain under pressure from underpriced AL produces, in the form of flats, but also wheels, radiators and other products (embedded aluminium)

The currently greatest risk to the Chinese AL industry's demand side exists in the Chinese **construction industry** (Evergrande et al.).

A massive downturn of this industry would result in a substantial supply overhang that would certainly spill over into the global markets

▪

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