INDONESIA ALUMINIUM INDUSTRY GROWTH

PT INDONESIA ASAHAN ALUMINIUM

BUMN UNTUK INDONESIA Inalum

Indonesia holds a strong position in developing the ecosystem of electric vehicles and integrated energy storage systems in the form of batteries.

One of the largest global economies

16 # The largest global economy in 2020

5 # The largest global economy in 2045.

Strong position in upstream mineral resources

1 # The world's largest reserves and production of nickel

6 # Reserves Bauxites, copper, and manganese.

Large potential market

2W *Potential 2025 8.8 million units*

4W *Potential 2025 2 million units*

+100 GWh Export potential to meet the global demand for electric vehicle batteries.

Competitive supply chain advantages

35% The cost of electric vehicles depend by the price of batteries.

Indonesia is one of the most competitive countries in manufacturing cost index[1]

1) World Bank Study

Indonesia Downstreaming Bauxite Minerals to Meet Global Aluminum Needs

Value Chain


Bauxite

1 *Refineries*


Alumina

2 *Smelting*

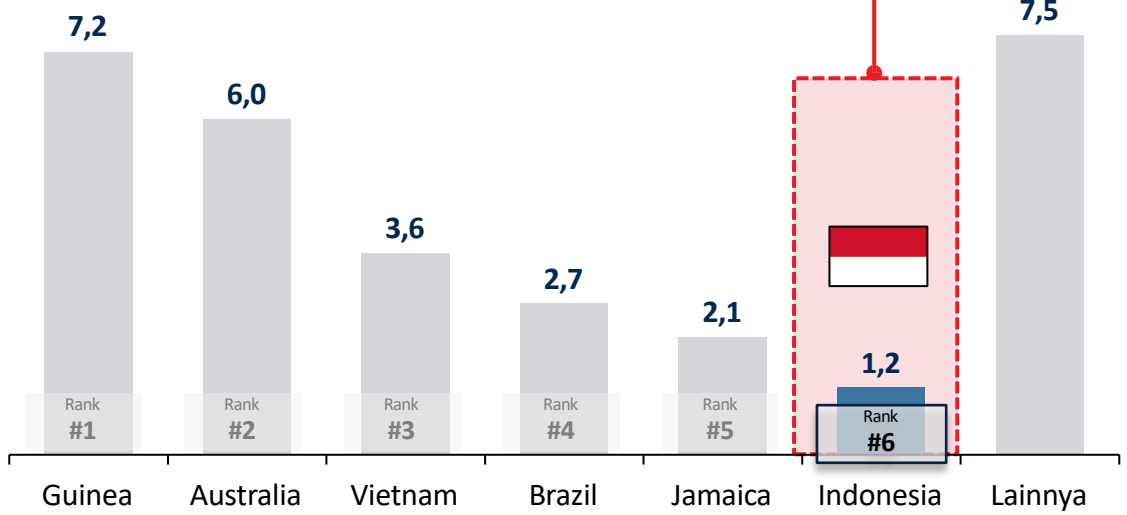

Primary Aluminium

Key Insights

Global Bauxite Reserves (2023)
In billion tons

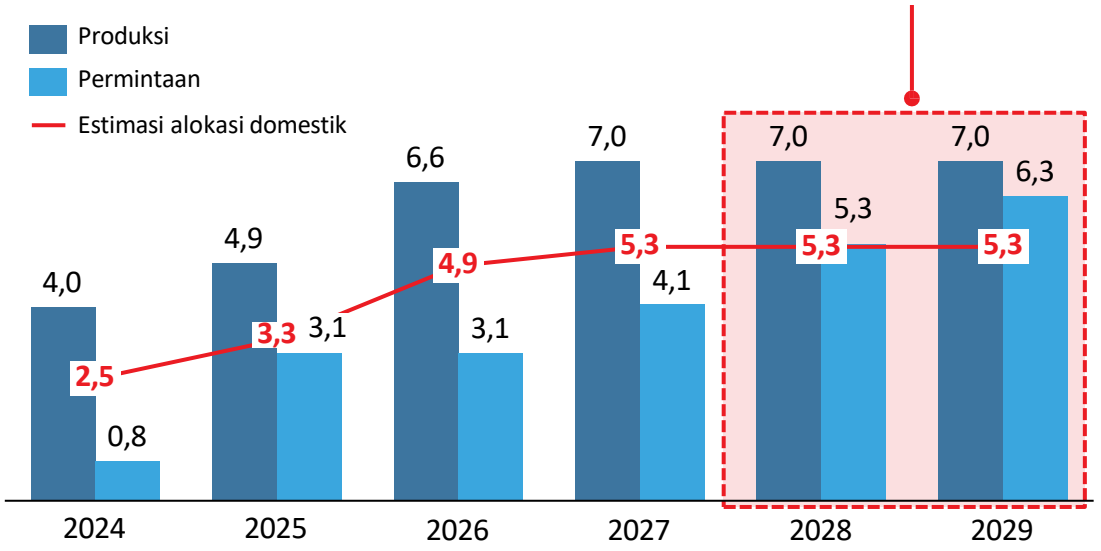
4% Global Bauxite Reserves

Export tightening in 2023 will drive domestic bauxite towards downstream aluminium industry- with aggressive refinery expansion, **alumina producers need to secure bauxite off-take**



Projections for Indonesia's Alumina Production and Demand[1]
In million tons

The downstream processing of bauxite and the expansion of primary aluminum capacity drive investments in alumina refinery construction



Catatan: [1] The demand numbers already include requirements for Inalum smelters 1 and 2. However, the alumina production figures don't cover the SGAR 2 development yet

Source: CRU, WoodMac, Kemetrian ESDM, Analisis Konsultan

Inalum ..... Environmental-friendly Integrated Aluminium Based Company

Where's Inalum Positions?

Inalum achieved ASI Certification Performance Standard V3 in 2022

0.4364 t CO2e/t Al. of GHG Emission

The only manufacturer of green aluminium in Indonesia is Inalum, which also **produces value-added products** such as billet and alloy

Company Structure

MIND ID Mining Industry Indonesia — PT Mineral Industri Indonesia

100% →

Inalum — PT Indonesia Asahan Aluminium

- 60% → PT Borneo Alumina Indonesia (BAI)
- 99,99% → PT Indonesia Aluminium Alloy (IAA)
- 25% → PT Sinergi Mitra Lestari Indonesia (Sinergi ID)
- 25% → PT Industri Baterai Indonesia (IBI)

INALUM Strategic Programme

Galvanizing Growth	*Forging The Way Forward*	*Sustaining Development*	*Quantum Leap*	*Crafting Legacy*
Smelter 2 & Electricty Energy Collaboration *(EPC, Offtake Guarantee)*	*Smelter* 2 & Electricity Enery Collaboration *(EPC)*	*Smelter* 2 & Electrycity Energy Collaboration *(EPC)*	*Smelter* 2 & Electrycity Energy Collaboration ***(COD & Operation)***	*Smelter* 2 & Electrycity Energy Collaboration ***(Operation)***
SGAR Fase 1 ***(COD & Operation)***	IPO Action	*SGAR* Fase 2 *(EPC)*	SGAR Fase 2 ***(COD & Operation)***	*SGAR* Fase 2 ***(Operation)***
SGAR Fase 2 *(FID)*	*SGAR* Fase 2 *(PMC & EPC)*	Aluminium *Downstream* *(FID)*	Aluminium *Downstream* *(EPC)*	Aluminium *Downstream* ***(COD & Operation)***
Revamping Existing Main Production Facilities	Aluminium *Downstream* *(FS & Partnership)*	Pot Optimalization *(Pot Conversion)*	Pot Optimalization *(Pot Conversion)*	Pot Optimalization *(Pot Conversion)*
Pot Optimalization *(Pot Conversion)*	*Smelter* 3 & Electrycity Energy Collaboration *(FS)*	*Smelter* 3 & Electrycity Energy Collaboration *(FS & FEED)*	*Smelter* 3 & Electrycity Energy Collaboration *(FID)*	*Smelter* 3 & Electrycity Energy Collaboration (FID)

"We Facilitate you to get the best of us, by delivering environmental-friendly product to your hand"

ASI CERTIFIED PERFORMANCE

ISO 37001 · ISO 14001:2015 COMPANY · ISO 50001:2018 ENERGY MANAGEMENT SYSTEM · SMK3 · ISO 45001:2018 · ISO 9001:2015 COMPANY · ACCREDITED ISO/IEC 17025 LABORATORY

INALUM Continues to Lead Indonesia's Downstreaming and Integrated Aluminium Value Chain

INALUM Growth Strategy

1. **Aggressively increasing production growth**
   Building and increasing capacity in the production and processing of aluminium, accelerating the development and constructing an aluminum project by INALUM.

2. **Strategic alliances for new business expansion**
   Expanding the smelter with a development, include plan for the development of 2nd aluminium smelter in Kuala tanjong with strategic partner

3. **Empowering Downstream Initiatives: INALUM and MIND ID's Drive for Value-Added Aluminum Products in Indonesia's Economy**

   INALUM together with MIND ID group are strategizing to enhance its product portfolio along the entire aluminum value chain. The objective is to create value-added products and significantly boost their contribution to Indonesia's economy.

INALUM Together with the MIND ID Group Undertake All Stages of Aluminium Value Chain

Capacity Ramp-up Plans for 1-5 Years	5,4 Million Ton/year	1,8 Million Ton/year	0,9 Million Ton Al/year	*Ingot &* Sheet *Ingot* *High Purity* *Foundry Alloys* *Plates* *Billets* *Rods* Others
Revenue Potential with 30 Year Plan	US$ 5,8 Billion	US$ 23,3 Billion	US$ 72,9 Billion	

Sumber: *CRU, Market News, MIND ID Group Data*
Catatan: **asumsi harga aluminium US$ 2.701/ton*

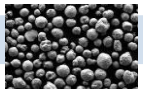
INALUM Project Overview

Upstream

Bauxite Ore

Alumina Refining

SGAR Fase 1
SGAR Fase 2

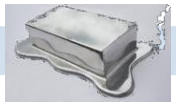


Alumina

Midstream

Aluminium smelting

1st Aluminium Smelter
2nd Aluminium Smelter

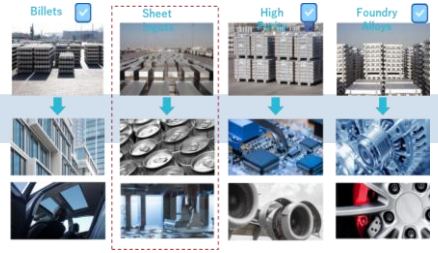


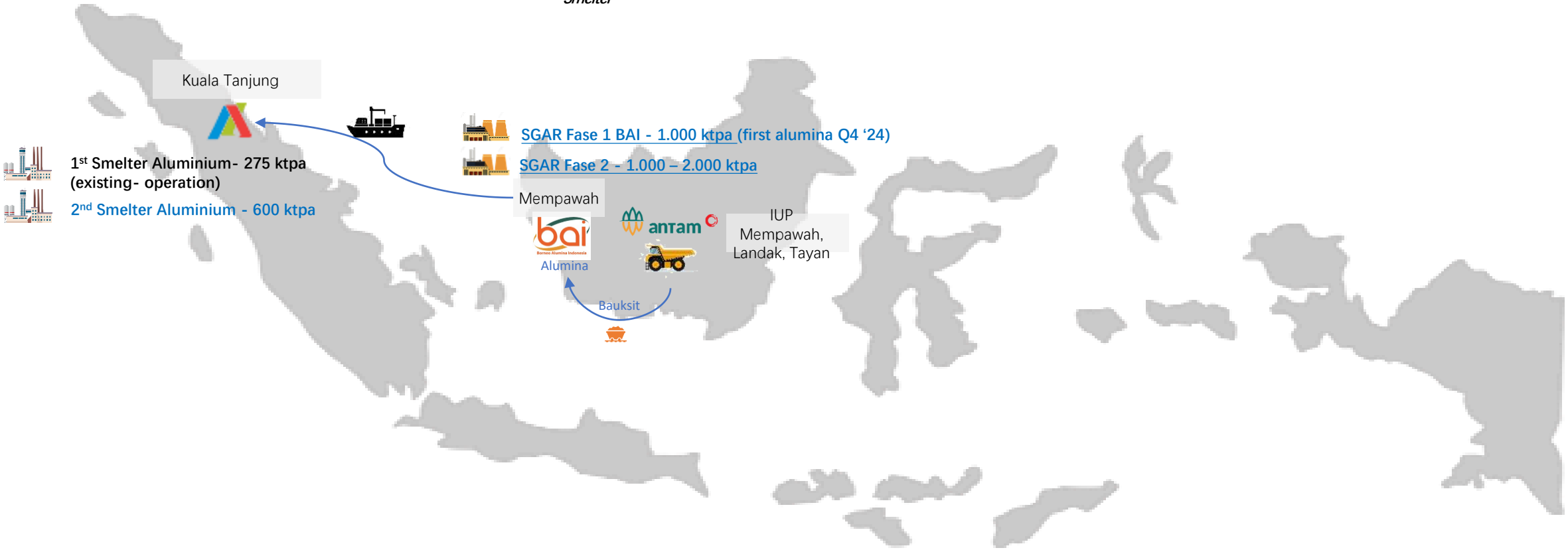
Aluminum

Integrated Aluminium base Industrial Estate

End Product

Format Casting





Smelter Grade Alumina Refinery (SGAR Phase 1)

Project Description

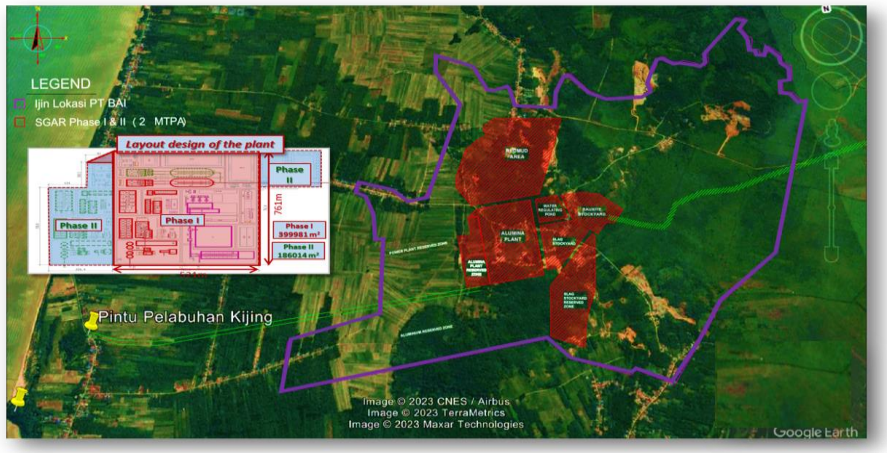
Description	The Smelter Grade Alumina Refinery project will connect the supply chain between bauxite ore mineral (Antam IUP) and the Aluminum Smelting Plant (INALUM)
Owner	PT Borneo Alumina Indonesia (BAI) (60% PT Inalum, 40% PT ANTAM Tbk)
Location	Mempawah, Kalbar
Capacity	1 MTPA Alumina
Area	246 Ha (Alumina Plant + PLTU + Coal Gas Plant: 40 Ha)
Labour	881 People
Construction	3 tahun
COD	Q1 2025

Update/Progres

1. **National Strategic Project** for Alumina Smelting
2. The cumulative physical progress has reached 86.18%
3. Commissioning is scheduled in June 2024, with the target for first alumina production in Q4 2024
4. The target for Commercial Operation Date (COD) is in Q1 2025, with the aim of achieving full production by Q2 2025
5. President of Indonesia visited the SGAR project site on March 20, 2024.

Smelter Grade Alumina Refinery (SGAR) – Phase II

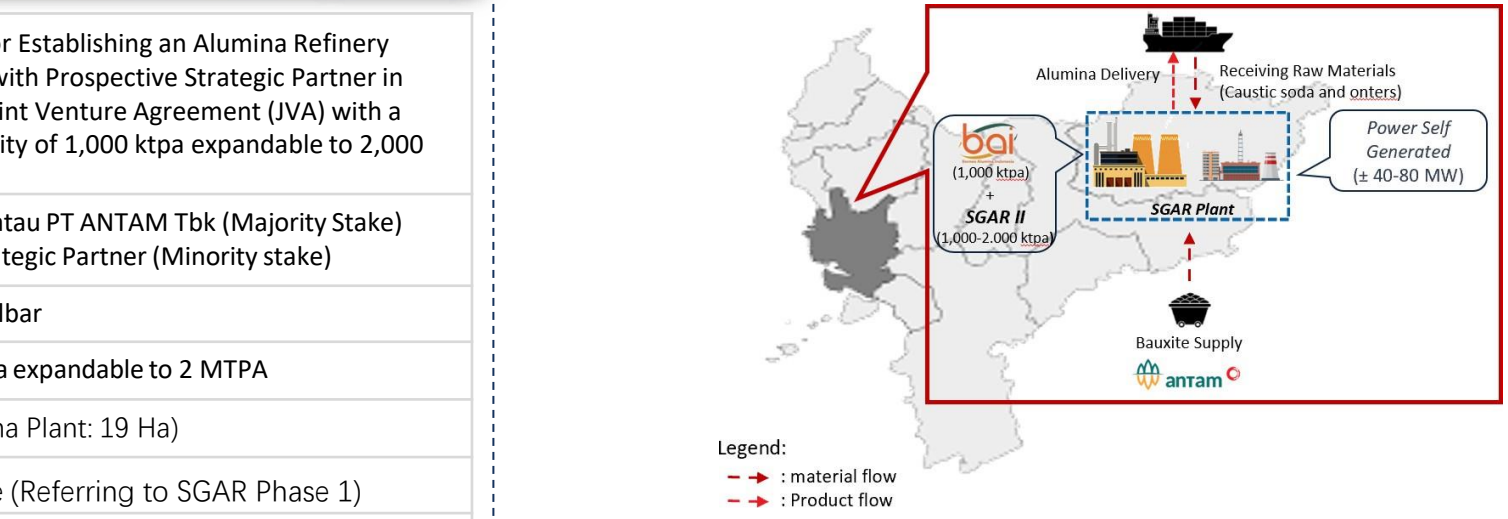
Project Description



Description	Collaboration for Establishing an Alumina Refinery Plant together with Prospective Strategic Partner in the form of a Joint Venture Agreement (JVA) with a minimum capacity of 1,000 ktpa expandable to 2,000 ktpa.
Owner	PT Inalum dan/atau PT ANTAM Tbk (Majority Stake) Prospective Strategic Partner (Minority stake)
Location	Mempawah, Kalbar
Capacity	1 MTPA Alumina expandable to 2 MTPA
Area	246 Ha (Alumina Plant: 19 Ha)
Labour	Est 881 people (Referring to SGAR Phase 1)
Construction	3 years
COD	2028

Update/Progres

1. Preparation for Bankable Feasibility Study
2. Seeking strategic partners interested in participating in SGAR Phase II Project
3. Determination of collaboration scheme related to the utilization of existing facilities at SGAR Phase I (BAI) to be used in SGAR Phase II
4. Potential differences in technology provider between SGAR Phase II and SGAR Phase I

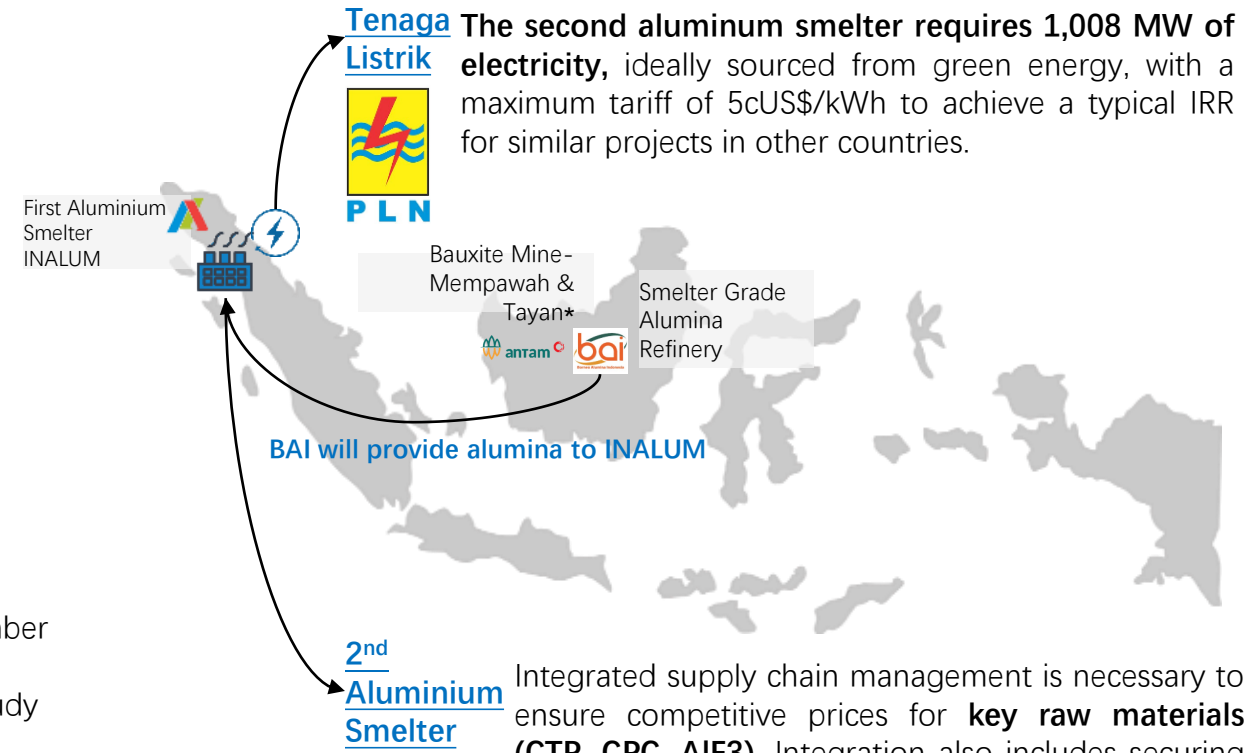


INALUM and Potential Partner AA Collaboration for the Development of the 2nd Aluminum Smelter

Project Summary

Parties	Owned by PT INALUM 100% (optional partnership with **Potential Patner AA** with a maximum 30% ownership stake)
Location	Kuala Tanjung, North Sumatra
Capacity	600 ktpa
Commercial Operation Date	2028

Factors to Consider for the Development of INALUM's Second Aluminum Smelter



The second aluminum smelter requires 1,008 MW of electricity, ideally sourced from green energy, with a maximum tariff of 5cUS$/kWh to achieve a typical IRR for similar projects in other countries.

Integrated supply chain management is necessary to ensure competitive prices for **key raw materials (CTP, CPC, AlF3).** Integration also includes securing alumina supply with PT Borneo Alumina Indonesia.

Obtaining facilities in accordance with the regulations of the Indonesia Investment Coordinating Board (BKPM), namely Regulation No. 1/2019.

Note: *Total factorial reserves of Mempawah and Tayan are 325 million wmt.

Project Status

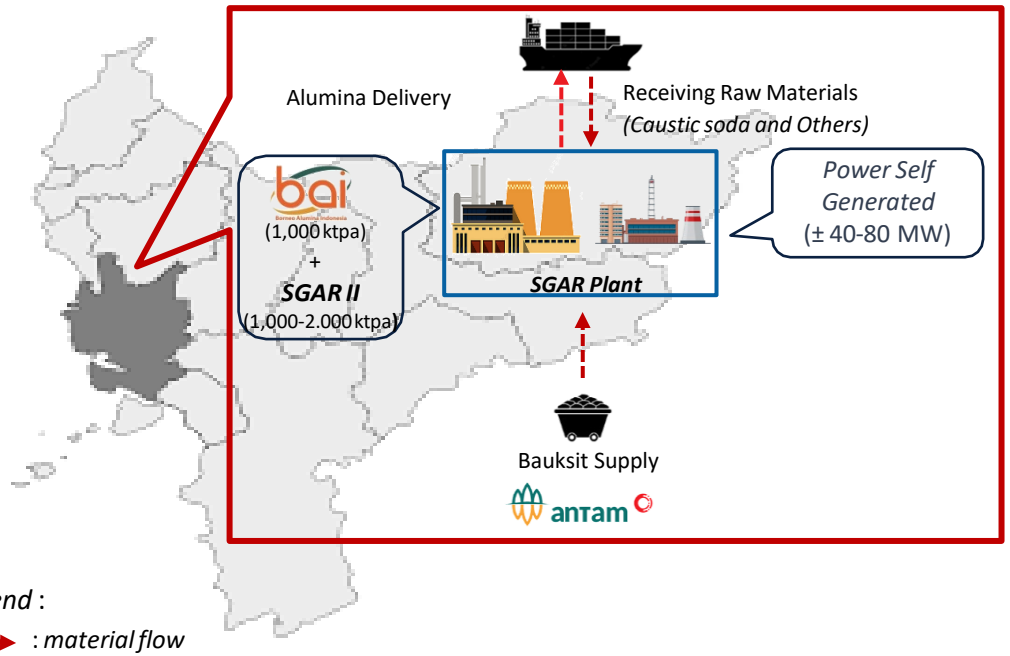
1. INALUM and Partenr AA signed **Joint Development Agreement** (JDA) in November 2022
2. Partner AA have appointed Bechtel as a consultant for the Bankable Feasibility Study (BFS). **The BFS reached 85.5% completion by mid-March 2024**, with a target completion date of May 2024.
3. Final Investment Decision **(FID)** is scheduled for **Q3 2024**.
4. ***Joint venture agreement*** is targeted for the **Q4 2024**.

Key Takeaways

Project Challenges:
Sustainably meeting electricity supply with economically viable solutions.

The SGAR II project is planned to be part of an integrated aluminum-based industrial zone in West Kalimantan to achieve an Aluminum product capacity of 1.5 MTPA by 2032.

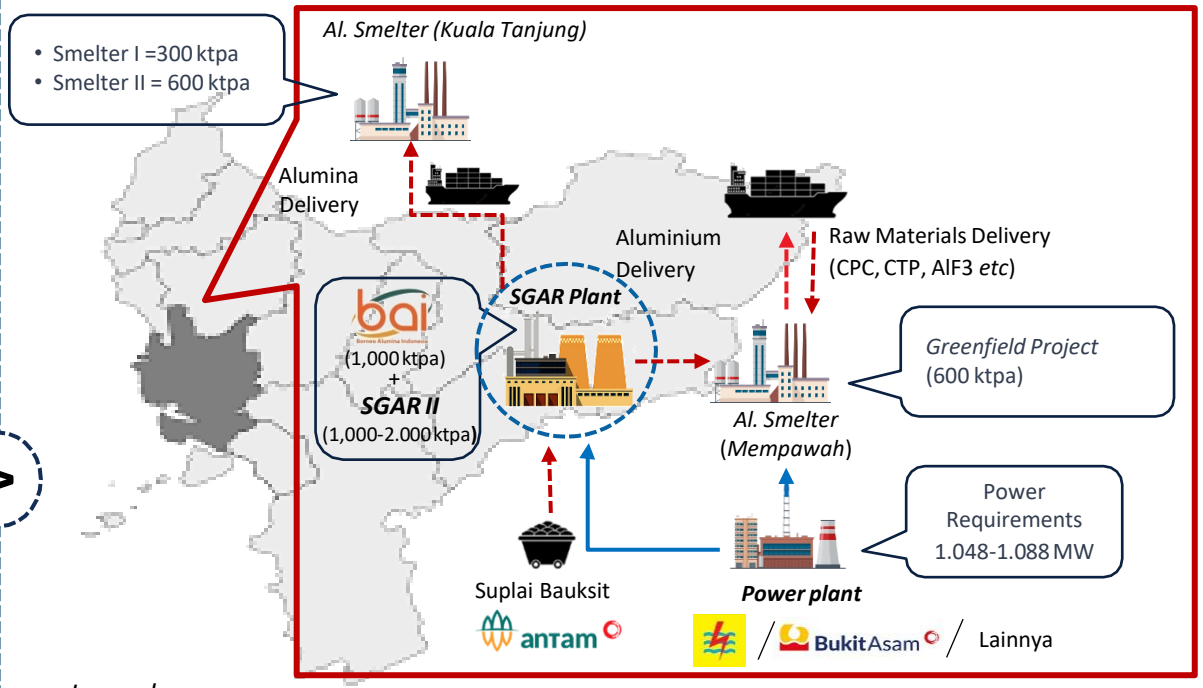
Project SGAR II



Legend :
- : *material flow*
- : *product flow*

The SGAR II project is an initiative to increase alumina production capacity by 1,000 - 2,000 ktpa through the establishment of a joint venture (JV) company with strategic partner experienced in SGAR projects. The partner is also willing to participate in joint equity in the project located in Mempawah, West Kalimantan.

Integrated Aluminium Project after 2032



Legend :
- : *material flow*
- : *product flow*
- : *power flow*

Integrated Aluminum Project can provide several competitive advantages, such as:

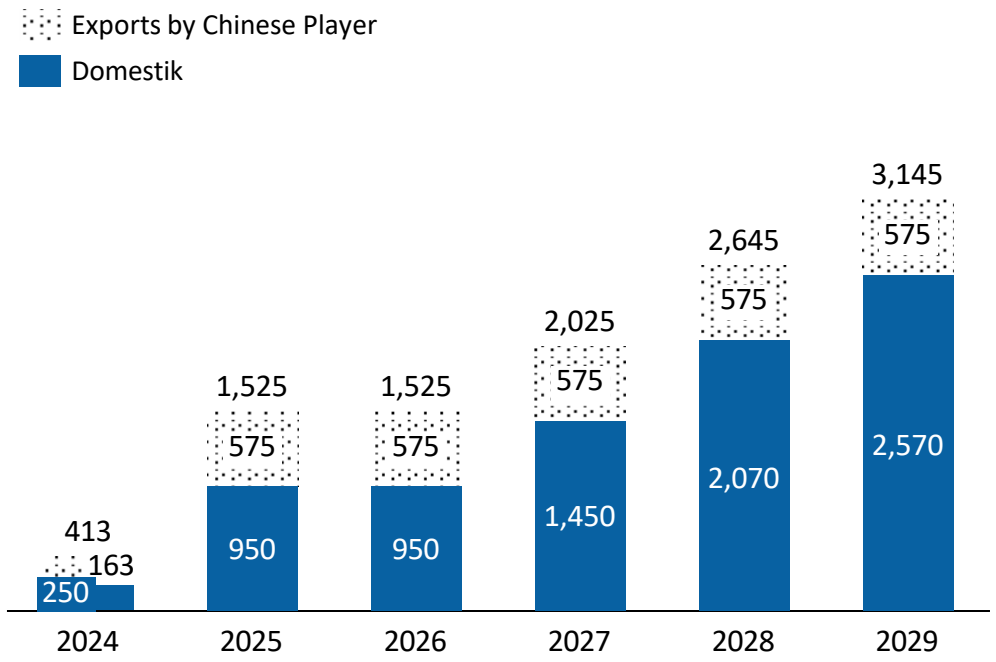
- Minimizing logistics costs
- Cost savings/efficiency (utilizing excess facilities in SGAR Phase I)
- Centralized Maintenance and Operation

Capacity constraints on aluminum production in China present an opportunity for investment in aluminum smelter development in Indonesia

70% of the production output of Bintan Alumina Indonesia (Nanshan Group) will be exported to China and the United States, while 30% will be absorbed in the domestic market.

Indonesia Primary Aluminium Production

kiloton, 2024 – 2029

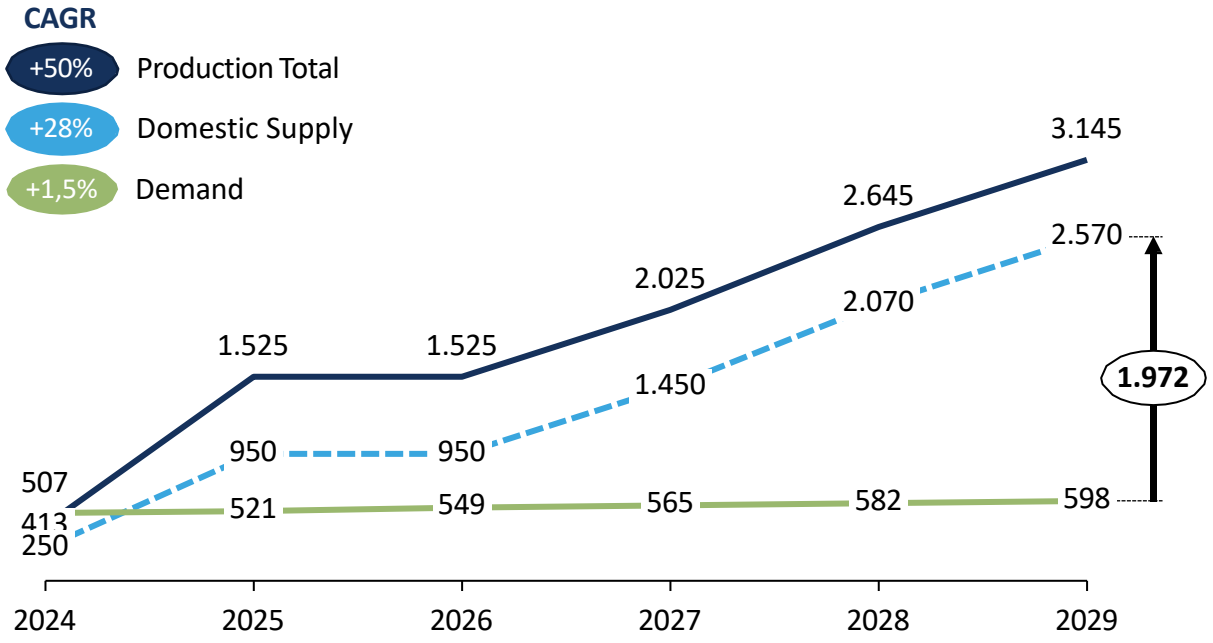


Source : Woodmac. & Deloitte

Indonesia are seeing the most aluminium capacity growth over the mid-term. Production Growth Surpass Demand growth, export opportunities open in Indonesia to China

Supply dan Demand Indonesia Primary Aluminium

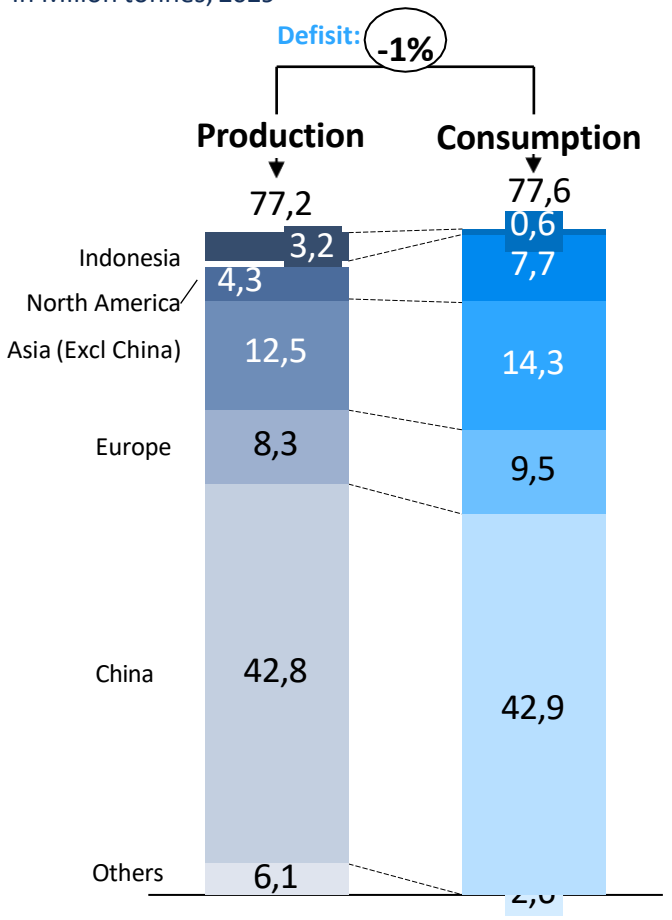
kiloton, 2024 – 2029



Indonesia's surplus aluminum production is strategically positioned to meet the rising global demand in North America, Asia, and Europe

The global aluminum market is projected to experience a deficit by 2029...

Supply- Demand Primary Aluminium Global
In Milion tonnes, 2029



... and by targeting the right market regions, Indonesia's production surplus can be directed to meet the potential demand from these promising areas.

Global Aluminium Balance
In Milion tonnes, 2029

Target Market Potential | (D) Production **Deficit** | (S) Production **Surplus**

Global Aluminium Balance	Growth Dynamic
(S) **Indonesia** **+ 2,6 mio Ton**	• **Significant production increase** driven by the addition of several new smelters
(D) **North America** **- 3,4 mio Ton**	• **Significant demand growth** (CAGR +2% 2024-29) driven by construction market • **Domestic production is constrained,** especially in primary aluminum, with approximately 75% of the US domestic supply coming from secondary aluminum (recycling).
(D) **Asia (excl China)** **- 2,0 mio Ton**	• **Largets demand growth from India** (CAGR +5% 2024-29), **followed by Japan & South Korea.** • **The largest production comes from India** (adding ~1.5 million tons 2022-29).
(D) **Europe** **- 1,2 mio Ton**	• **Demand is increasing** (CAGR +2% 2024-29) from the construction & automotive markets. **Production is slowing down** due to energy price inflation in some countries like the UK & Germany.
(D) **China** **- 0,1 mio Ton**	• **Demand is growing (CAGR +2% 2024-29) driven by automotive production such as Evs** • **China's largest-scale production** prioritizes domestic supply.
(S) **Others** **+ 3,5 mio Ton**	• **The majority of demand comes from countries in South America (e.g., Brazil) and Africa.** • **Significant production from Australia** is supported by bauxite reserves

Sumber: CRU, Wood Mackenzie, Reuters, Aluminum.org, Marketline, Mordor Intelligence, Analisis Konsultan


“A Leading Global Company based on Environmental-friendly Integrated Aluminium"

Thank You

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