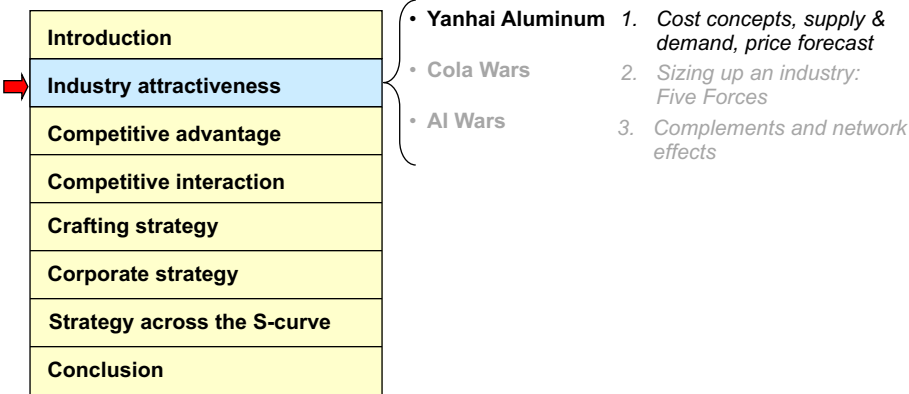




YANHAI ALUMINUM: CONTEXT & UPDATE

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Sections B & C  
FALL 2025

Course Structure



## The Context

### Aluminum

- “Miracle metal”: light, strong, corrosion resistant, excellent conductor of electricity, recyclable, malleable, and abundant (most abundant metal in the Earth's crust)
- However, aluminum companies exhibit erratic profitability, and prices have been volatile  
At the time of the case, price is near an all-time low

### China

- The largest Aluminum producing country in the world – by far
- Oversupply led to price declines, leading to push for supply reforms
- Push towards “green” plants

### Yanhai

- Considering a \$7 billion investment to expand and modernize the company's Yunnan smelter. If completed, the plant would produce “green aluminum,” potentially commanding a price premium
  - Phase One: \$1.5 b investment to add automation systems
  - Phase Two: \$5.5 b investment to add 1.1 m T/year capacity, making Yunnan the only plant powered by renewable energy

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## Monthly Nominal Prices for Aluminum Worldwide (1990-2019)



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## Update

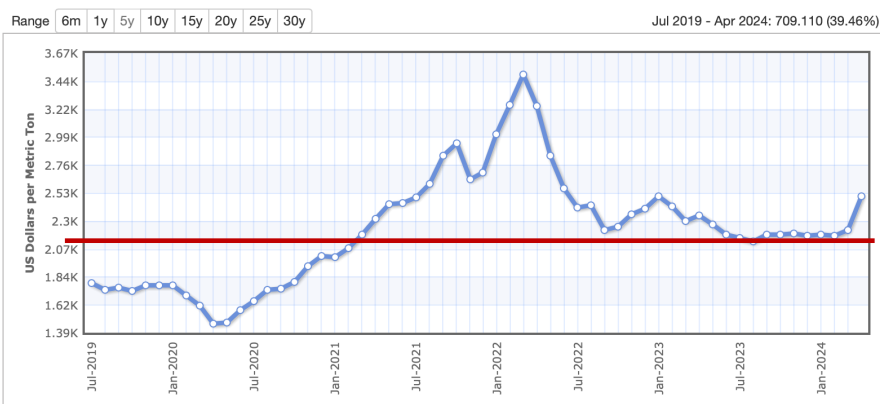
- Real company: China Hongqiao Group, one of the largest aluminum producers in the world
- The investment we analyzed—the modernization and expansion of the company’s hydro-power smelter in Yunnan province—did in fact happen
  - Phase 1 was completed in 2021
  - By 2022, they had added about 850,000 tons, and by late 2023, they had already fired up 1.5 million tons in Yunnan
  - The goal was to reach 2.03 million tons in Yunnan by the end of 2023 and to relocate nearly 4 million tons(!) to Yunnan across multiple prefectures by the end of 2025, amounting to over 60% of the company’s smelting capacity
- Chinese government policy required that any new smelting capacity be offset by the closure of an equal amount of existing capacity.  
To enable the move to Yunnan, Hongqiao retired older coal-powered capacity elsewhere.
- Along the way, the company faced some challenges. Hydropower shortages, especially during drought years, caused delays and temporary curtailments.  
But Hongqiao continued with the project, betting on long-term rise in Aluminum price and improvements in renewable energy infrastructure, including solar panels and battery storage.

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## Update: Aluminum Price (2020-2024)

Aluminum Monthly Price - US Dollars per Metric Ton

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- Aluminum price of \$2,141 per ton was needed to meet Phase Two ROI target
- Market eventually supported the investment when price began to rise sharply in 2021 and remained above the ROI threshold thereafter, for several years
- The effect of COVID-19 on Aluminum industry in China was limited, partly because domestic demand remained strong due to a national push to maintain business operations